Nukus 200 MW Phase 2 Wind Farm Uzbekistan

Environmental and Social Impact Assessment – Volume 4

Appendices



April 2025

Document Information

Project Name	Nukus 200 MW Phase 2 Wind Farm Uzbekistan
5Cs Project Number	1305/001/156
Document Title	Environmental & Social Impact Assessment – Volume 4: Appendices
Client	ACWA Power
5Cs Project Manager	Tarek Tabaja (Senior Consultant)
5Cs Director	Ken Wade (Director)

Document Control

Version	Version Date	Description	Author	Reviewer	Approver
1.0	17/01/2025	ESIA Appendices	MKB	BC	KRW
1.1	27/02/2025	Updated CHA and Biodiversity CIA included	MKB	KRW	KRW
1.2	09/04/2025	Updated Biodiversity CIA	KRW	MKB	KRW

1	Financial Capital
2	Social Capital
3	Natural Capital
4	Manufactured Capital
5	Human Capital

Regardless of location, mode of delivery or function, all organisations are dependent on *The 5 Capitals of Sustainable Development* to enable long term delivery of its products or services.

Sustainability is at the heart of everything that 5 Capitals achieves. Wherever we work, we strive to provide our clients with the means to maintain and enhance these stocks of capital assets.

Disclaimer

5 Capitals cannot accept responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose.
This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from the party which commissioned it.

This document is issued for the party which commissioned it and for specific purposes connected with the above-identified project only. It should not be relied upon by any other party or used for any other purpose

5 Capitals Environmental and Management Consulting
Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE
☏+971 4 343 5955 🖷+971 4 343 9366

CONTENTS

APPENDIX A – SCOPING REPORT

APPENDIX B – NATIONAL EIA: MEEPCC CONCLUSIONS (WF & OHTL)

APPENDIX C – NOISE MONITORING

APPENDIX D – ECOLOGY REPORTS

APPENDIX E – CRITICAL HABITAT ASSESSMENT

APPENDIX F – COLLISION RISK MODELLING

APPENDIX G – ARCHAEOLOGY CONSULTATION

APPENDIX H – MINISTRY OF MINING RESPONSE LETTER REGARDING FUTURE MINING EXPLOITATION

APPENDIX I - BIODIVERSITY CUMULATIVE IMPACTS ASSESSMENT

APPENDIX A – SCOPING REPORT

Nukus 200 MW Phase 2 Wind Farm

Uzbekistan

Environmental & Social Impact Assessment (ESIA):

Scoping Report



May 2024

Document Information

Project Name	Nukus 200 MW Phase 2 Wind Farm
5Cs Project Number	1305/001/156
Document Title	Environmental & Social Impact Assessment: Scoping Report
Client	ACWA Power
5Cs Project Manager	Tarek Tabaja
5Cs Project Director	Ken Wade

Document Control

Version	Version Date	Description	Author	Reviewer	Approver
1.0	18/03/2024	E&S Scoping Report	TT/UR	BC	MKB
2.0	13/05/2024	E&S Scoping Report	TT/UR	BC	MKB



1	Financial Capital
2	Social Capital
3	Natural Capital
4	Manufactured Capital
5	Human Capital

Regardless of location, mode of delivery or function, all organisations are dependent on *The 5 Capitals of Sustainable Development* to enable long term delivery of its products or services.

Sustainability is at the heart of everything that 5 Capitals achieves. Wherever we work, we strive to provide our clients with the means to maintain and enhance these stocks of capital assets.

Disclaimer

5 Capitals cannot accept responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose.
This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from the party which commissioned it.

This document is issued for the party which commissioned it and for specific purposes connected with the above-identified project only. It should not be relied upon by any other party or used for any other purpose

5 Capitals Environmental and Management Consulting
Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE
☏+971 4 343 5955 🖷+971 4 343 9366

CONTENTS

1 INTRODUCTION 1

1.1 The Project 1

1.2 Scope of Document 1

1.3 Objectives of the ESIA Scoping Report 2

2 PROJECT INFORMATION 4

2.1 Key Project Information 4

2.2 Project Rationale 4

2.3 Project Location 6

2.4 Land Use and Site Condition 9

2.4.1 Land Ownership 9

2.4.2 Land Use and Site Condition 9

2.5 Potential Receptor Identification 14

2.5.1 Wind Farm 14

2.5.2 OHTL 18

2.5.3 Planned and Potential Developments 28

2.6 Project Description 29

2.6.1 Wind Turbines Technology Overview 29

2.6.2 Technology Specifications from the PPA 30

2.6.3 Project Facilities 31

2.6.4 Ancillary/Support Facilities 32

2.7 Construction of the Wind Farm 32

2.7.1 Construction Activities 32

2.7.2 Construction Workforce 33

2.8 Operation and Maintenance 33

2.9 Project Milestone 34

3 REGULATORY FRAMEWORK 35

3.1 National Regulations 35

3.1.1 Environmental Regulator 35

3.1.2 Uzbekistan Policy Framework for Wind Projects 35

3.1.3 President Decree № PD-4477 on the Strategy for the Transition of the Republic of Uzbekistan to a Green Economy in the period 2019-2030 36

3.1.4 Institutional Framework 36

3.1.5 National Environmental Assessment Legislation 37

3.2 International Conventions/Protocol 45
3.3 Project Requirements 46
3.3.1 EBRD 47
3.3.2 Asian Development Bank (ADB) 47
3.3.3 Asian Infrastructure Investment Bank (AIIB) 48
3.3.4 German Investment Corporation (DEG) 48
3.3.5 Equator Principles 48
3.4 Applicable Environmental Standards 52
3.4.1 Lenders Standards 52
3.5 EIA/ESIA Requirements 52
3.5.1 National Requirements 52
4 APPROACH TO ESIA 55
4.1 Scope of Work and Key Deliverables 55
4.2 ESIA Methodology 56
4.2.1 Scope of Assessment 56
4.2.2 Consideration of Project Alternatives 56
4.2.3 Baseline Studies 57
4.2.4 Stakeholder Engagement 57
4.2.5 Stakeholder Engagement – Grievance Mechanism 71
4.2.6 Impact Assessment & Significance Criteria 73
4.2.7 Determining Significance of Effects 76
4.2.8 Mitigation & Management Measures 78
4.2.9 Residual Impacts 78
4.2.10 Cumulative Impact Assessment (CIA) 78
4.3 Framework for Environmental and Social Management 79
4.4 ESIA Reporting Structure 79
5 ESIA TERM OF REFERENCE 80
5.1 Air Quality 80
5.1.1 Applicable Requirements & Standards 80
5.1.2 Initial Observations and Baseline Conditions 82
5.1.3 Potential Impacts 84
5.1.4 Proposed ToR for the ESIA 84
5.2 Noise & Vibration 86
5.2.1 Applicable Requirements & Standards 86
5.2.2 Initial Observations and Baseline Conditions 88
5.2.3 Potential Impacts 89
5.2.4 Proposed ToR for the ESIA 89

5.3 Geology, Soils, Surface Water and Groundwater Quality 93
5.3.1 Applicable Requirements & Standards 93
5.3.2 Initial Observation and Baseline Conditions 95
5.3.3 Potential Impacts 98
5.3.4 Proposed ToR for the ESIA 98
5.4 Terrestrial Ecology and Avifauna 100
5.4.1 Applicable Requirements & Standards 100
5.4.2 Initial Observations and Baseline Conditions 102
5.4.3 Potential Impacts 134
5.4.4 Proposed ToR for the ESIA 134
5.5 Landscape and Visual Impacts 140
5.5.1 Applicable Requirements & Standards 140
5.5.2 Initial Observations and Baseline Conditions 141
5.5.3 Potential Impacts 144
5.5.4 Proposed ToR for the ESIA 144
5.6 Solid Waste and Wastewater Management 146
5.6.1 Applicable Requirements & Standards 146
5.6.2 Initial Observations and Baseline 149
5.6.3 Potential Impacts 149
5.6.4 Proposed ToR for the ESIA 150
5.7 Traffic and Transportation 150
5.7.1 Applicable Requirements & Standards 150
5.7.2 Initial Observations and Baseline Conditions 151
5.7.3 Traffic and Logistics for Transportation of WTGs 152
5.7.4 Potential Impacts 152
5.7.5 Proposed ToR for the ESIA 153
5.8 Cultural Heritage 153
5.8.1 Applicable Requirements & Standards 153
5.8.2 Initial Observations and Baseline Conditions 154
5.8.3 Potential Impacts 155
5.8.4 Proposed ToR for the ESIA 156
5.9 Socioeconomics 156
5.9.1 Applicable Requirements & Standards 156
5.9.2 Initial Observations and Baseline Conditions 158
5.9.3 Potential Impacts 165
5.9.4 Proposed ToR for the ESIA 165
5.10 Community Health, Safety & Security 167
5.10.1 Applicable Requirements & Standards 167
5.10.2 Initial Observation and Baseline Conditions 170
5.10.3 Potential Impacts 170

5.10.4 Proposed ToR for the ESIA 172
5.11 Human Rights, Labour & Working Conditions 172
5.11.1 Applicable Requirements & Standards 172
5.11.2 Initial Observation and Baseline Conditions 177
5.11.3 Potential Impacts 178
5.11.4 Proposed ToR for the ESIA 179
5.12 Climate Affairs 180
5.12.1 Applicable Requirements & Standards 180
5.12.2 National Context 181
5.12.3 Climate Projections 182
5.12.4 Key Vulnerabilities 183
5.12.5 Potential Impacts 183
5.12.6 Proposed ToR for the ESIA 184
6 REFERENCES 186

List of Abbreviations

Abbreviation	Meaning
5 Capitals	5 Capitals Environmental & Management Consultancy
ADB	Asian Development Bank
AFD	French Development Agency
AIIB	Asian Infrastructure Investment Bank (AIIB)
AZE	Alliance for Zero Extinction
BOP	Balance of Plant
COO	Countries of Operation
DEG	German Investment Corporation
E&S	Environmental and Social
EAAA	Ecologically Appropriate Area of Analysis
EBRD	European Bank for Reconstruction and Development
EI	Evacuation Infrastructure
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement and Construction
EPFIs	Equator Principles Financial Institutions
ESA	Environmental and Social Assessment
ESIA	Environmental & Social Impact Assessment
GBVH	Gender Based Violence and Harassment
GHG	Greenhouse Gas
GIP	Good Industry Practice
GOU	Government of Uzbekistan
HGV	Heavy Goods Vehicles
IBA	Important Bird Area
IFC	International Finance Corporation
ILO	International Labour Organisation
KBA	Key Biodiversity Area
LLA	Land Lease Agreement
MOE	Ministry of Energy
NEGU	National Electric Grid of Uzbekistan
OHTL	Overhead Transmission Line
OVOS	National Uzbekistan acronym for EIA assessment process
PEF	Purchase Electrical Facilities
PPA	Power Purchase Agreement
PPP	Public-Private Partnership
PR	Performance Requirement
SAC	Special Areas of Conversation
ToR	Terms of Reference
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
WDA	Wind Development Area
WTG	Wind Turbine Generator

1 INTRODUCTION

1.1 The Project

The Government of the Republic of Uzbekistan (GOU) has launched a program for the development of large-scale wind power projects in Uzbekistan. The GOU has signed a memorandum of understanding with the European Bank for Reconstruction and Development (EBRD) with a view to cooperate on the development of large-scale wind power projects up to a total capacity of 1,000 MW. As an extension of 100 MW Wind Farm in Qoraozak district (Phase I), the implementation of 200 MW wind farm with a Battery Energy Storage System (BESS) between Beruniy and Qoraozak districts is considered by GoU.

ACWA Power has been awarded the contract to design, finance, construct, operate, maintain and (at the request of the Government) decommission or transfer, the Nukus 200 MW Wind Project including the Evacuation Infrastructure (EI) (the Project) in the Karatau mountain region of the Republic of Karakalpakstan.

1.2 Scope of Document

5 Capitals Environmental and Management Consulting (5 Capitals) has been engaged by ACWA Power to undertake the independent national Environmental Impact Assessment (EIA) and Environmental and Social Impact Assessment (ESIA) processes, as well as certain other environmental & social related scope. In order to undertake the ESIA, it is necessary to delineate the terms of reference (amongst other items), which is part of the basis for this document, the Project's 'Scoping Report'.

ACWA Power is seeking project finance from EBRD and other , and thus the Project is required to be delivered in accordance with the EBRD Environmental and Social Policy (ESP) 2019 and supporting performance requirements, the Equator Principles IV 2020 and the technical performance criteria set out in certain World Bank Group Environmental, Health and Safety (EHS) Guidelines. ACWA Power is also seeking an amount of project finance from other Development Financial Institutions (DFIs) such as the German Investment Corporations (DEG), Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB), Islamic Development Bank (IsDB), and Proparco/French Development Agency (AFD). These DFIs have their own internal environmental & social investment policies/standards or are members of voluntary agreements such as the Equator Principles. Based on the requirements of these institutions, a process for undertaking Environmental & Social Impact Assessment (ESIA) to

assess potential impacts and determine suitable mitigation measures will be necessary as a process to reach financial close.

A key stage in the development of the Project, requires an EIA in compliance with Uzbekistan national EIA requirements (OVOS). 5 Capitals has partnered with a locally based consultant, 'Juru' (Tashkent, Uzbekistan) to undertake certain elements of the scope, including baseline surveys, consultations and submission of the national EIA to the State Committee of the Republic of Uzbekistan on Environmental Protection.

1.3 Objectives of the ESIA Scoping Report

The main objectives of this report in relation to the Project are as follows:

- To provide an overview of the Project;
- To provide an overview of the regulatory framework requiring ESIA, other obligations and environmental & social standards applicable to the project (such as those required by the lenders);
- To outline preliminary environmental & social baseline conditions and receptors;
- To ensure that proposed assessment techniques (including required baseline surveys) are designed to enable the establishment of representative environmental conditions for the Project and its areas of impacts/influence;
- To identify preliminary environmental & social potential impacts relating to the construction and operational phases of the Project, for the ESIA to assess these issues specifically; and
- To specify the structure and content of the subsequent ESIA.

This Scoping Report has been informed by:

- Analysis of the Project details and proposed works (as advised by ACWA Power);
- E&S Constraints Analysis Report prepared by 5 Capitals and submitted to ACWA Power in July 2023;
- Review of the Environmental and Social Assessment (ESA) prepared by Juru and submitted in April 2021 as part of the tender documentation;
- Desk-based study of available mapping and aerial photography;
- Site visit findings by 5 Capitals' sub-consultant (Juru) from February 2024;
- The Bird Baseline Survey provided as part of the tender documentation which comprised bird and bat monitoring surveys conducted for Spring 2021-Winter 2021-22 and Collision Risk Modelling (CRM) for the Wind Turbine Generator (WTG) site;

- Review of available secondary information, including but not limited to:
  - BirdLife International <birdlife.org>; World Database of Protected Areas <protectedplanet.net>; Key Biodiversity Areas <keybiodiversityareas.org>; Climate Change Knowledge Portal - World Bank Group <https://climateknowledgeportal.worldbank.org> etc.;
- 5 Capitals' experience of conducting ESIAs for similar wind projects in Uzbekistan and the wider region; and
- 5 Capitals' experience of working with lenders to ensure necessary financing requirements are met.

2 PROJECT INFORMATION

2.1 Key Project Information

Table 2-1 Key Project Information

PROJECT TITLE	Nukus 200 MW Phase 2 Wind Farm
PROJECT DEVELOPER	ACWA Power
PROJECT COMPANY	"ACWA Power Beruniy Wind FE LLC
OFF TAKER	JSC National Electric Grid of Uzbekistan
EPC CONTRACTOR	To be confirmed
O&M COMPANY	To be confirmed
ENVIRONMENTAL CONSULTANT	5 Capitals Environmental and Management Consulting (5 Capitals) PO Box 119899, Dubai, UAE Tel: +971 (0) 4 343 5955, Fax: +971 (0) 4 343 9366 www.5capitals.com
	Juru LLC Chust Str. 10, 100077, Tashkent, Uzbekistan Tel: +998 71 202 0440, Fax: +998 71 2020440
POINT OF CONTACT	Ken Wade (Director), Ken.wade@5capitals.com

2.2 Project Rationale

Uzbekistan is amongst the fastest growing economies in the Central Asian region, with an increasing demand for energy. By 2018, the country's power consumption reached 50 million TWh, and the domestic demand for power has been projected to rise at an annual rate of 4%, due to continued population growth and industrial expansion. In 2019, the installed capacity of electricity generation in Uzbekistan totalled 63 TWh, with natural gas fired thermal power plants accounting for 85% of this production.

The steady uptrend in power consumption, declining yield of aged power plants and emergent climatic pressures have led to unprecedented power supply shortages. The emerging power crisis in Uzbekistan has prompted an urgent agenda for the development of the country's renewable energy base. This movement falls in line with the country's policy shift towards decarbonization and a greener economy.

In 2018, Uzbekistan ratified the Paris agreement, and in 2021 the country submitted its latest Nationally Determined Contribution (NDC) to global carbon footprint cutbacks. The NDC includes a commitment to reduce domestic greenhouse gas (GHG) emissions by 35% relative to its 2010 GHG output by 2030. In step with the power security emergency and efforts towards green transition, the Government of Uzbekistan introduced several sectoral strategies and laws to scale up the country's renewable power infrastructure. These instruments include the Strategy for the Transition of the Republic of Uzbekistan to the Green Economy for the Period (2019-2030), Law on the Use of Renewable Energy (2019), and the Transmission Network

Development Plan to 2030. Amongst other objectives, the reforms mandate a larger renewable contribution (25%) to Uzbekistan's energy mix, and upgrade of interconnection facilities for the integration of additional power sources, efficient and stable transmission, and international electricity trade.

To promote private sector inclusion and international collaboration in the country's pursuit of a carbon-neutral economy, the Government of Uzbekistan has also enhanced the policy landscape on these fronts, with the execution of the Law on Public-Private Partnership (PPP, 2019) and the Presidential Decree on Measures to Further Improve the Mechanisms of Attracting Foreign Direct Investment to the Economy of the Republic.

The Uzbekistan 2030 Energy Strategy defines the mid-term and long-term objectives and direction for development in the power sector to ensure electricity supply in Uzbekistan between 2020 – 2030. One of the objectives of the Energy Strategy includes the development and expansion of renewables use and their integration into the unified power system. To fulfil this objective, the government of Uzbekistan intends to:

- Ensure diversification in power and heat energy sectors through increased share of renewable energy sources and creation of renewable energy investment project mechanism utilising PPP approaches, enhancement of government policies related to development of renewable energy sources, demonstration of renewable projects.

In regard to the development of wind farms the Energy Strategy states the following as priority:

"Creation of large-scale wind farms with single site capacities ranging from 100 MW to 500 MW mostly concentrated in North-Western region (Republic of Karakalpakstan and Navoi region) shall be the main priority of wind power development".

It is understood that the Project is part of a key facility contributing to this priority.

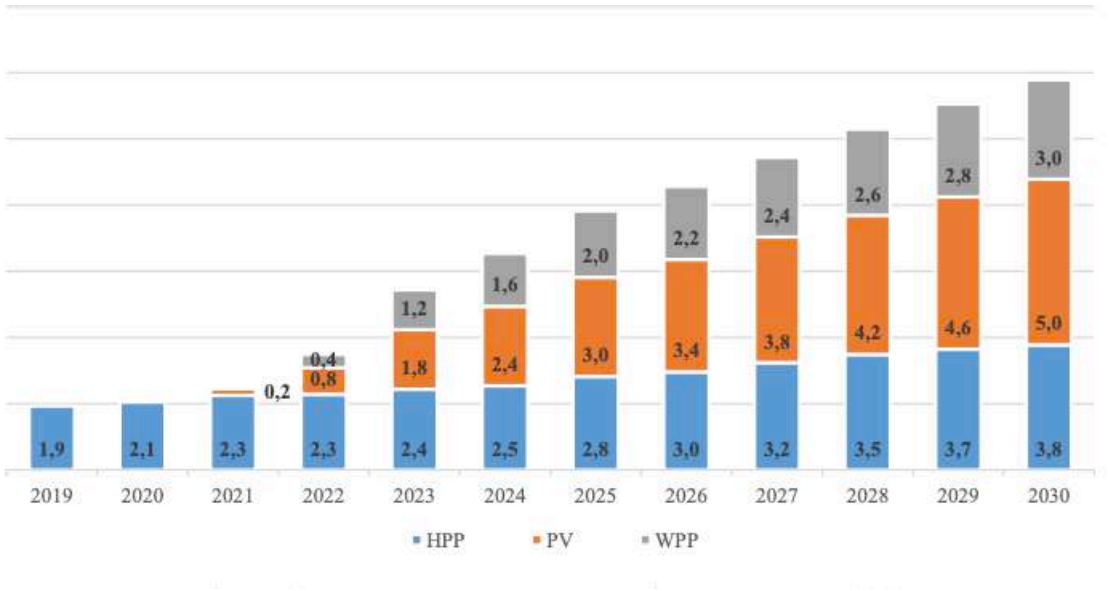


Figure 2-1 Uzbekistan renewables-based generation targets by 2030 (Ministry of Energy of Uzbekistan, 2020)

2.3 Project Location

The Project is a 200 MW wind farm located in the Karakalpakstan Republic between Qoraozak and Beruniy districts at range of Sultanuizdag mountains. The nearest cities to the Project area are Urgench (Khorezm region, 57 km) and Nukus (Karakalpakstan, 120 -140 km).

The overall size of land allocated for the development of the wind farm is approximately 6,500 hectares at an altitude ranging from approximately 320 – 380 m above sea level (asl). As part of the project, a new 220 kV overhead transmission line (OHTL) approximately 42 - 44 km in length will connect the planned substation and BESS to Beruniy grid substation. Approximately 20 km of the route goes through mountains and desert area, while the remaining part crosses agricultural fields in close proximity to living houses and structures. Additionally, the Project will require the expansion of the 220 kV switchyard originally designed for Phase 1 project (Nukus 100 MW Wind Farm) under scope of Evacuation Infrastructure (EI).

The following figures depict the national and local context of the Project.

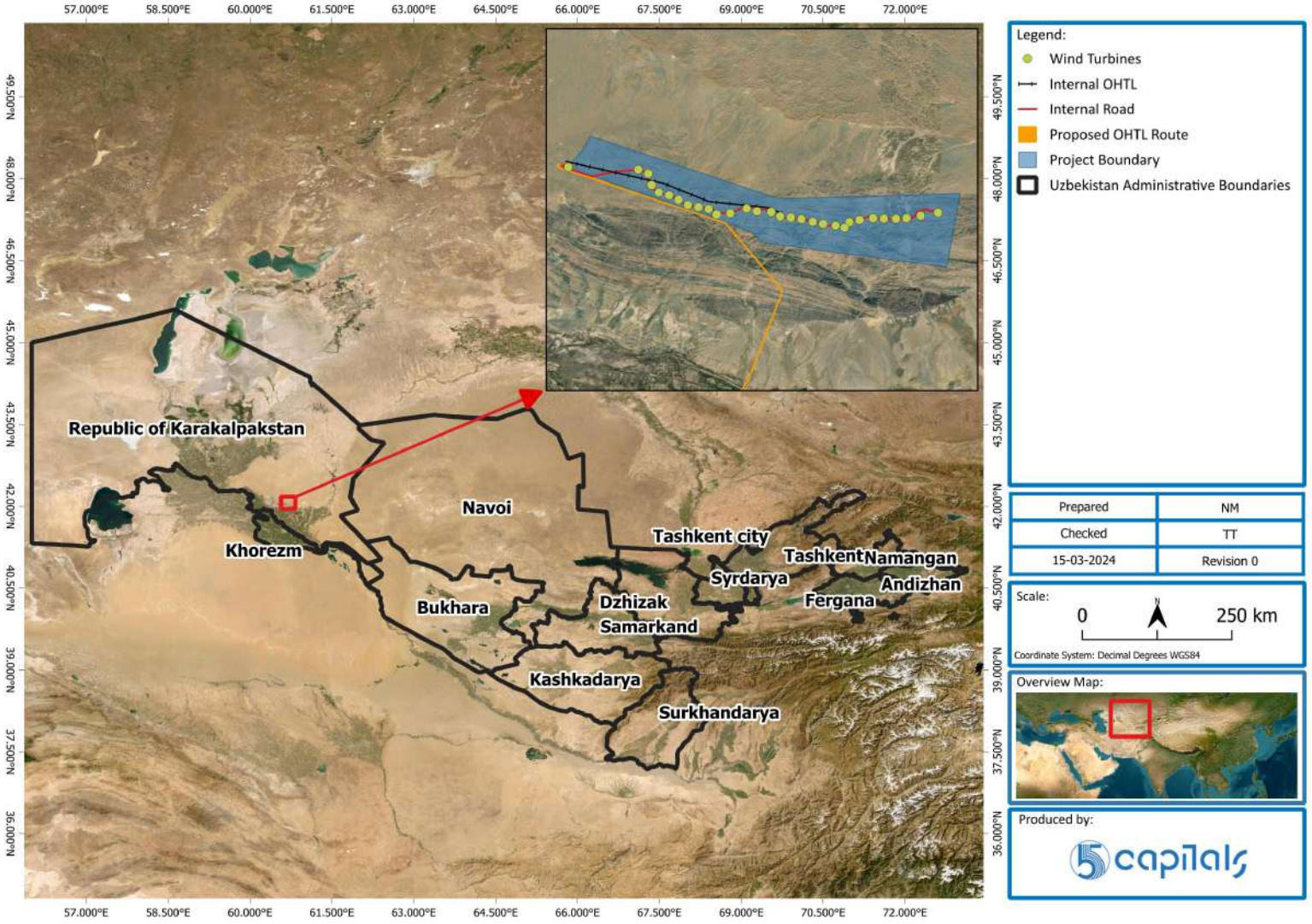


Figure 2-2 Project Location – National Context

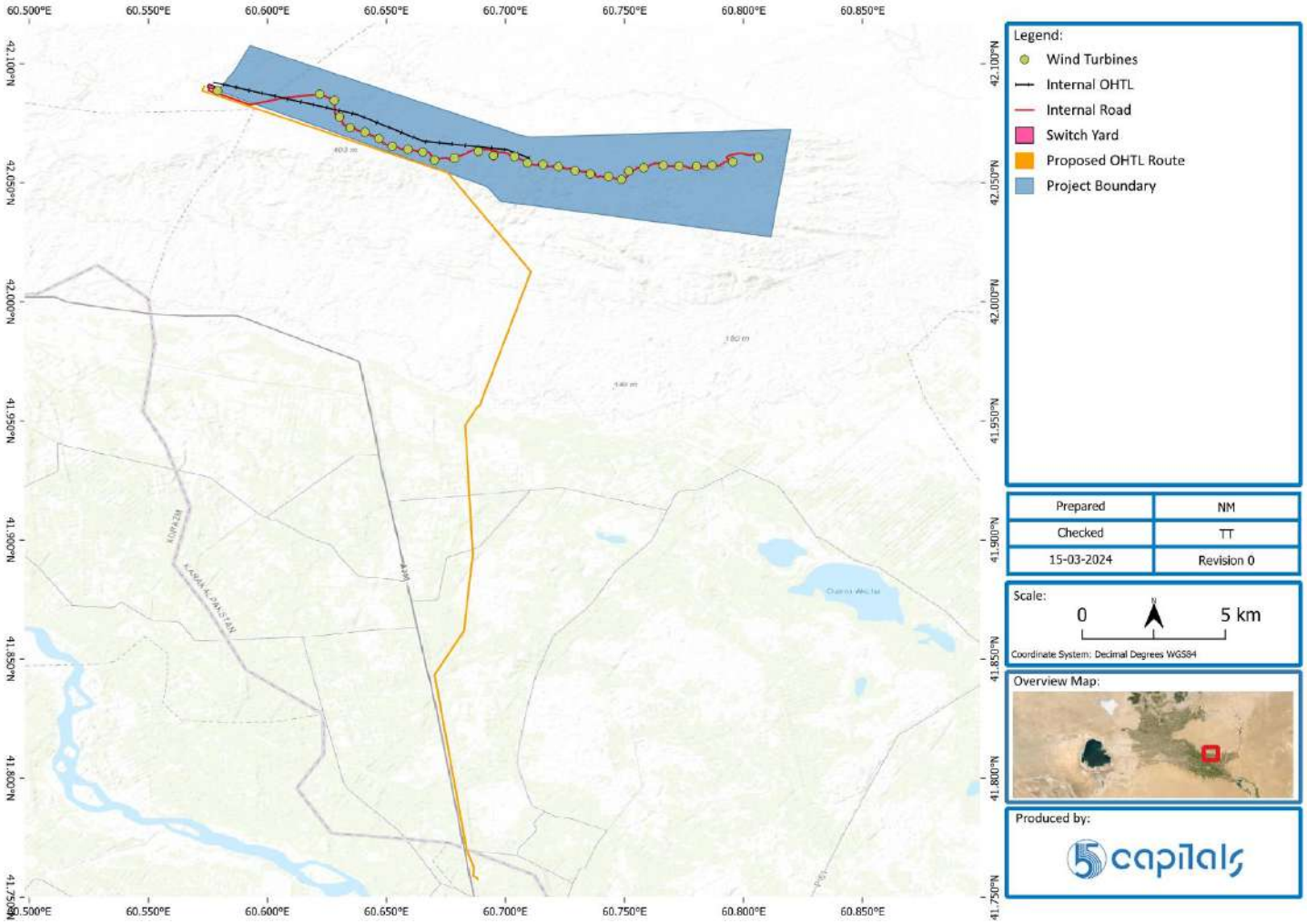


Figure 2-3 Project Location – Local Context

2.4 Land Use and Site Condition

2.4.1 Land Ownership

According to the 1998 Land Code of the Republic of Uzbekistan, all land in Uzbekistan is state property and permits for use of land are granted and monitored by the State through the regional and district administrations.

Consultations with Beruniy district municipality in February 2024 confirmed that Project site and its surrounding areas are owned by the State Committee for Sericulture and Wool Development Industry (SWID). Furthermore, the Ministry of Mining and Geology may have either permanent or temporary land use rights, considering that there are active excavation works ongoing in the surrounding areas, as well as within the wind farm site in some places. This will be confirmed through the consultations at ESIA stage.

Land along the proposed OHTL route is owned/leased by more than 60 individuals/enterprises. The land is mainly used for agricultural and pastural activities as well as for residential purposes. The planned OHTL route may cross canals and gas pipelines. As the final portion of the OHTL is largely parallel and in very close proximity to the road, it may also affect properties along the road, such as fuel stations and shops.

A Land Lease Agreement (LLA) would be prepared between the Ministry of Energy (MOE) and the Project Company for the WTG site and EI site[1].

2.4.2 Land Use and Site Condition

WIND FARM AREA

The wind farm site is located in a desert area approximately 10 km from the nearest living community. There are small communities located approximately 10 – 15 km to the south and south-east, as shown in the following figure.

[1] It is important to note that the President of the Republic of Uzbekistan signed a Decree No. UP-6243 "*On Measures to Ensure Equality and Transparency in Land Relations, Reliable Protection of Land Rights and Transforming them into a Marketable Asset*" dated 08 June 2021. The Decree envisages changes in the land allotment procedure in Uzbekistan from 01 August 2021. Further information will be provided based on the LLA.

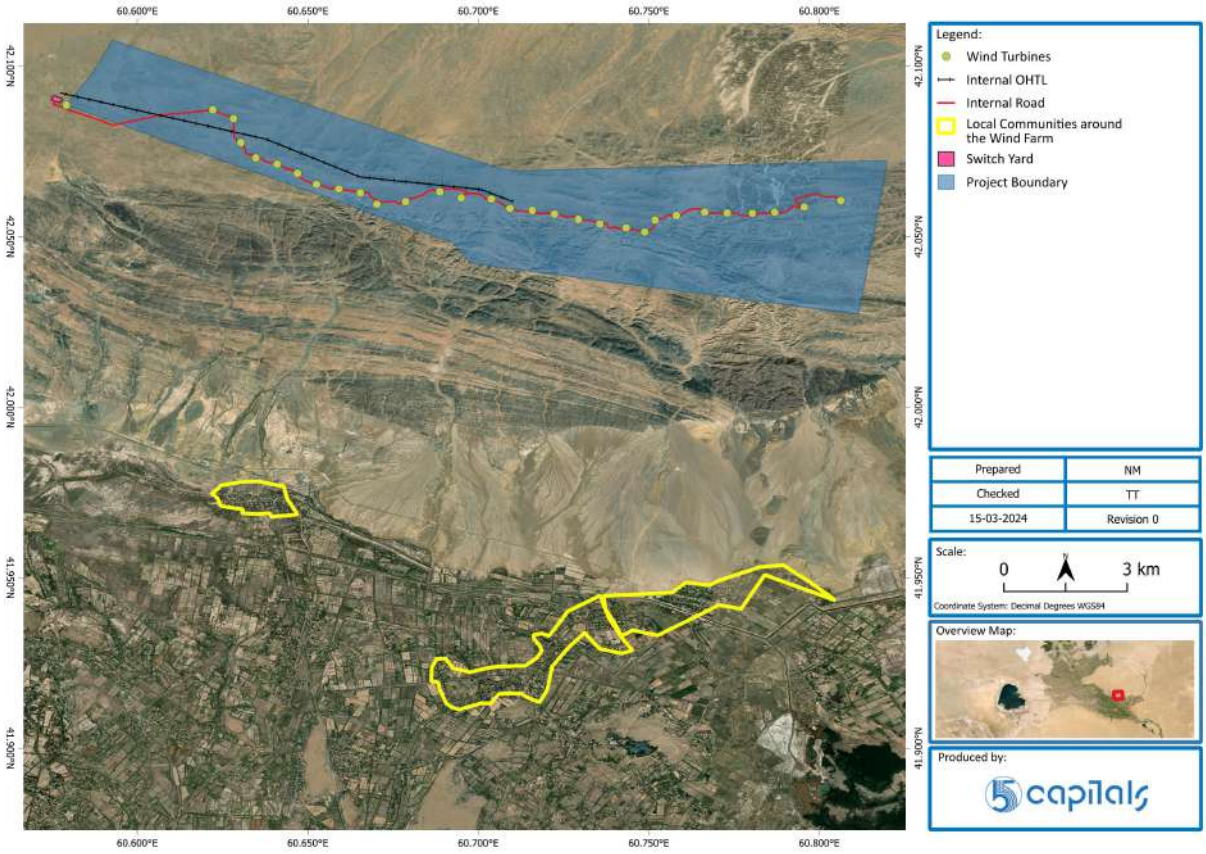


Figure 2-4 Local Villages around the Wind Farm

The proposed wind farm is located on the Sultan Uvaiz plateau. The plateau combines low-mountain plains with hills and traces of temporary watercourses. In terms of area coverage, the plateau is a gravel desert with sandy areas. Throughout the territory there are geological pits ranging in length from several tens of meters to several kilometers, with a depth of up to 1 m.

The southern slope of the plateau is strongly dissected, characterized by outcrops of bedrock and narrow valleys. The slope of the road in some places reaches 30^0. The foothills are an alluvial cone with large clastic sedimentary rocks at the foot of the plateau and gravel in the distance, creating a rocky desert landscape. To the south, the terrain transitions into a gently sloping plain characterized by slight elevation variations ranging from 89 to 98 m. This area is predominantly occupied by agricultural fields intersected by irrigation canals.



Sultan Uvais Plateau



High part of the southern slope of the Plateau



Mining on the southern slope of the Plateau



Settlements and arable land

Figure 2-5 General View of Wind Farm Site

The three day site visit undertaken by 5 Capitals team between the 4th and 6th of July 2023, and review of satellite imagery did not identify the presence of any structures or settlement within the wind farm site, noting that not all the site was visited. However, numerous signs of livestock grazing were observed over north-western part of site. In addition, horses grazing were observed in the north-west of the wind farm site, alongside smoke from a presumed herder. In addition, two stone cairns were noted on top of hills, it is understood that herders use these as waypoints in order to navigate the area.

These observations were further validated during a more recent site visit conducted by Juru team on the 20th and 21st of February 2024.



Stone cairn on top of the hill



Fresh livestock excrement



Horses grazing on top of the hill

Figure 2-6 Land Use at the Wind Farm Site

OHTL

About half of the OHTL route runs through arable land and along populated areas. Land along the proposed OHTL is mainly used for agricultural purposes. Surrounding areas are represented by fields with crops, decorative trees, irrigation ditches as well as with structures both residential and warehouses.

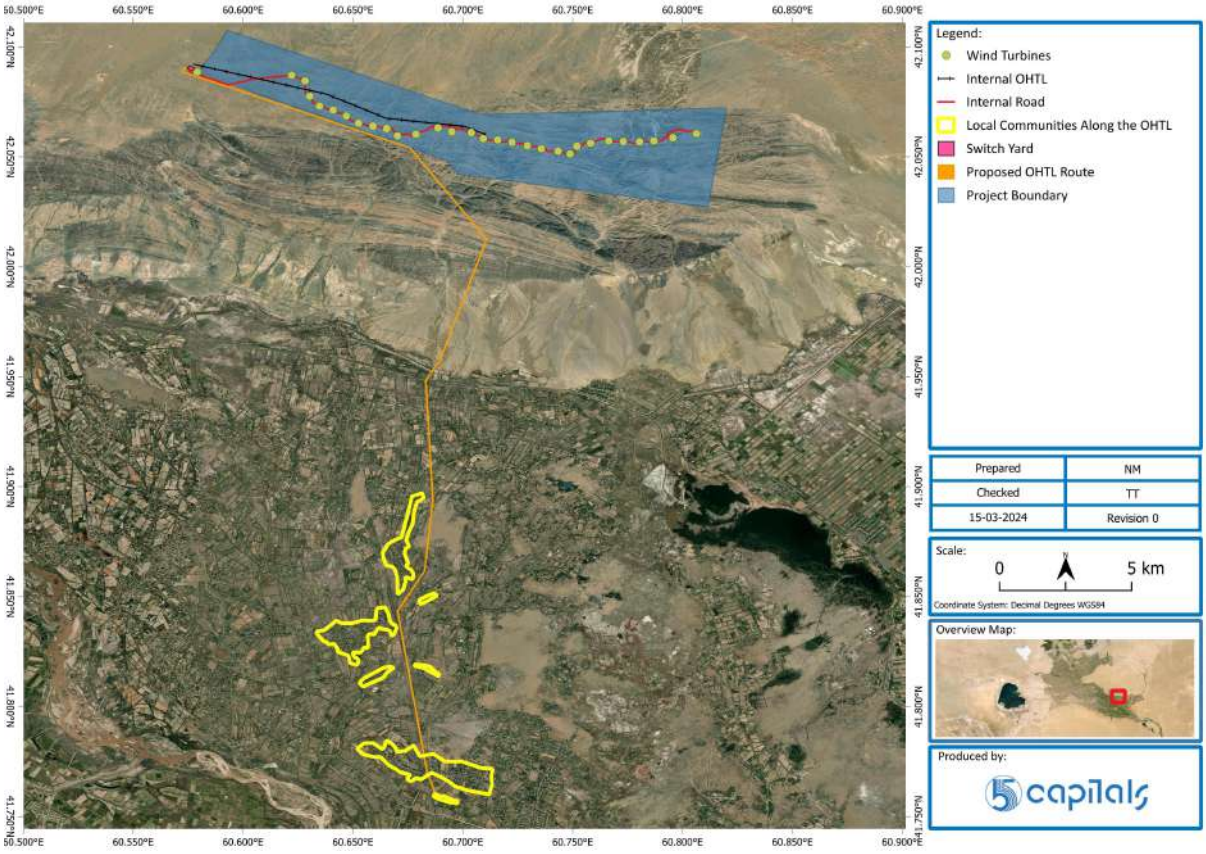


Figure 2-7 Local Villages along the OHTL

ACCESS ROAD

Access roads to the site are unpaved and at some points are too narrow. It will likely be necessary to cross the mountain range to reach the Project site. Roads within the Project site are dirt tracks.

The primary transportation route in the region is the A380 asphalt road, extending from the village of Beruni towards the foot of Sultan Uvais, and another road leading east from the Flour Mill towards the village of Kizilkala. These roads accommodate trucks, cars, and specialized equipment, as illustrated in Figure 2-7. In the area occupied by fields, movement is possible along dirt and asphalt roads, though driving along some of those routes is challenging for larger vehicles. Country roads (Figure 2-8) are not used frequently by cars. Trucks typically travel along the two-lane roads running along the slopes of the Sultan Uvais plateau. Along the plateau itself, the road in many places passes through elongated hills, where it has a narrow roadway, sharp turns, and a slope of more than 300. Therefore, driving through this area is difficult for trucks and cars with low suspension as depicted in Figure 2-8 and Figure 2-9.



Figure 2-8 Heavy Truck on the A380 Asphalt Road



Figure 2-9 Unpaved Roads



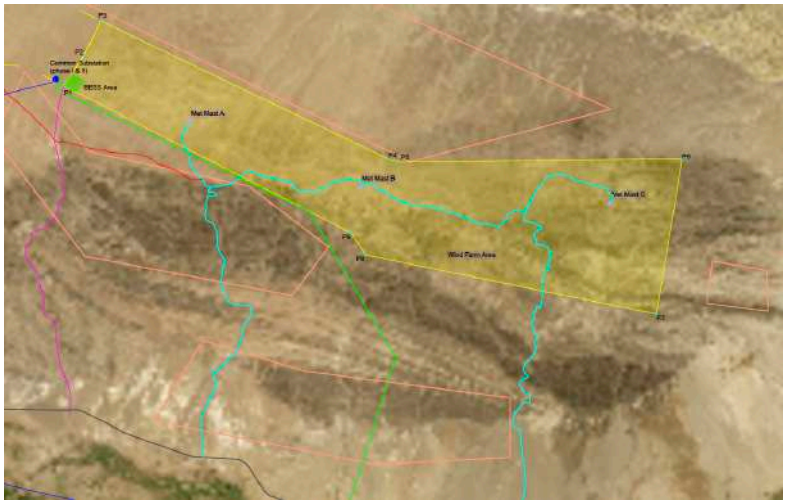
Figure 2-10 Narrow Road

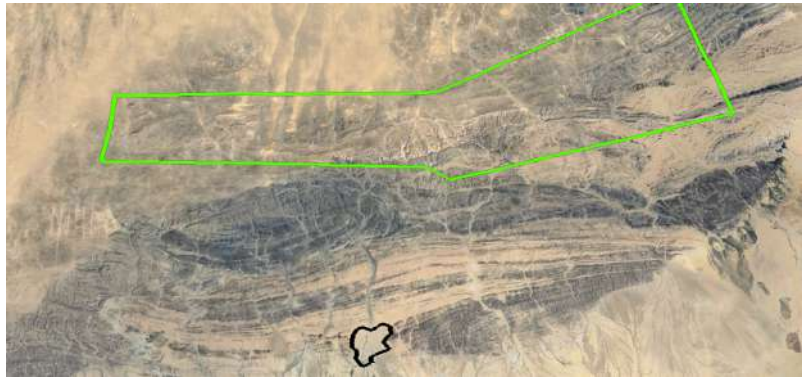
2.5 Potential Receptor Identification

2.5.1 Wind Farm

Receptor mapping for Wind farm has been prepared based on site visit conducted by 5 Capitals in July 2023 and Juru's site visit in February 2024.

Table 2-2 Potential Receptors in the Surrounding Area

ID	DESCRIPTION	LOCATION	PHOTO/MAP
I-1	**Karakalpak Cement LLC Facility and Titan Cement**	The Karakalpak and Titan Cement factories are situated along the A380 road, around 9 km south of the wind farm site. Mining activities, including blasting, also occur to the south of the wind farm site and may be in relative proximity to the proposed OHTL route.	
I-2	**Future Mining Areas**	Immediately south of the wind farm there are future mining areas (shown by the orange polygon). The OHTL crosses this area, it is important to note that the Nukus 100 MW OHTL had to be rerouted due to the fact that it crossed an area designated for future mining.	

ID	Description	Location	Photo/Map
I-3	**Excavation trenches** Various excavation trenches were observed during the site visit.	At the Project site and its borders	 
C-1	**Sultan Uvays Complex** Site and cemetery that has national cultural importance.	Complex covers more than 90 ha, and located 5 km south of the wind farm site	

ID	Description	Location	Photo/Map
			
C-2	**<u>Mountain Munojat</u>** A cultural site by locals based on cultural and religious beliefs.	This cultural object consists of a viewpoint on top of a hill, the view is towards the wind farm site. There is a small market at the bottom of the viewpoint. The overall size is approximately 2 ha and the site is 2.5 km south of the Project site	 

ID	Description	Location	Photo/Map
			

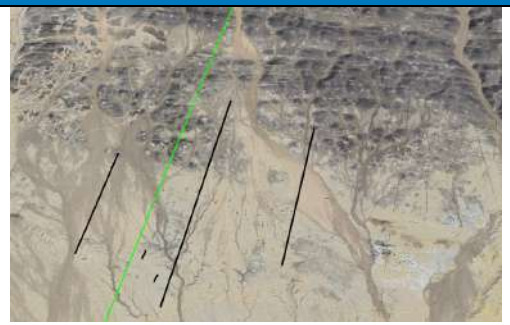
2.5.2 OHTL

Land along the proposed OHTL is mainly used for agricultural and grazing purposes. There are 8 residential areas located along the OHTL corridor. The distance to the nearest one is less than 150 m.

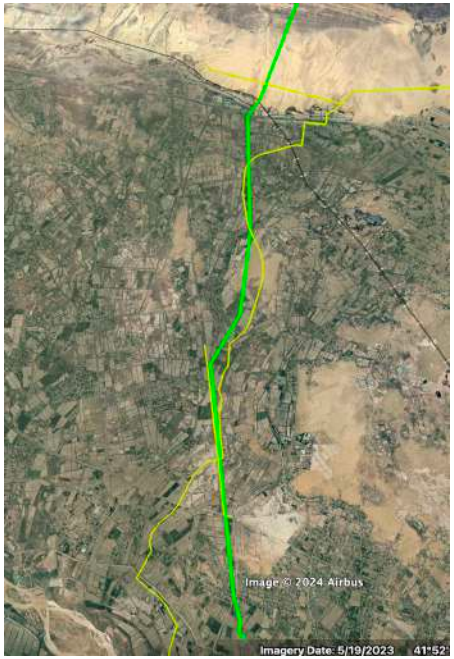
Receptor mapping for OHTL has been prepared based on site visit conducted by 5 Capitals in July 2023 and Juru's site visit in February 2024.

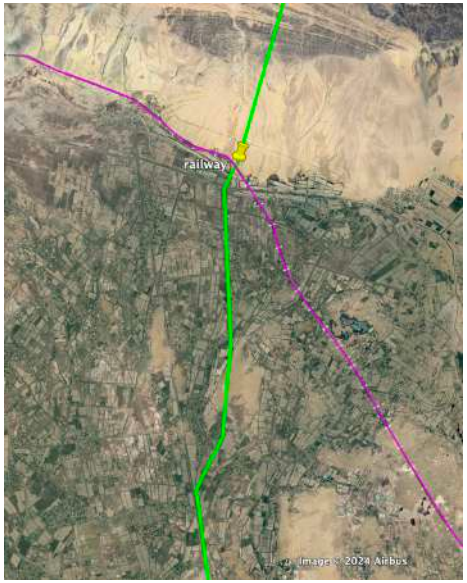
Table 2-3 Potential Receptors along the OHTL and the Surrounding Areas

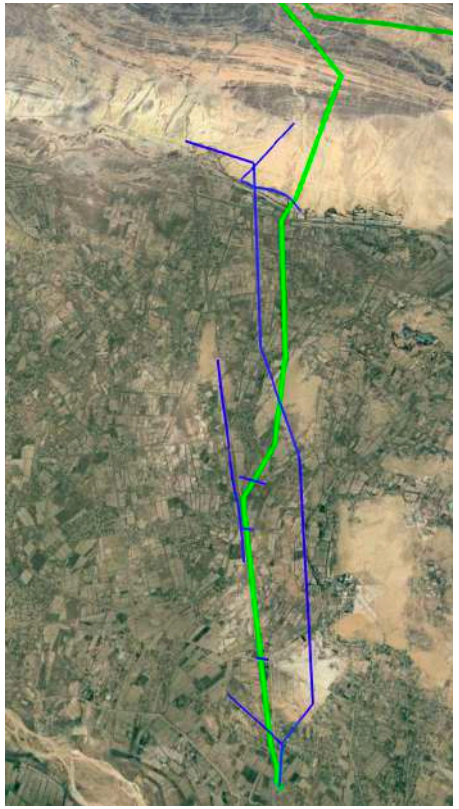
ID	Description	Location	Photo/Map
I-1	**Mining areas**	At certain locations excavation trenches identified at WF area come into close proximity of the indicative OHTL route.	

ID	Description	Location	Photo/Map
			 
S-1	**Drainage canals** Drainage canals, designed for both irrigating the fields and discharging excess water after irrigation, are present in numerous agricultural fields.	Within numerous agricultural fields in which the indicative OHTL passes through.	

ID	DESCRIPTION	LOCATION	PHOTO/MAP
			

ID	Description	Location	Photo/Map
In-2	**Gas pipeline** Several gas pipelines were observed along agricultural fields and along the A-380 highway. These pipelines are constructed to supply local communities with gas.	Along the highway and agricultural fields.	

ID	DESCRIPTION	LOCATION	PHOTO/MAP
In-2	**Railway road** There is an existing railway line that crosses proposes OHTL route along the highway	Crosses proposed OHTL along the highway	

ID	Description	Location	Photo/Map
In-3	**Existing OHTL** There are various existing OHTL lines located within the proposed OHTL route. Those intersect at 6 locations.	Along the highway and agricultural fields.	

ID	Description	Location	Photo/Map
In-4	**Communication cables** Signs of underground communication cables were observed during the Scoping stage site visit. Four (4) potential locations were identified.	Near residential areas along highway	

ID	DESCRIPTION	LOCATION	PHOTO/MAP
S-2	**Cultural heritage** There are 2 local cemeteries and one large cultural complex Sultan Uvays. Additionally, one unknow cultural heritage (remnant of a tower) is subject to the verification with relevant authorities at ESIA stage.	Along planned OHTL route	

ID	Description	Location	Photo/Map
S-3	**<u>Affected assets</u>** The indicative OHTL is considered to directly impact four structures and three houses. The HPZ (15 m from each side of the pylons/towers) will further impact 4 structures (2 warehouses, 1 stable and 1 house). Note: this is determined based on the indicative route and the final route may have slight differences.	Along the OHTL route	

.

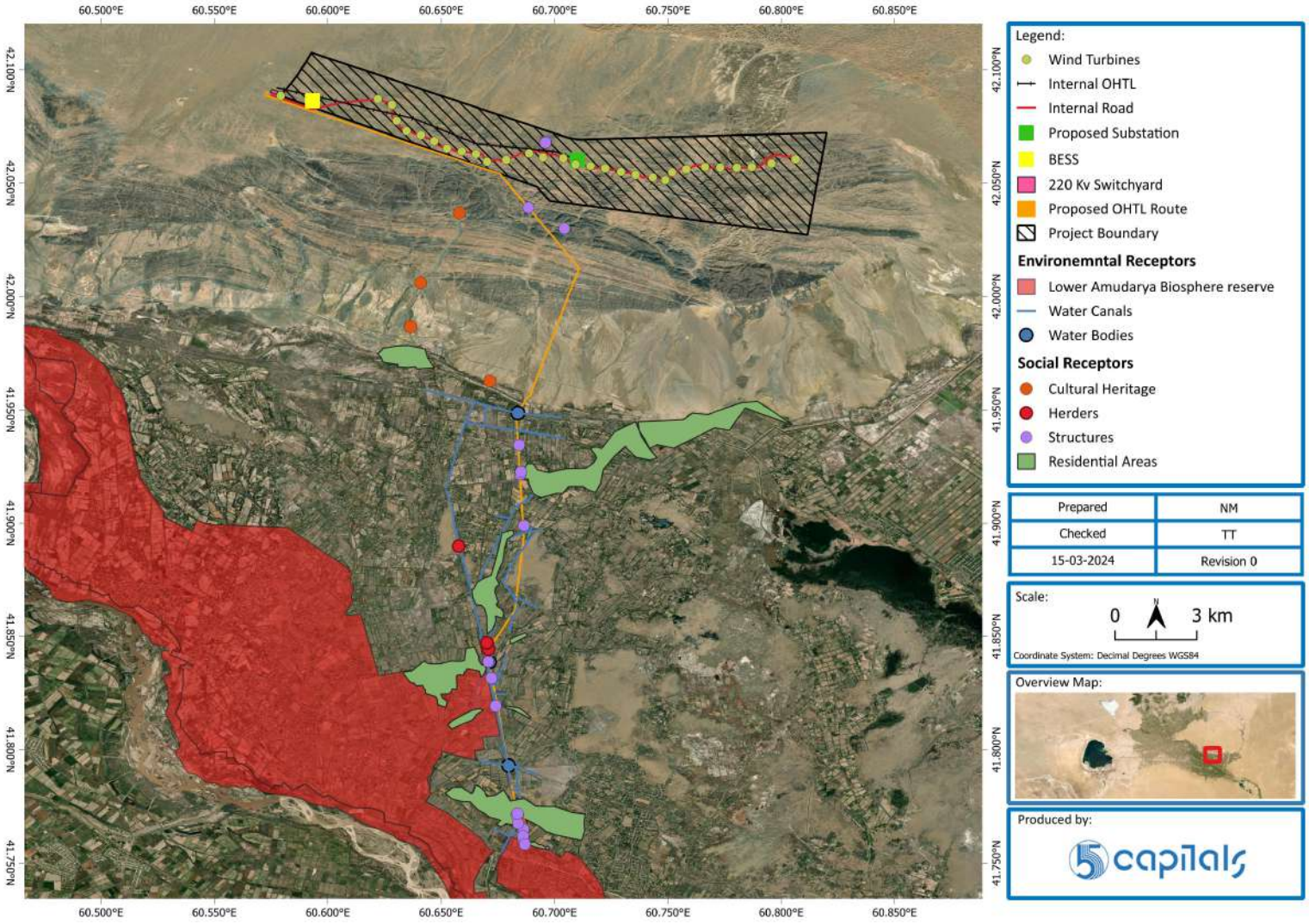


Figure 2-11 Sensitive Receptors Identified around the Project Area

2.5.3 Planned and Potential Developments

The following planned and potential developments in the region are summarised from Juru ESA provided as part of the tender documentation (2021):

- **Karatau metal processing plant (including the expansion of the Karatau town).** Based on discussion with the administrative representative in Karatau and review of Presidential Decree 3473 (12 January 2018), the metal processing plant will generate up to 2000 jobs and it has a scheduled start date in 2024. The development of the metal processing plant includes a phased expansion of Karatau town. Current plans indicate the population of Karatau will increase from 3021 in 2019, to 5300 in 2041; and the town footprint will expand from 127 ha to 204 ha by 2041.
- **Mining operations adjacent to the Wind Development Area (WDA).** Areas adjacent to the site are allocated for future mining exploitation with the mineral rights currently owned by the State. If the rights to exploit minerals is exercised, a buffer zone of at least 400 m around all the WTG must be maintained to preserve the operability and safety of the WTG's and a set back of at least 500 m between the WTG and any O&M buildings or accommodation facilities must also be maintained. Consultations with the Ministry of Mining and Geology will be undertaken for further information.
- **Nukus 100 MW Wind Farm (Phase 1 project).** There is an ongoing construction of Nukus 100 MW WF on the adjacent land plot. Ongoing construction activities of workers accommodation camp has been observed to the north of the Nukus 2 Wind Farm site in February 2024 by Chin Power (Chinese EPC Contractor) for current Project.
- New solid waste management facilities (in Nukus province, locations not specified).

2.6 Project Description

2.6.1 Wind Turbines Technology Overview

Currently, the Project will consist of 27-29 WTGs, located within the allotted site boundary, as shown in the following figure. Other balance of plant (BOP) items such as the Temporary Storage Facilities (TSFs), BESS and substation are also shown.

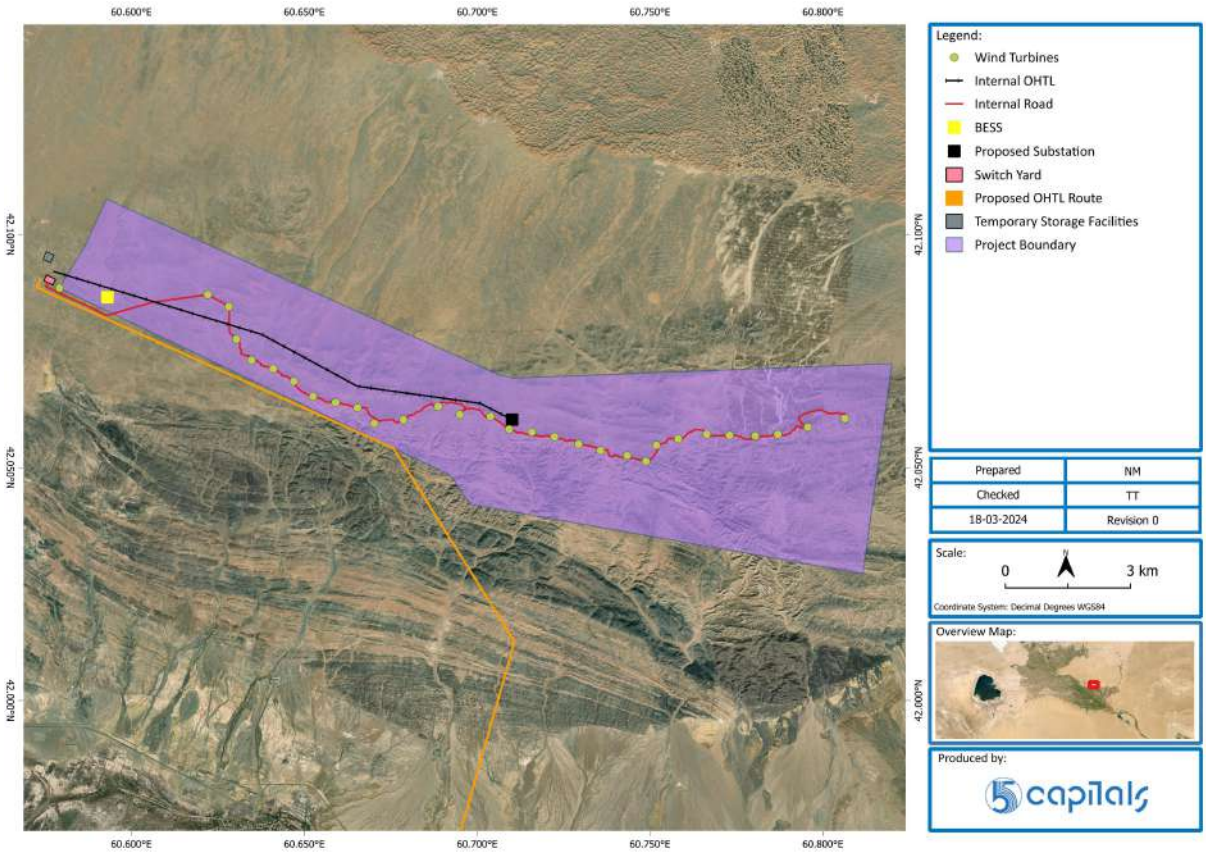


Figure 2-12 WTG and BOP Locations

WTG have been used to produce electricity on a commercial scale since the 1990s and are well established as a developed renewable energy technology. WTG harness the energy in the wind and convert it to electricity. The amount of energy produced by wind turbines increases dramatically with increased wind speed and modern turbines are able to adapt and efficiently extract energy from the entire range of wind speeds.

Wind speeds increase with height above ground as turbulence intensity decreases at the same time. This allows turbines with higher hub-heights to produce more energy than a turbine with a lower height at the same location. In addition, longer blades (the rotor diameter from the turbine) significantly increase the swept area from which wind energy can be extracted.

The turbine technology, manufacturer and supplier for the proposed Project has not been defined at present, but potential manufacturers include: Envision, Windey, Sany, Goldwind, and Mingyang.

The basic components of a wind turbine include the following components:

- Conical tubular tower sections made of steel;
- Rotor blades, made of fiberglass, reinforced epoxy and carbon fibres;
- Nacelle, which houses the generator and gearbox;
- Hub, which is the central point at which the three blades are connected to the nacelle;
- Generator, which converts mechanical energy into electricity;
- Gearbox;
- Converter; and
- Transformer.

Wind turbines are usually painted light-grey, with aviation safety lights at the top of the nacelle. The tips of the blades are sometimes painted orange or red to improve daytime visibility of the blade swept area while remaining unobtrusive to the character of the landscape as far as practical.

Turbines are fixed to the ground and stabilised using reinforced concrete platforms, which ensure that the turbine remains stable. Foundation platforms are constructed below ground level, and soil will be placed over the platform to return the visible area to nearly its original condition. A typical foundation diameter is 20 m, with a depth of 2.5 m, depending on the turbine design and the subsoil conditions.

Specific details regarding the wind turbines technology will be provided at the ESIA stage.

2.6.2 Technology Specifications from the PPA

The WTGs and all its components must be made in accordance with the Machinery Directive (2006/42/EC), EMC Directive (2004/108/EC) and must be CE marked.

The WTGs and its systems shall be designed, manufactured and tested according to the international norms and standards, such as the International Electrotechnical Commission standard IEC 6140001 Edition 4, Wind Turbines – Part 1: Design requirements. For an exhaustive lift of standards and requirements please refer to the Power Purchase Agreement (PPA).

2.6.3 Project Facilities

POWER EVACUATION INFRASTRUCTURE

The power evacuation infrastructure includes expansion of the 220 kV switchyard originally designed for Phase 1 project (Nukus 100 MW Wind Farm), OHTL route of approximately 42-44 km length. The OHTL will connect the planned substation and BESS to Beruniy grid substation.

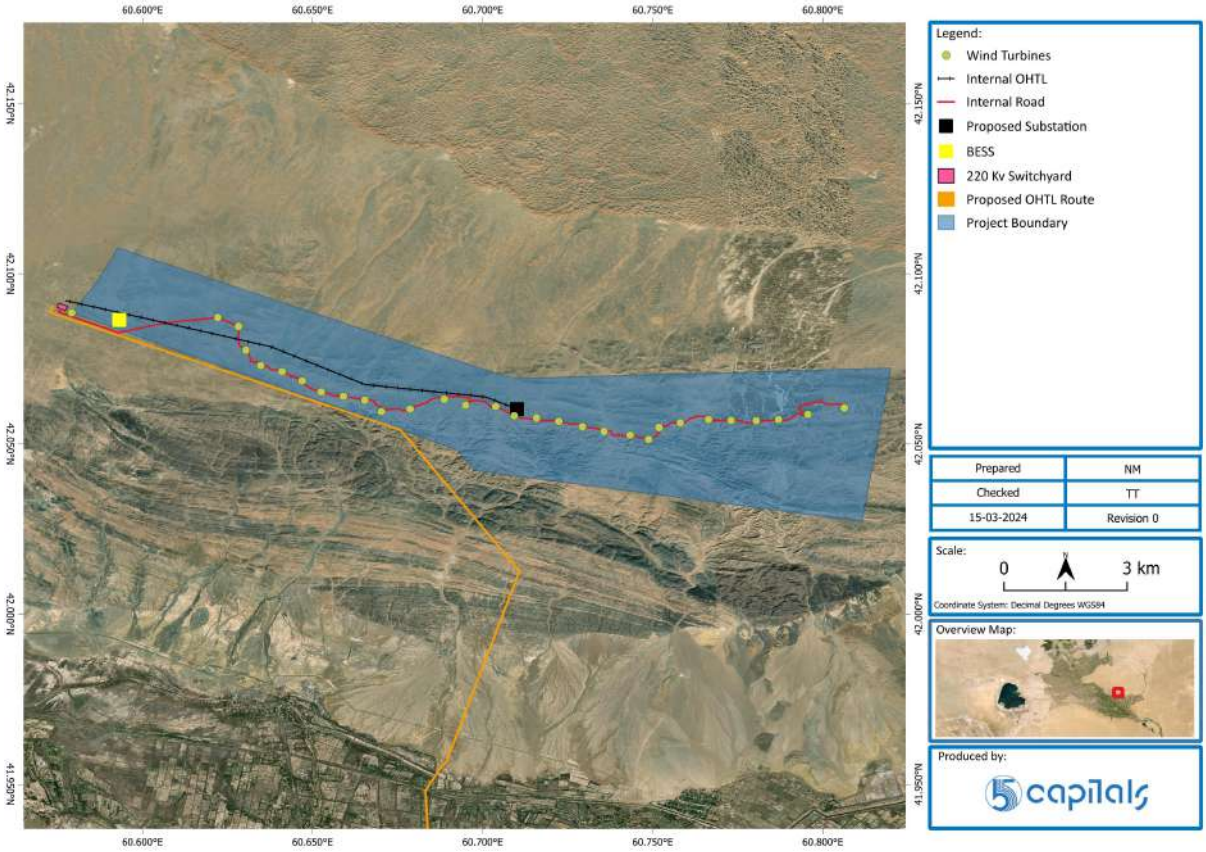


Figure 2-13 Power Evacuation Infrastructure

ACCESS ROAD

The site is separated from roads and the regional highway (the A380) by the Karatau hills. However, the Project includes the design and construction of an approximately 15 km access road from the Phase 1 access road. It is expected the Project site will be accessed via the same site access road for the Phase 1 Project site and then continuing along an existing dirt track that runs along the main ridge to the East of the Phase 2 Project site. Further information will be included within the ESIA.

2.6.4 Ancillary/Support Facilities

Ancillary buildings will be required to:

- Support the operation of the Project
- Store spare parts
- Management wastes produced at the Project.

The following ancillary facilities will be included in the Project design:

- Site entrance and security building
- Administration building, offices and amenities (e.g., first aid room, kitchen, washrooms and prayer rooms etc.)
- Central Control Room
- HV relay buildings, MV switchgears room, MV/LV transformer room
- Security
- Lighting
- Access roads between turbines
- Parking

2.7 Construction of the Wind Farm

2.7.1 Construction Activities

Typical activities during the planning and construction phases for wind farms are listed below:

- Detailed Project planning and design and consideration of Project components by the EPC Contractor;
- Transportation of components (including the WTGs) to the Project site;
- Site preparation (comprising excavation, grading, levelling, and land clearing at WTG platforms) to create the access road and the flat land area required for installation of wind turbine towers and various project components;
- Primary Project construction work (comprising excavation and levelling etc.) for installation and laying of transmission cables, collector/switchgear, and the installation of electrical substation(s);
- Installation of WTGs;
- Additional facilities construction work (comprising excavation and levelling etc.) for access road, internal road network, construction of any building infrastructure; and

- Commissioning tests of electrical infrastructure (including wind turbine generators) and inspection of civil engineering quality records.

2.7.2 Construction Workforce

The construction workforce will comprise skilled and semi-skilled labour, with a peak total of 200 workers. Approximately 50% of the contracted workforce will be reserved for Uzbek nationals and residents of the Projects' affected communities, while the rest of the workforce will be hired from China and other Central Asian countries. Further information relating to the Project workforce will be included within the ESIA.

ACCOMMODATION

During the construction phase, the labour accommodation area is proposed to be located within the nearby villages close to the Project footprint. The labour accommodation area will adhere to local regulatory requirements and to the IFC/EBRD Workers' Accommodation: Processes and Standards.

The preliminary coordinates for the labour accommodation area during the operation phase are provided in the table below. The labour accommodation will include welfare facilities such as gym and recreational areas. Similarly the labour accommodation area will adhere to local regulatory requirements and to the IFC/EBRD Workers' Accommodation: Processes and Standards.

LABOUR ACCOMMODATION FACILITIES	LATITUDE	LONGITUDE
TSF1	42.095613°	60.577540°
TSF2	42.093966°	60.576563°
TSF3	42.094694°	60.574352°
TSF4	42.096340°	60.575329°

Further details of worker accommodation will be included in the ESIA.

2.8 Operation and Maintenance

Wind farms generally require limited operational activities such as the following:

- Operation and maintenance to include normal daily operation of equipment including maintenance (electromechanical and housekeeping) to optimise energy yield and life of the system;
- Remotely activated turbine shutdown during excessive wind speeds;
- Management of operations in relation to resident bird and bat species (summer and winter) and migration periods during Spring and Autumn (if required); and

- Routine planned preventative maintenance and unplanned maintenance (if required).

Further details regarding the operation and maintenance of the wind farm, including details on the workforce size will be provided in the ESIA.

Project employees can be recruited locally, from surrounding countries, or across Asia, and in cases with specific requirements, global recruitment is an option.

The company promotes equal opportunities for the employment of males and females, and employees receive the same salary and benefits for the same positions regardless of their gender. Special provisions such as maternity and parental leave safeguard the rights of female employees during pregnancy and childcare. Moreover, equal opportunities for promotion and access to training resources are extended to female employees. Additionally, the project company implements a strict Sexual Exploitation and Abuse and Sexual Harassment Prevention and Response Action Plan, along with a Gender-Based Violence and Harassment (GBVH) Prevention and Response Policy.

In adherence to local labor laws, the company's hiring practices in the local area shall comply with regulations. All employees will have equal employment opportunities, compensation and benefits, and the same working hour regulations.

2.9 Project Milestone

The following table outlines key project milestones.

Table 2-4 Key Project Milestone/Timeline Dates

MILESTONE	DATE
Project Award	20th December 2023
Signing of EPC & O&M Agreement	28th March 2024
Financial Close and Full Notice to Proceed (Construction)	December 2024
Project Commercial Operation Date (PCOD)	Wind Farm: 18 months from FC
	OHTL: 12 months from FC

3 REGULATORY FRAMEWORK

3.1 National Regulations

3.1.1 Environmental Regulator

In accordance with PD-81 "On measures to transform the sphere of ecology and environmental protection and organize the activities of the authorized state body" dated May 31, 2023, the Ministry of Natural Resources (until 2023 - State Committee for Ecology) was renamed to the Ministry of Ecology, Environmental Protection and Climate Change (MEEPCC).

MEEPCC is the primary environmental regulator, who reports directly to the Parliament and is responsible at national, regional (viloyat) and local (tuman) levels for the development and enforcement of the national environmental and conservation policy, environmental compliance, integrated environmental management across various sectors, and securing healthy environment conditions across the country.

According to its structure, the MEEPCC has a central body in Tashkent, and regional branches and agencies providing research and technical support. Regional environmental authorities are structured similarly to the MEEPCC.

3.1.2 Uzbekistan Policy Framework for Wind Projects

The primary legislation for the development of the Wind Energy Projects is the Law of the Republic of Uzbekistan No. 537 "On Public-Private Partnership" dated 10th May 2019 and the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 259 "On Improving the Procedure for Implementing Public, Private Partnership Projects" dated April 26, 2020.

The Law of the Republic of Uzbekistan No. 539 "On the Use of Renewable Energy Sources" (RE Law) dated May 21, 2019; and the Law of the Republic of Uzbekistan No. 412-1 "On the Rational Use of Energy" dated April 25th, 1997 will also be applicable to the Project.

In October 2019, Uzbekistan issued an environmental strategy: Uzbekistan's Environmental Strategy 2030 (approved by the Decree of the President of the Republic of Uzbekistan No. 5863 dated October 30th 2019) which promotes renewable energy development.

The Strategy also contains measures to preserve the environment (air, water, land, soil, biodiversity etc) from anthropogenic impacts and other negative factors, expand protected areas and improve the environmentally safe systems of waste management.

3.1.3 President Decree № PD-4477 on the Strategy for the Transition of the Republic of Uzbekistan to a Green Economy in the period 2019-2030

This decree was adopted to fulfil Uzbekistan's obligations under the Paris Climate Agreement signed on April 19, 2017 and to implement the Action Strategy for five priority areas of development for 2017-2021.

This decree sets out a strategy for the transition of the Republic of Uzbekistan to a green economy for the period 2019-2030, aimed at improving energy efficiency, rational consumption and conservation of natural resources, reducing greenhouse gas emissions, providing access to green energy, creating green jobs and ensuring climate sustainability. It sets several targets for this transition, including the further development of renewable energy sources, covering over 30% of total electricity generation.

3.1.4 Institutional Framework

The following table presents a summary of the key institutions that have been identified as potential stakeholders of the Project. Their main roles and responsibilities are provided in following table.

Table 3-1 Main National Institutions and Roles

NAME OF INSTITUTION	MAIN ROLE
Ministry of Energy of the Republic of Uzbekistan (MoE)	The Ministry of Energy of the Republic of Uzbekistan is the authorised state body for: (i) implementation of production sharing agreements on issues related to the main areas of its activities; (ii) implementation of a unified state policy in the field of the use of renewable energy sources; (iii) development of a unified state policy and strategic directions in the development and use of nuclear energy; (iv) introduction of modern energy-efficient and energy-saving technologies in state bodies and organizations, as well as monitoring the efficiency of energy consumption.
Ministry of Mining Industry and Geology of the Republic of Uzbekistan	Ministry is responsible for managing and monitoring mining and geological activities. It will dictate technical condition for conducting construction activities near ongoing geological/mining activities and surveys at the Project boundary.
State Committee on Sericulture and Wool development Industry	Committee owns pastural lands across Uzbekistan, including Project site. It will allocate land for permanent acquisition for installation of wind turbines.
Ministry of Employment and Labour Relations of the Republic of Uzbekistan	Responsible for unified policy in the field of employment, labour migration, labour relations and labour welfare. The Project will consult with the ministry considering the requirement of labour including work permits for foreign nationals.
Ministry of Health	Responsible for the development and implementation of state policy in health care, sanitary and epidemiological welfare of the population and

Name of Institution	Main Role
	the organization of medical and education, amongst other related mandates. Any health-related matter for the Project workers will be ultimately under the remit of the Ministry.
Ministry of Emergency Situations of the Republic of Uzbekistan	Responsible for planning and implementation of specific programs and measures for prevention of emergency situations, ensuring safety and protection of the public, reduction of potential casualties and damages, and on support of stable functioning of industrial establishments and branches of economy in emergency situations. Important for the Project, mainly considering the operational activities and the need to mitigate unplanned events that could lead to emergency situations.
Ministry of Transportation	Responsible for development of domestic and international transport corridors, improvement of the logistics system and amelioration of traffic safety. Important for the Project considering the use of public roads during construction and operation.
National Research Institute of Renewable Energy Sources	The National Research Institute of Renewable Energy Sources under the Ministry of Energy was created on the basis of the International Institute of Solar Energy, LLC of the Academy of Sciences, as well as the Hydrogen Energy Research Center within its structure and Laboratory for testing and certification of renewable and hydrogen energy technologies.
Sanitary and Epidemiological Welfare and Public Health Service of The Republic of Uzbekistan	Responsible for determining the Health Protection Zone (HPZ) under the Ministry of Health. The HPZ applicable for the Project is determined this government organisation.

3.1.5 National Environmental Assessment Legislation

The Constitution of the Republic of Uzbekistan (April 30, 2023), under its nature protection and management framework, defines the rights and responsibilities of its citizens to include the following:

- Everyone has the right to a favourable environment, reliable information about its condition (Article 49);
- The government creates conditions for the implementation of public control in the field of urban planning in order to ensure the environmental rights of citizens and prevent harmful effects on the environment (Article 49);
- Draft urban planning documents are subject to public discussion in the manner prescribed by law(Article 49);
- The state, in accordance with the principle of sustainable development, implements measures to improve, restore and protect the environment, maintain ecological balance (Article 49);
- Citizens are obliged to take care of the natural environment. (Article 62);
- The land, its subsoil, water, flora and fauna and other natural resources are national wealth, are subject to rational use and are protected by the state. Land may be privately owned on the terms and in the manner prescribed by

law and ensuring its rational use and protection as a national wealth. (Article 68).

Uzbekistan has enacted the following natural resources and media-specific environmental management laws:

Law on the Rational Use of Energy (1997, as amended in 2020)

This law is fundamental to the development and functioning of the whole energy sector, including renewable energy. It defines a general legal framework to ensure the conservation of national energy resources and the efficient use of the available production capacity, fuel and energy. The law provisions are applicable to legal entities and individuals whose activities are related to the extraction, production, processing, storage, transportation, distribution and consumption of fuel and energy.

The law is aimed at achieving the following objectives:

- Ensuring efficient and environmentally friendly use of energy in its production and consumption;
- Ensure reliability, uniformity of measurements and metering of quantity and quality of energy production and consumption
- Governmental control and supervision over efficient energy production and consumption, its quality, the technical condition of energy equipment, energy supply systems and energy consumption.

The law has a particular article that defines the framework conditions for the use of renewable energy sources and aims to stimulate the development of renewable energy in Uzbekistan.

Presidential Decree No. 5863 on Environmental Protection Strategy (30.10. 2019)

The Strategy contains measures to preserve the environment (atmospheric air, water, land, soil, subsoil, biodiversity, protected areas) from anthropogenic impact and other negative factors, expand protected areas, and improve the environmentally safe system of waste management.

The Strategy approved 24 target tasks until 2030, which aim to increase the area of forest plantations, restoration and reclamation of disturbed lands, rational use of water resources, reduction of emissions into the air, protection and reproduction of biological resources, and improvement of the waste management system.

Law "On Nature Protection" (1992, amended in 2021)

The law states legal, economic, and organizational foundations for the conservation of the environment and rational use of natural resources. Its purpose is to ensure balanced relations

between humans and nature to protect the environmental system and to guarantee the rights of the population to live in a safe environment. Article 25 of the law states that the SEE is a mandatory measure for environmental protection, preceded to a decision-making process. In addition, Article 25 says that the implementation of a project without Positive Conclusions on the SEE is prohibited.

Law "On Ambient Air Protection" (1996, amended in 2006)

This law specifies regulations on air protection and its objectives. It also includes standards, quality and negative impact, norms, and requirements on fuels and lubricants, the production and operation of vehicles and other machinery and equipment, ozone layer protection requirements, the obligations of enterprises, institutions and organizations toward air protection, and compensations for damages from air pollution.

Law "On Water and Water Use" (1993 the latest amended in 2021)

This law regulates water relations, and efficient water use by the population and economy. The law regulates the protection of water from pollution and depletion, prevention, and elimination of harmful impacts on water, the improvement of water bodies, and the protection of the rights of enterprises and institutions, organizations and dehkan farms and individuals in the field of water relations.

Law "On Wastes" (2002, amended in 2011)

This law addresses waste management, exclusive of emissions and air and water pollution, and confers authority to the MEPCC concerning inspections, coordination, and environmental expertise. It also establishes certain parameters regarding locations for waste disposal. The key objective of this law is to prevent negative effects of solid wastes on people's lives and health, as well as on the environment, reduce waste generation, and encourage rational use of waste reduction methods in household activities.

Law "On Environmental Audit" (2021)

This law was adopted to regulate environmental audits in the field of environmental protection and rational use of natural resources, including voluntary or mandatory environmental audits. The law states that 'an environmental audit can be carried out on a voluntary form by businesses with low or insignificant (local) risk of environmental impact and on a mandatory form on an annual basis for businesses with high and medium risk of environmental impact.'

Law "On Environmental Control" (2013, amended 2021)

This law provides the approach regarding: (i) prevention, detection and suppression of violation of the requirements of legislation in the field of environmental protection and rational use of natural resources; (ii) monitoring the state of the environment, identifying situations that can lead to environmental pollution, poor use of natural resources, and create a threat to life and health of citizens; (iii) determination of compliance with the environmental requirements of planned or ongoing economic and other activities; and (iv) ensuring compliance with the rights and legitimate interests of legal entities and individuals, performing their duties in the field of environmental protection and rational use of natural resources.

LAW "ON THE SANITARY AND EPIDEMIOLOGICAL WELFARE OF THE POPULATION" (2015, AMENDED 2022)

This law regulates relations in the field of sanitary and epidemiological welfare of the population.

LAW "ON PROTECTION OF FLORA" (1997, AMENDED IN 2016)

This law regulates relations in the field of protection and use of the plant world growing in natural conditions, as well as wild plants contained in the conditions of culture for their reproduction and conservation of genetic resources.

LAW "ON PROTECTION AND USE OF THE WILDLIFE" (2016)

This law regulates relations in the field of protection, use, restoration and reproduction of wildlife in order to ensure the conditions of its existence, conservation of species diversity, integrity of natural communities and habitat.

THE RED DATA BOOK OF UZBEKISTAN (UZRDB)

This is the main document containing aggregate information on the state of rare, population decreasing, and endangered species of plants and animals in the territory of Uzbekistan. The first edition of the Red Data Book of the Republic of Uzbekistan (1984) included 163 species of plants; the second edition (1998), 301 species; the third edition (2006), 302 species of higher plants and three fungi species; the fourth edition (2009), 321 species of higher plants and three fungi species. The first edition of the UZRDB (1983) included 63 species; the second edition (2003), 184; the third edition (2006), 184; the fourth edition (2009), 184 animal species and subspecies. In the last 10-15 years, according to the International Union for the Conservation of Nature (IUCN), the threat of extinction of species in the wild has grown for a number of species and subspecies, which is connected with the reduction of their habitats and decline in population size. This primarily concerns hoofed mammals as the most vulnerable and susceptible to anthropogenic influences of components of fauna. The latest version of the

UZRDB was released in 2019 and included 202 species of fauna, and 314 species of flora, however it is understood it has not been completed in conjunction with the IUCN.

LAW "ON AMENDMENTS AND ADDITIONS TO THE LAW OF THE RUZ "ON RATIONAL USE OF ENERGY" (2020)

The purpose of this Law is to form a general legal framework that ensures the conservation of national energy resources, the efficient use of energy and production potential.

LAND CODE OF THE RUZ (1998)

The Land Code aims to regulate land relations to ensure that present and future generations have evidence-based sustainable use and conservation of land and improvements of soil fertility, conservation and improvement of the environment and conditions for equitable development of all forms of management, protection of individuals and legal entities' rights for land, as well as strengthening the rule of law in this area.

LAND RIGHTS, ACQUISITION AND RESETTLEMENT

- Civil Code of the Republic of Uzbekistan (1997) as amended on 8.11.2022.
- Land Code of the Republic of Uzbekistan (1998) as amended on 1.10.2022.
- Law of the Republic of Uzbekistan on State Land Cadastre No.666-I of 28.08.1998.
- Presidential Decree №. UP-5495. Decree "On measures on cardinal improvement of investment climate in the republic of Uzbekistan".
- Appendix No. 2 to the Resolution of the Cabinet of Ministers №. 146 (2011), regulation "On the Procedure for Compensation for Losses of Land Owners, Users, Tenants and Owners, as well as Losses of Agricultural and Forestry Production".
- Resolution №. 911 of the Cabinet of Ministers (2019) "On the Procedure for withdrawal of land plots and compensation to owners of immovable property located on the land plot.
- Law No 781 "On procedures for the withdrawal of land plots for public needs with compensation" October 1st, 2022. The Law specifies cases when the land plots can be acquired for public need among which construction (reconstruction) of roads and railways of national and local significance is also specified. Law No. 781 also prescribes procedures of land acquisition, communication with project affected people (PAPs), compensation calculation, and demolition of affected assets. As of October 1st, 2022, all projects that require the acquisition of land for public needs should be managed in accordance with this Law.

LAND ACQUISITION AND RIGHT OF WAY

- With regards to the acquisition of land for Right of Way, Procedures to establish a right of way (ROW) in Uzbekistan are the same for legal entities and individuals. ROW or limited use of a land plot is determined in the Land Code of Uzbekistan, Civil Code (under the term servitude), and the Resolution of Cabinet of Ministries

No.911 dated 16.11.2019. All grid interconnection works are expected to be undertaken within the existing ROW; however, for completeness, the requirements for establishing a ROW are presented below, and their applicability will be confirmed during the ESIA process.

- Article 30 of the Land Code (LC) determines engineering, electrical power and other lines and constructions as a reason for receiving the right to servitude. Following Article 30 of the Land Code, Article 173 of the Civil Code (CC), and Article 30 of Annex 1 of the Resolution of Cabinet of Ministers No. 1060 dated December 29, 2018, servitude is established by agreement between persons demanding the establishment of servitude and the owner, user, lessee, proprietor of the land plot. If they do not achieve consent, the servitude shall be established by a court decision at the user's claim. The agreement on servitude shall be subject to state registration and preserved when the land plot is transferred to another person. Servitude agreements can be terminated in cases of the cessation of the reason according to which it was established.
- Article 173 of CC also states that the burdening of a land parcel by servitude does not deprive the owner of the parcel of the rights of possession, use, and disposition of this parcel.
- Calculation and compensation of losses due to servitude agreement are performed following Law No 781 "On procedures for the withdrawal of land plots for public needs with compensation" (if it is a project for public needs) the Resolutions of Cabinet of Ministers No.146 from 25 May 2011 "On measures to improve the procedure for granting land plots for urban development activities and other non-agricultural purposes" and No. 911 from 16 November 2019 "On additional measures for enhancing modalities of providing compensation on withdrawal and allocation of land plots and safeguard the property rights legal and physical entities".
- Article 86 of the LC states that losses caused to the owners of land parcels, landowners, land users and lessees are liable to be fully refunded (including the lost profit) in the case of limitation of their rights in connection with land acquisition. Refunding of losses is carried out at the expense of the resources of the corresponding centralized funds for compensation of losses to individuals and legal entities in connection with the seizure of land plots from them for public needs and by enterprises, establishments and organizations the activity of which causes limitation of rights of land parcel owners, landowners, land users and lessees or worsening the quality of the neighbouring lands in the order established by legislation.
- Article 173 of the CC states that the parcel owner burdened with the servitude has the right unless otherwise provided by a Law, to demand from the person in whose interests the servitude is established proportional payment for the use of the parcel.

LABOUR AND EMPLOYMENT

- Labour Code of the Republic of Uzbekistan 1996 as amended on 18.05.2022.
- Law "On the employment of the population" No. 642 of 20.10.2020.

- Resolution of the Ministry of Labour and Social Protection of the Population, Ministry of Health of the Republic of Uzbekistan, registered on 29.07.2009, reg. number 1990 "About the approval of the list of occupations with unfavourable conditions, in which the use of the labour of persons under 18 years of age is prohibited".
- Decree No. 133 of 11 March 1997 to approve normative acts necessary for the realization of the Labour Code of the Republic of Uzbekistan.
- Decree of the Cabinet of the Ministers No. 1011 of 22 December 2017 "On Perfection of the Methodology of Definition of Number of People in Need of Job Placement, including the Methodology for Observing Households with Regard to Employment Issues, also for the Development of Balance of Labour Resources, Employment and Job Placement of Population".
- Decree of the Cabinet of the Ministers No. 965 of 5 December 2017 "On the Measures of Further Perfection of the Procedure of Establishment and Reservation of Minimum Number of Job Places for the Job Placement of Persons who are in need of Social Protection and Face Difficulties in Searching Employment and Incapable of Competing in Labour Market with Equal Conditions".
- Decree No. 964 of 5 December 2017 "On the Measures for Perfection of the Activity of Self-Government Bodies Aimed at Ensuring Employment, Firstly for the Youth and Women".

ARCHAEOLOGY AND CULTURAL HERITAGE

- Constitution of the Republic of Uzbekistan, the Criminal Code of the Republic of Uzbekistan.
- Law No. ZRU-229 "On protection and use of the objects of archaeological heritage" (13 October 2009).
- Law No. 269-II "On the Protection and Use of Cultural Heritage Sites (30 August 2001, as amended).
- Presidential Decree No. R-5181 "On improving the protection and use of objects of tangible cultural and archaeological heritage" (16 January 2018).
- Presidential Decree no. PP-4068 "Regarding the strengthening of the protection, management and enhancement of tangible and intangible cultural heritage" (19 December 2018). The relevance of these requirements will be determined during the ESIA process.

SAFETY ALONG OVERHEAD TRANSMISSION LINES

An essential standard for establishing OTL is SanPiN No.0350-17 "For the Protection of Atmospheric Air in Populated Areas of the Republic of Uzbekistan" (2017). This standard addresses health protection zones (HPZ), also known as setbacks. According to SanPiN No.0350-17, section 2.23.4, an HPZ must be established to protect the population from the effects of an OTL's electric field. HPZ's are defined as the land along the route of a high-voltage

OTL in which the electric field strength exceeds 1 kV/m. For newly designed OTL, buildings and structures must be set back the following distances either side of the OTL[2]:

- 20 m for OTL with a voltage of 330 kV;
- 30 m for OTL with a voltage of 500 kV;
- 40 m for OTL with a voltage of 750 kV;
- 55 m for OTL with a voltage of 1150 kV.

Other relevant national laws and regulations to OTL projects include:

- Resolution of Cabinet of Ministers of Republic of Uzbekistan No.95 "On approval of general technical regulations of environmental safety" (2020).
- Decree of the Cabinet of Ministers of the Republic of Uzbekistan No.1050 "On approval of Rules for Protection of Power Grid Facilities, 2018".
- SanPiN & Norms No. 0236-07 "Sanitary norms and rules to ensure safety for people living near high voltage power transmission lines, 2007".

Electrical safety regulations pertaining to ecological receptors include the following:

- Resolution of Cabinet of Ministers of Republic of Uzbekistan No.95 "On approval of general technical regulations of environmental safety" (2020).

  Requires the implementation of environmental safety measures for the protection of flora and fauna. This includes the prevention of death of wildlife species due to magnetic fields of power transmission lines and sanitary protection zones.

  Requires transformer substations in power transmission lines, their grids to have equipment (barriers, fences etc.,) to prevent animals from entering the territory of the substation.

- Decree of the Cabinet of Ministers of the Republic of Uzbekistan No.1050 "On approval of Rules for Protection of Power Grid Facilities, 2018".

  This determines the procedure for establishing protected zones for power grid facilities, as well as special conditions for using land located within the protected zones and ensure the functioning and operation of the said facilities.

  Construction of power grid facilities with 110, 220 or 500kV in protected areas of state nature reserves, protected areas of nature parks and state biosphere reserves etc shall be allowed with the permission of the Cabinet of Ministers of the Republic of Uzbekistan.

2 The HPZ (set back) is defined as the distance from the outermost wires in a direction perpendicular to the OTL.

MANAGEMENT OF PUBLIC GRIEVANCES

- The Resolution No. 728 provides for a centralized Grievance Redress Mechanism (GRM) for the resolution of broad-ranging grievances from the public.
- This system draws on a publicly accessible online platform for the collection of grievances from residents across the country. The Portal allows any member of the public to submit a grievance, for the attention of various authorities within the various domains of local and central Government. The application for grievance resolution can target any authority within the hierarchy of executive Government. Upon initial review of the grievance statement by the target authority, the grievance is allocated to the most relevant LGA for further review and remedial action. In the event that resolution cannot be delivered by the most relevant LGA level, the grievance is cascaded higher along the administrative hierarchy, until an appropriate executive decision is provided by a competent authority.

3.2 International Conventions/Protocol

The proposed Project must comply with the environmental requirements of the following protocols and conventions listed in the Table below of which the Uzbekistan is a signatory:

Table 3-2 International Protocols and Conventions

NAME OF INTERNATIONAL PROTOCOL/CONVENTION	SIGNED/ RATIFIED	RELEVANCE TO THE PROJECT
UN Framework Convention on Climate Change	Accession: 20 June 1993	The Project will comply with all national standards for GHG emissions in order to contribute to Uzbekistan's targets.
Kyoto Protocol to UNFCCC	Ratified: 12th October 1999	
Paris Agreement to UNFCCC	Signed: 19th April 2017	
Montreal Protocol on Substances that Deplete the Ozone Layer (with London, Copenhagen, Montreal amendments)	Accession: 10th June 1998	The Project will support Uzbekistan's contribution towards the protection of the ozone layer by refraining from use of ozone depleting substances.
Vienna Convention on the Protection of Ozone Layer	Accession: 18 May 1993	
UN (Rio) Convention on Biological Diversity	Accession: 19th July 1995	The Project will implement mitigation and management measures to ensure the conservation and protection of terrestrial and canal ecology during the Project lifecycle.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Accession: 10th July 1997	The Project staff and workers will be strictly forbidden from trading in any wild flora and fauna found in the Project site or outside the Project boundaries.
Convention on Migratory Species of Wild Animals	1 May 1998	The project will implement mitigation and management measures to ensure conservation of terrestrial and

Name of International Protocol/Convention	Signed/ Ratified	Relevance to the Project
		avian migratory species where identified.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Accession: 7th February 1996	The Project will be required to adhere to all national and international standards for hazardous waste generation and management.
United Nations Convention to Combat Desertification	Ratified: 31 August 1995	The Project will not result in accelerated desertification through sourcing of its materials and will contribute to sustainable development.
UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes	Accession: 4th September 2007	The canal south of the project site is found between the border of Uzbekistan and Tajikistan. Therefore, the Project will ensure that any impacts to the canal I.e. discharge are mitigated and managed in accordance with the national and lenders requirements.
Paris Convention on Protection of the World Cultural and Natural Heritage	Succession: 13th January 1993	The Project will implement mitigation and management measures where items/sites/monuments of cultural or natural heritage are identified within or near the Project boundaries and notify the relevant authorities immediately.
Stockholm Convention on Persistent Organic Pollutants	Accession: 28th June 2019	The Project will implement control measures to eliminate any use of chemicals under Annex A and B and reduce the unintentional release of those under Annex C.

3.3 Project Requirements

ACWA Power will pursue an amount of Project Finance from financial institutions who either:

- Have their own internal E&S investment policies/guidelines;
- Are members of the collective environmental and social agreements such as the Equator Principles; or
- Align their E&S policies and guidelines with other established guidelines (such as the IFC Performance Standards).

At the time of the ESIA scoping, the Project's prospective lenders were provisionally included European Bank for Reconstruction and Development (EBRD), German Investment Corporation (DEG), Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB), Islamic Development Bank (IsDB), and Proparco/ French Development Agency (FDA). Some of these

DFIs are subscribed to the IFC Performance Standards (PSs) and Equator Principles Financial Institutions (EPFIs).

The E&S policies, frameworks and performance standards applicable to the Project on the basis of the prospective lenders are outlined in the following sub-sections.

3.3.1 EBRD

POLICY AND PERFORMANCE REQUIREMENTS

EBRD has an internal ESP (2019) and a set of specific Performance Requirement (PRs) covering key environmental and social components for consideration, assessment and management in their investments. These reflect EBRD's commitments to promote EU environmental standards as well as the European Principles for the Environment in their investments. The PRs are outlined below:

- PR1: Assessment and Management of Environmental and Social Impacts and Issues;
- PR2: Labour and Working Conditions;
- PR3: Resource Efficiency and Pollution Prevention and Control;
- PR4: Health and Safety;
- PR5: Land Acquisition, Involuntary Resettlement and Economic Displacement;
- PR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- PR7: Indigenous People;
- PR8: Cultural Heritage;
- PR9: Financial Intermediaries, and
- PR10: Information Disclosure and Stakeholder Engagement

3.3.2 Asian Development Bank (ADB)

The E&S policies, principles and objectives adopted by the ADB are enshrined in the Safeguard Policy Statement (SPS 2009). The main focal areas of the Policy are (i) environmental safeguards, (ii) involuntary resettlement, and (iii) Indigenous Peoples (IP) safeguards. The key objectives of the SPS include:

- To avoid adverse impacts of projects on the environment and affected people, where possible.
- To minimise, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is impossible.

- To help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

ADB's Indigenous People's Safeguard is not applicable to this Project. This is because as per the ADB's requirement on Indigenous Peoples, there are no indigenous peoples within the project area of influence.

3.3.3 Asian Infrastructure Investment Bank (AIIB)

As stated in the AIIB Environmental and Social Framework (ESF), 2022), the Bank has established an Environmental and Social Policy (ESP), which sets forth mandatory environmental and social requirements applicable to all Projects. The Policy underlies the AIIB Environmental and Social Standards (ESSs) and Environmental and Social Exclusion List (ESEL). The ESSs that govern E&S performance on AIIB-funded project include:

- ESS 1: Environmental and Social Assessment and Management (ESS 1);
- ESS 2: Land Acquisition and Involuntary Resettlement (ESS 2); and
- ESS 3: Indigenous Peoples (ESS 3).

For the screening, assessment and management of E&S risks pertaining to pollution control and environmental health and safety, the ESF stipulates conformance to the World Bank Group Environmental Health and Safety Guidelines (EHSGs).

3.3.4 German Investment Corporation (DEG)

The DEG undertakes E&S due diligence for its investment portfolio, in accordance with its Guideline for Environmental and Social Sustainability (GESS). The Corporation is a member of the KfW Bankengruppe, having endorsed the United Nations Environment Programme (UNEP) Initiative for Financial Institutions on the Environment and Sustainable Development. The GESS references a commitment to observing E&S requirements promoted by the European Development Finance Institutions (EDFIs), which include the Equator Principles (EPs), IFC Performance Standards (IFC PSs) and the material stipulations of the Environmental, Health and Safety Guidelines of the World Bank Group, and the Conventions of the International Labour Organisation (ILO). These requirements are broadly described further below.

3.3.5 Equator Principles

The Equator Principles (EP) is a risk assessment framework used by financial institutions to determine, assess and manage the environmental and social risk in Project's financing. Currently, over seventy-five major financial institutions from around the world have adopted the EPs. These financial institutions operate in more than 100 countries worldwide.

The Equator Principles were updated in 2006 (EPII), 2013 (EPIII) and a further update EPIV came into effect in October 2020. The EPs currently include provisions for the following:

- Principle 1: Review and Categorisation;
- Principle 2: Environmental and Social Assessment;
- Principle 3: Applicable Environmental and Social Standards;
- Principle 4: Environmental and Social Management System and Equator Principles Action Plan;
- Principle 5: Stakeholder Engagement;
- Principle 6: Grievance Mechanism;
- Principle 7: Independent Review;
- Principle 8: Covenants;
- Principle 9: Independent Monitoring and Reporting; and
- Principle 10: Reporting and Transparency.

APPLICABLE STANDARDS

EP IV establishes the minimum E&S standards to be adopted by EP Financial Institution (EPFIs) as those from IFC Performance Standards on Environmental and Social Sustainability (Performance Standards), the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) and/or the relevant host country laws, regulations and permits that pertain to environmental and social issues.

IFC Performance Standards

The IFC Performance Standards are a key component of the IFC's Sustainability Framework and directed towards clients (i.e. party responsible for implementing and operating the project that is being financed), providing guidance on how to identify risks and impacts. The IFC Performance Standards are designed to help avoid, mitigate, and manage risks and impacts throughout the life of a project as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities.

The IFC Performance Standards (2012) are listed below:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labour and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security

- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage

WBG EHS Guidelines (2007)

The World Bank Group International Finance Corporation (IFC), Environmental, Health and Safety (EHS) General Guidelines of April 2007 superseded the World Bank Handbook issue of 1998.

In terms of specific guidelines to control environmental externalities (e.g. wastewater quality etc.), EHS guidelines have been set out by IFC and the World Bank Group to provide general guidelines for its members when involved in a project or when providing financial support to a project. These guidelines contain general and industry-specific examples of Good International Industry Practice (GIIP). In summary, it should be noted that the following IFC EHS Guidelines are relevant to this project:

- General EHS Guidelines, Environmental:
  - Air Emissions and Ambient Air Quality;
  - Energy Conservation;
  - Wastewater and Ambient Water Quality;
  - Water Conservation;
  - Hazardous Materials Management;
  - Waste Management;
  - Noise; and,
  - Contaminated Land.
- General EHS Guidelines, Occupational Health & Safety:
  - General Facility Design and Operation;
  - Communication and Training;
  - Physical Hazards;
  - Chemical Hazards;
  - Radiological Hazards;
  - Personal Protective Equipment (PPE);
  - Special Hazard Environment; and,
  - Monitoring.
- Community Health & Safety:
  - Water Quality and Availability;
  - Structural Safety of Project Infrastructure;

- Life and Fire Safety (L&FS);
- Traffic Safety;
- Transport of Hazardous Materials;
- Disease prevention; and,
- Emergency Preparedness and Response

- Industry Sector Guidelines, Power:
  - Electric Power Transmission and Distribution (2007); and
  - Wind Energy (2015).

3.3.6 PROPARCO

Proparco is a development finance institution partly owned by the French Development Agency. The Corporation's Environmental and Social Governance (ESG) framework is rooted in the E&S management instruments of the AFD Group, the principles common to European donors, IFC's Performance Standards, the ILO international labour standards, the FAO criteria, and basic principles such as those of the Universal Declaration of Human Rights.

AFD E&S Risk Assessment and Management Framework

The French Development Agency has established an Environmental and Social Risk Management Policy (2017), which provides for the development of operating procedures to identify, prevent or mitigate environmental and social risks and impacts, as well as any human rights violation that could result from AFD-funded activities.

All operations financed by AFD are required to comply with the national regulations of the country where the operation is implemented, including for environmental and social issues. However, as regulations in some of the countries where AFD operates are incomplete or under development, AFD uses as a reference a number of performance standards, good practices and directives produced by international standard-setting organizations, as well as major conventions on sustainable development, which altogether include:

- The World Bank Safeguard Policies for public sector financing.
- The UN Principles for Responsible Investment (UNPRI).
- The IFC Performance Standards.
- The United Nations Universal Declaration on Human Rights.
- The ILO fundamental conventions on labour law.
- The United Nations Convention on the Elimination of All Forms of Discrimination against Women.
- The OECD guidelines for multinational enterprises.

3.4 Applicable Environmental Standards

Applicable standards required for Project compliance are included to the respective environmental parameter sections of this report. This includes national standards and those expected for the lenders.

3.4.1 Lenders Standards

An overview of the lender standards is presented below, whilst the applicable standards are presented in the respective environmental parameter sections of this report.

EBRD

In accordance with the EBRD ESP 2019, *'The EBRD, as a signatory to the European Principles for the Environment, is committed to promoting the adoption of EU environmental principles, practices and substantive standards by EBRD-financed projects, where these can be applied at the project level, regardless of their geographical location. When host country regulations differ from EU substantive environmental standards, projects will be expected to meet whichever is more stringent.'*

EPFIs

In accordance with EPIV, EPFI's require compliance with both national regulations/standards and the applicable World Bank Group EHS Guidelines relevant to the Project as stated previously.

3.5 EIA/ESIA Requirements

3.5.1 National Requirements

PROJECT CATEGORISATION

As per the Resolution of the Cabinet of Ministries of the Republic of Uzbekistan No. 541 'On measures for the further improvement of environmental impact assessment' dated 7.10.2020, Projects with a total capacity of with a capacity of 100 MW to 300 MW are categorised as Category II.

EIA PROCESS

In accordance with the resolution of the Cabinet of Ministries of the Republic of Uzbekistan No. 541 the national EIA process consists of three stages:

- Stage I: "A Preliminary Statement of the Environmental Impact ("PSEI") - this is performed at the planning stage of the proposed Project prior to the allocation of funds for development.
- Stage II: The "Statement of the Environmental Impact" ("SEI") - this is prepared following Stage 1 and where the outcome of Stage 1 identified the need for additional studies or analyses. The SEI shall be submitted to State committee on ecology and environmental protection prior to the Feasibility Study or financing of the Project and, therefore, prior to the beginning of construction.
- Stage III: The "Statement on Environmental Consequences" ("SEC") is the final stage of the SEE process and is performed prior to approval of the Project. The report describes in detail the changes in the project made as a result of the outcomes of Stage 1 and Stage 2, the comments received during public consultations, the environmental standards applicable to the project (as defined by the modelling and assessment process), the environmental monitoring requirements and the main conclusions.

State Ecological Expertise approval: The State Committee on Ecology and Environmental Protection provides their opinion at Stage I and II is a typically a mandatory document for project financing by Uzbek banks, other Lenders and for Project commissioning at Stage III. However, it is possible to obtain approval after Stage I should the submitted EIA be sufficiently detailed and comprehensive with respect to project information and baseline conditions. The conclusion of the State Committee is typically valid for three years from the date of its issuance. If the project is not implemented within three years from the date of issue of the conclusion, the EIA report needs to be revised and re-submitted for approval.

EBRD

In accordance with PR 1, there is a requirement for EBRD financed projects to undertake an appropriate Environmental and Social Assessment in order to:

- Identify and evaluate environmental and social impacts and issues of the Project.
- Adopt a mitigation hierarchy approach to address adverse environmental or social impacts and issues to workers, affected communities, and the environment from Project activities.
- Promote improved environmental and social performance of clients through the effective use of management systems.
- Develop an ESMS tailored to the nature of the Project, for assessing and managing environmental and social issues and impacts in a manner consistent with the relevant PRs.

According to PR 1 "*The ESIA will include an examination of technically and financially feasible alternatives to the sources of such impacts, including the non-project alternative, and document the rationale in selecting the particular course of action proposed. It will also*

identify potential improvement opportunities and recommend measures needed to avoid, or where avoidance is not possible, minimise and mitigate adverse impacts."

EU EIA Legislation

EBRD is committed towards the promotion of the European Union's (EU) environmental requirements and is a signatory of the European Principles for the Environment. The Principles endorse and reinforce the European consensus on the values attached to the fundamental right for both present and future generations throughout the world to live in a healthy environment.

EIA Directive 85/337/EEC was introduced in 1985 and applied to a wide range of defined public and private projects. Since then, the initial Directive of 1985 and its three amendments have been codified by Directive 2011/92/EU of 13 December 2011. Directive 2011/92/EU was amended in 2014 by Directive 2014/52/EU.

Article 3 of the Directive states:

The environmental impact assessment shall identify, describe and assess in appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

a) *Population and human health;*

b) *Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*

c) *Land, soil, water, air and climate;*

d) *Material assets, cultural heritage and the landscape; and*

e) *The interaction between the factors referred to in points (a) to (d).*

The Project falls under Annex II of the EIA Directive as '*Installation for the harnessing of wind power for energy production (wind farms)*' while the OHTL is under Annex I '*Construction of overhead electrical power lines with a voltage of 220kV or more and a length of more than 15km*'. The Project will therefore undergo through a full EIA assessment.

EPFIs

According to EP2, '*The EPFI will require the client to conduct an appropriate Assessment process to address, to the EPFI's satisfaction, the relevant environmental and social risks and scale of impacts of the proposed Project*'.

4 APPROACH TO ESIA

4.1 Scope of Work and Key Deliverables

The key deliverables of the ESIA process for the lenders are:

- Environmental and Social Scoping Report;
- ESIA Report; and
- Livelihood Restoration Framework and Plan.

The key deliverables of the EIA process as required by the national legislation are:

- Stage I – Preliminary Statement of the Environmental Impact (PSEI);
- Stage II – Statement of the Environmental Impact (SEI); and
- Stage III – Statement on Environmental Consequences (SEC)

The purpose of this Environmental & Social Scoping Report is to identify the key environmental and social issues and sensitive receptor sites at an early stage to ensure that the baseline surveys and assessment techniques for the subsequent ESIA address these issues. In addition, it identifies the structure and content of the ESIA.

The general content of the Environmental & Social Scoping report includes:

- The key features of the proposed project;
- The environmental and social assessment, documentation and approval requirements for the proposed project;
- A brief description of the existing environmental and social conditions of the project site and an evaluation of existing environmental information on the area;
- A gap analysis to determine the additional information that needs to be gathered;
- Potential environmental and social issues and constraints (and opportunities) associated with the proposed project facilities based on the existing information; and
- An outline of the terms of reference, structure and content of the ESIA Report.

4.2 ESIA Methodology

4.2.1 Scope of Assessment

ASSESSMENT OF THE PROJECT, FACILITIES AND OPERATIONAL ACTIVITIES

The primary study area comprises the Project footprint, which includes the proposed WTGs, associated roads (internal), substations, laydown areas, equipment and operational activities inside this area. This will also include the alignment of the OHTLs and the access road.

The study area is determined based on the Project and Project facilities' areas of influence, however, is it to be noted that this will depend upon the impact being assessed. This is further described in the subsequent sections.

CONSTRUCTION ACTIVITIES

Construction of the Project is expected to result in certain environmental and social impacts, which will be assessed in the ESIA.

Temporary Construction Facilities

Temporary construction facilities to include in the ESIA will be:

- Project offices and temporary facilities;
- Contractor compounds and laydown areas;
- Any temporary construction access road(s); and
- Expected construction transportation routes.

Temporary Construction Worker Accommodation

Where details concerning worker accommodation facilities are available, the ESIA will intend to assess related impacts.

It is however expected that the locations of such worker accommodation areas will not be fully confirmed at the ESIA stage. Where information is not available, the ESIA will establish management provisions for these areas to be in accordance with the IFC & EBRD Worker Accommodation: Processes and Standards (as a minimum).

4.2.2 Consideration of Project Alternatives

As a minimum the ESIA will include assessment of:

- No Project option;
- Site selection and layout of WTGs; and

- Alternative technology.

4.2.3 Baseline Studies

Forming an integral part of the ESIA, the baseline studies provide a benchmark of existing conditions and allow a platform for which Project potential impacts can be assessed.

The baseline studies will correspond to those outlined in this ESIA Scoping Report and in accordance with any comments received from the lenders (or regulator) following the scoping report review. The intention is for the studies to capture a representative baseline within the Project's potential area of influence (which will differ for between parameters).

The baseline studies will be described in each relevant chapter of the ESIA, with analysis provided, and necessary results/reports included to the main report or applicable appendices.

4.2.4 Stakeholder Engagement

REQUIREMENTS

National Requirements

According to the Resolution of Cabinet of Ministers or Republic of Uzbekistan No.541 "On further improvement of the environmental impact assessment mechanism", mandatory public consultations is required regarding the project's environmental impact assessment and planned activities relating to Category I and Category II projects.

Lender Requirements

Engagement with stakeholders is an essential part of the environmental and social assessment process and there are specific requirements for this stated by both EBRD. The main objective is to establish dialogue with those parties who may be involved in aspects of the Project or may have an interest in the outcome of the ESIA process.

STAKEHOLDER MAPPING & ESIA ENGAGEMENT PLANNING

This aim of the stakeholder mapping is to identify relevant stakeholders and to assess each stakeholder to understand their relevance so that consultation can be targeted and prioritised.

Table 4-1 Stakeholder Mapping & ESIA Engagement Planning

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
Project-affected landowners and land users	**WIND FARM**		
	SWID	D: Land owner, custodianship of land reserved for governmental and pastural use.	Issues regarding the land use Formal Meetings & Bi-Lateral/Phone Calls/Face to Face meetings/Letters
	Herders	A: Land-users subject to economic displacement as a result of land acquisition for the Project's development.	
	OHTL		
	SWID	D: Land owner, custodianship of land reserved for governmental and pastural use.	Issues regarding the land use Formal Meetings & Bi-Lateral/Phone Calls/Face to Face meetings/Letters
	Herders	A: Land-users subject to economic displacement as a result of land acquisition for the Project's development.	
	Farmers	A: Indirect land-users subject to economic displacement as a result of land acquisition for the Project's development.	
Project-affected Communities (PACs/Makhallas)	**WIND FARM**		
	Abay	A: Communities subject to indirect E&S impacts from various project aspects.	Issues regarding the land use and impacts from the Project. Involvement during public hearing/disclosure process. Formal Meetings & Bi-Lateral/
	Dustlik		
	Kyzyl Kala		

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
			Phone Calls/Face to Face meetings/ Letters
	OHTL		
	Kyzyl Kala	A: Communities subject to E&S impacts from various project aspects.	Issues regarding the land use and impacts from the Project. Involvement during public hearing/disclosure process. Formal Meetings & Bi-Lateral/ Phone Calls/Face to Face meetings/ Letters
	Dustlik		
	Abay		
	Makhtumkuli		
	Shimom		
	Women		Issues regarding the land use and impacts from the Project. Involvement during public hearing/disclosure process. Formal Meetings & Bi-Lateral/ Phone Calls/Face to Face meetings/ Letters
	Local Youth		
	Other vulnerable groups within local communities (i.e., elderly, disabled, chronically sick, ethnic minorities etc.).		
	WIND FARM		

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
Neighbouring developments	Nukus Phase I Wind Farm	I: Should be consulted to assess cumulative impacts	Issues regarding the land use and impacts from the Project. Involvement during public hearing/disclosure process. Formal Meetings & Bi-Lateral/ Phone Calls/Face to Face meetings/ Letters
	Mramor LLC	I: Might be affected during the construction works	
	Karakalpak sement LLC (Cement plant)	I: Might be affected during the construction works	
	Mining excavation areas at the Project site	I: Might be affected during construction works. Will provide technical conditions related to Project layout and construction phases (if needed)	Issues regarding the land use and impacts from the Project. Involvement during public hearing/disclosure process. Formal Meetings & Bi-Lateral/ Phone Calls/Face to Face meetings/ Letters
Local Government Authorities (LGAs / Khokimiyats)	Council of Ministries of Republic of Karakalpakstan (Jukory Kengesh)	D: Preparation of land-use proposals, approval of subsequent land-use plans, commissioning of cadastral registration of landholdings, and administration of Land Lease Agreements (LLAs).	These organisations will have certain involvement with the Project development. Issues regarding the land use, assistance in arranging public meetings. Formal meetings & Bi-Lateral/Phone Calls/Face to Face meetings/Letters

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	Municipality of Nukus region		
	Beruniy distirct khokimiyat (WF area and OHTL)	D: District-level planning and administration of development projects. - Preparation of land-use proposals, approval of subsequent land-use plans, commissioning of cadastral registration of landholdings, and administration of Land Lease Agreements (LLAs).	
	Nukus region cadastral department	D: Cadastral registration of landholdings, based on approved land-use plans developed by Uzdaverloyiha State Research and Design Institute.	Issues regarding the land use and LLAs Formal Meetings & Bi-Lateral/ Phone Calls/Face to Face meetings/ Letters
	Beruniy district cadastral department		
	Beruniy distirct agricultural department	D: Cadastral registration of agricultural landholdings, based on approved land-use	Issues regarding the land use and LLAs Formal Meetings & Bi-Lateral/

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	Beruniy state forestry	plans developed by Uzdaverloyiha State Research and Design Institute.	Phone Calls/Face to Face meetings/ Letters
National Ministries, Departments, and Agencies (MDAs)	JSC Uztransgaz	I: Provision of general information on planned and existing gas pipelines within the project-affected areas, and execution of laws and regulations pertaining to the operation and maintenance of gas supply infrastructure (e.g., appropriate buffer zones).	Issues regarding existing gas pipelines in proximity to the Project site, their buffer zones etc. Formal Meetings / Letter Correspondence / Phone Calls
	JSC Hududgaz	I: Provision of district-level information on existing gas pipelines within the project-affected areas, and execution of laws and regulations pertaining to the operation and maintenance of gas supply infrastructure.	

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	Ministry of Ecology, Environmental Protection and Climate Change (MEEPCC)	D: - Provision of information on biodiversity and ecologically important water resources within the project-affected areas. -Execution of laws and regulations pertaining to environmental management. -Review of national EIA reports for planned project facilities. -Issue of environmental permits for construction and operation. -Follow-up monitoring of E&S compliance.	All issues regarding the preparation and submission of national EIA Formal Meetings / Letter Correspondence & Study Submissions / Phone Calls
	Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan	I: Provision of information on biodiversity and technical support on ad-hoc baseline surveys for specific faunal species and habitats.	● Ad-hoc request for information on the extent of occurrence and are of occupancy (or population statistics), for any potentially affected faunal species or habitats of conservation concern. Letter correspondencel/ Phone Calls

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan	I: Provision of information on biodiversity and technical support on ad-hoc baseline surveys for specific floral species and habitats.	● Ad-hoc request for information on the extent of occurrence and are of occupancy (or population statistics), for any potentially affected floral species or habitats of conservation concern. Letter correspondencel/ Phone Calls
MDAs – Water resources	Ministry of Water Resources	I: Provision of information on planned and existing irrigational water supply facilities within the project-affected areas, and execution of laws and regulations pertaining to the operation and maintenance of related infrastructure (e.g., appropriate buffer zones)	● Request for information on existing irrigational canals in and around the project sites. ● Request for contextual regulatory buffers for the canals in and around the project sites, during the Project's construction and operational phases. ● Request for any additional considerations and recommendation with regard to potential E&S impacts. Formal Meetings / Letter Correspondence / Phone Calls

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	JSC Uzsuvtaminot	D: -Provision of information on planned and existing potable water supply facilities within the project-affected areas, and execution of laws and regulations pertaining to the operation and maintenance of related infrastructure (e.g., appropriate buffer zones,technical conditions etc). -Issue of permits for use of potable water supply systems during construction (i.e., utility connections and water consumption).	● Request for information on existing water supply facilities in and around the project sites. ● Request for contextual regulatory buffers for water supply facilities located along/intersected by the planned OHTL during construction phase. Formal Meetings / Letter Correspondence / Phone Calls
MDAs - Health, Sanitation, Safety and Security	Sanitary and Epidemiological Welfare and Public Health Service of The Republic of Uzbekistan	D: -Execution of laws and regulations pertaining to public health and safety. - Establishment of sanitary and health and safety buffer zones. - Regular monitoring of E&S compliance in relation to impacts on environment and public health and safety	● Disclosure of project plans (objectives, design and activities). ● Request for information on sanitary and safety buffers for planned project facilities and existing utility assets and water bodies located in and around the project sites. Formal Meetings / Letter Correspondence / Phone Calls

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	Ministry of Emergency Situations of the Republic of Uzbekistan	I: Emergency response to natural disasters and other contingencies, and mobilization of humanitarian aid	● Ad-hoc request for information on emergency response capacity and protocols, for natural and other contingencies in relation to the project (i.e., fire outbreak and river flooding). Letter Correspondence / Phone Calls
MDAs - Industry, Archaeology and Cultural Heritage	Ministry of Mining Industry and Geology of the Republic of Uzbekistan	D: Provision of information on ongoing and planned and existing mineral exploration surveys (and related exclusion zones within the project-affected areas, and any geotechnically hazardous land.	● Request for information on any existing or planned prospecting areas in and around the project sites. ● Request for information on any geotechnically hazardous land in and around the project sites. Formal Meetings / Letter Correspondence / Phone Calls
	State Committee for Industrial Safety of Uzbekistan	D: Provision of information on ongoing and planned and existing mineral exploration surveys (and related exclusion zones within the project-affected areas, and any geotechnically hazardous land.	● Request for information on buffes, technical condition etc regarding excavating areas Formal Meetings / Letter Correspondence / Phone Calls

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	Academy of Sciences – Institute of Archaeology	I: Provision of information on tangible and intangible cultural heritage within the project-affected areas, and completion of archaeological surveys for the national inventory of cultural heritage sites.	● Request for information on any ongoing archaeological surveys in and around the project sites. ● Request for information on any archaeological findings and/or cultural heritage sites in and around the project sites. Formal meetings/ Letter Correspondence / Phone Calls
	Cultural Heritage Agency	I: Provision of information on tangible and intangible cultural heritage within the project-affected areas, and execution of laws and regulations pertaining to the labour in Uzbekistan.	● Request for information regarding any existing cultural heritage sites, or the potential for the existence any physical cultural resources within the sites. ● Request for information on any requisite archaeological surveys in and around the project sites. Formal meetings/Letter Correspondence / Phone Calls

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
MDAs - Transport and Communication	Ministry of Transportation	I: Provision of information on the transport infrastructure within the project-affected areas, and execution of laws and regulations pertaining to the operation and maintenance of related infrastructure (e.g., tonnage, drainage, upgrade or extension of existing roads and traffic regulation).	● Ad-hoc request for feedback on any upgrades to the existing roads for the Project's construction and operational phases (in addition to directives from regional and/or district departments. Letter Correspondence / Phone Calls.
	Uzbekiston Temir Yo'llari JSC	D: Provision of information on planned and existing railway facilities alongside the project-affected areas (specifically intersecting OHTL route), and execution of laws and regulations pertainig to the operation and maintenance of these facilities (e.g., appropirate buffer zones).	● Request for information on existing railway facilities in and around the project sites. ● Request for regulatory buffers for above-ground railway facilities lacated in and around the project sites, during the Project's construction and operational phases. Formal Meetings / Letter Correspondence / Phone Calls

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
	JSC Uzbektelekom	I: Provision of information on planned and existing telecommunication facilities (e.g., transmission cables) within the project-affected areas, and execution of laws and regulations pertaining to the operation and maintenance of these facilities (e.g., appropriate buffer zones, technical conditions etc).	● Request for information on existing telecommunication facilities in and around the project sites. ● Request for regulatory buffers for above-ground and sub-surface telecommunication facilities (i.e., cables, towers etc.) located in/along project sites, during the Project's construction phase. Formal Meetings / Letter Correspondence / Phone Calls
MDAs - Labour	Ministry of Employment and Labour Relations of the Republic of Uzbekistan	I: Execution of laws and regulations pertaining to the labour in Uzbekistan, and provision of guidelines to implement new legal requirements.	● Ad-hoc request for guiding information on any newly enacted legal requirements for local employment. Letter Correspondence / Phone Calls

STAKEHOLDER GROUP	STAKEHOLDER BODIES	RELEVANCE TO PROJECT: AFFECTED (A), INTEREST-BASED (I), OR DECISION MAKER (D)	CONSULTATION AGENDA
Non-Governmental Organizations (NGOs)	Uzbekistan Society for the protection of birds	I: Provision of information on avifaunal species and habitats of conservation importance, and related conservation programs.	● Request for information on avifaunal species and habitats of concern, which occur in and around the project sites. ● Request for any additional considerations and recommendations with regard to potential impacts of avifauna.
	Civic Initiatives Support Center	I: Might be interested in the execution of the Project and its social impacts. Will potentially be involved in disseminating information about the Project.	Request for any additional considerations and recommendations with regard to potential social impacts.
	Center for social and legal support for women and their families "Qalb mehri" NGO		

4.2.5 Stakeholder Engagement – Grievance Mechanism

The GRM process fundamentally involves the collection and investigation of project related grievances, subsequent remediation and follow-up communication with aggrieved entities. In instances where participatory investigative procedures conclude that the grievance is not legitimate (i.e., unrelated to the Project or lacking substantiation), the investigation results and/or requests for additional information will be communicated to the aggrieved entities, with prior notice. Following resolution or delivery of requisite clarification with regard to processed grievances, a follow-up round of engagement will be held with aggrieved entities to close-out the grievance and/or obtain feedback as appropriate.

The GRM will be a well-documented process, to enable effective communication and tracking of remedial action at any responsible interfaces within the E&S consulting team and Project Company. The GRM will allow for the delivery of oral and/or written grievance by aggrieved entities. Reporting channels for external grievances will include:

- General consultation forums (i.e., community assemblies, FGDs, KIIs).
- Phone calls.
- Email correspondence.
- Grievance box at entry points to project sites.
- Written/ oral delivery to project personnel, including CLOs and security personnel (security personnel at the Project's entry points and site office(s) must be aware and trained to deal with any grievances appropriately).

Where complainants opt to submit grievances in writing, grievance forms will be filled, for the reference of designated contact of point from local sub-consultant who will register all grievances and related details on an internal grievance log and track the progress of corresponding management measures on the same document. The speed of remedial response is a key to ensuring the management of related E&S impacts, by means of GRM-aided identification of risks and impacts. The GRM has been designed to deliver corrective action over a standard duration of two weeks from the date of grievance issues. However, certain grievances may require lengthy investigation or a complex sequence of corrective action. Where resolution is not achieved in the standard time, the grievants will be given a notice to provide an update on the progress of the case, pending procedures and an estimated time to completion. The table below provides an overview of the GRM process.

Table 4-2 Grievance management process, actors and timeline

STAGE	TIMELINE
Grievance is received/submitted	-
Grievance is logged and acknowledged	Within 7 working days of grievance being submitted
Grievance is investigated	Within 14 working days of grievance being submitted*
Proposed resolution conveyed to grievant	Within 14 working days of grievance being submitted
If applicable following dissatisfaction of resolution by Grievant	
Actions to re-assess grievance/propose new solution/inform Grievant of final decision	Within 14 working days of notification of dissatisfaction by Grievant
In the event that a grievance cannot be resolved between the two parties a mediator will be involved i.e. local leaders who understand the culture and practices within the Project site.	Within 14 working days of notification of dissatisfaction by the Grievant.
Grievances that are not resolved at the project level - a grievance committee involving senior E&S personnel from the Project Company, community development officials from district khokimiyats and any other relevant authorities (if required).	Within 30 working days of notification of dissatisfaction by the Grievant.

Grievance holders and whistle blowers will be entitled to the volition of confidentiality, to preclude any associated risk of reprisal. Where grievances are raised anonymously, procedural investigation and resolution will be undertaken based on the information provided. However, follow-up engagement to obtain feedback on the effectiveness of corrective measures will not be feasible in such cases.

It is proposed to provide a grievance redress mechanism as part of the stakeholder engagement process specifically for the Project. This will be included in the agenda of meetings. Proposed approach:

- Applications/complaints from local individuals or groups will be accepted both in written and verbal forms after conducting the meeting with affected community.
- 5 Capitals alongside local consultant Juru will manage the grievance mechanism during the ESIA phase, whilst responses and actions related to grievances will be determined by ACWA Power.

4.2.6 Impact Assessment & Significance Criteria

In order to obtain a credible assessment of environmental and social impacts, the assignment of "effect significance" to each identified impact needs to be a robust, consistent and transparent process. The methodology to assess 'effect significance' is outlined below and follows an International Best Practice based on the assumption that the significance of an impact on resources or receptors is considered to result from an interaction between three factors:

- The nature and magnitude of the impact (i.e., a change in the environment, social and/or health baseline conditions);
- The number of resources or receptors affected (i.e., humans and the environment); and
- The environmental value or sensitivity of those resources or receptors to the change.

A three-step approach has been used to determine the significance of environmental effects, as follows:

- Step 1 – Evaluation of value/sensitivity of resource or receptor;
- Step 2 – Assessing the magnitude of the impact on the resource or receptor; a
- Step 3 – Determining the significance of effects.

IDENTIFICATION AND EVALUATION OF SENSITIVE RECEPTORS

Sensitive receptors are defined as:

- Elements of the ***environment*** that are of value to the functioning of natural systems (i.e., areas or elements of ecological, landscape or heritage value, species, habitats and ecosystems, soil, air and water bodies or land-use patterns);
- ***Human*** receptors, such as stakeholders (i.e., users of dwellings, places of recreation, places of employment, community facilities or household relocation) and human systems (e.g., employment market, population disease susceptibility and disease communicability, exposure to toxicity of chemical

Table 4-3 Environmental Value of Receptor or Resources

VALUE (SENSITIVITY)	DESCRIPTION OF VALUE
Very High	High importance and rarity on an international scale and limited or no potential for substitution. The receptor has already reached its carrying capacity, so any further impact is likely to lead to an excessive damage to the system that it supports. Locations or communities that are highly vulnerable to the environmental impact under consideration or critical for society (e.g. indigenous peoples, hospitals, schools).

Value (Sensitivity)	Description of Value
High	High importance and rarity on a national scale, and limited potential for substitution. The receptor is close to reaching its carrying capacity, so a further impact may lead to a significant damage to the system that it supports. Locations or communities that are particularly vulnerable to the environmental impact under consideration (e.g. residential areas, vulnerable/marginalized groups).
Medium	High or medium importance and rarity on a regional scale, limited potential for substitution. The receptor is already significantly impacted, but it is not close to reaching its carrying capacity. Further impacts will get increase the stress of the underlying system, but evidence does not suggest that it is about to reach a critical point. Locations or groups that are relatively vulnerable to the environmental impact under consideration (e.g. commercial areas).
Low (or Lower)	Low or medium importance and rarity on a local scale. The receptor is not significantly impacted and shows a large spare carrying capacity. Impacts are not likely to generate any noticeable stress in the underlying system. Locations or groups that show a low vulnerability to the environmental impact under consideration (e.g. industrial areas).
Very Low	Very low importance and rarity on a local scale. The receptor is not impacted and shows a very large spare carrying capacity. Impacts are very unlikely to generate any noticeable stress in the underlying system. Locations or groups that show a very low vulnerability to the environmental impact under consideration (e.g. industrial areas).

Identification and Evaluation of Potential Impacts

During the evaluation undertaken, the following types of impacts will be considered:

- Direct Impacts - Potential impacts that may result from the construction, commissioning, and operations of the Project acting directly on an environmental or social receptor;
- Indirect Impacts – Potential impacts which are not a direct result of a Project activity, that may be realised later in time or at distances further removed from the project footprint, but are normally a result of a complex pathway;
- Cumulative Impacts – Changes to the environment that are caused by an action in combination with other past present and future actions.
- Beneficial Impacts – Those impacts that have a positive, desirable or favourable effect on the sensitive resources or receptors (e.g. landscape providing artificial habitat for a variety of species, jobs opportunities during the construction and/or occupation phases of a project);
- Adverse Impacts – Those impacts that are detrimental and have a negative influence on the environment, social structures, resources or other receptors;
- Secondary Impacts - Potential impacts that may result from the implementation of protection measures applied to mitigate potential direct impacts; and

- Event Related Impacts - Potential unplanned or accidental impacts stemming from an unintentional event such as fire, explosion, oil spill, etc.

DEFINING IMPACT MAGNITUDE

The magnitude of the impact will be defined wherever possible in quantitative terms. The magnitude of an impact has a number of different components, for example:

- The extent of physical change;
- The level of change in an environmental condition;
- The permanence of impact and the reversibility of the impacted condition;
- Its spatial footprint;
- Its duration, its frequency; and
- Its likelihood of occurrence where the impact is not certain to occur.

Where necessary, the determination of impact magnitude may be assisted through the use of computer modelling (as outlined in the Terms of Reference sections herein). The criteria used for identifying the magnitude of impacts is provided within the table below.

Table 4-4 Criteria for magnitude of Impacts

MAGNITUDE	DESCRIPTION OF MAGNITUDE
Major	Adverse: Loss of resource and/or quality and integrity; severe damage to key characteristics, features or elements. A major impact is usually large scale, permanent and irreversible. Beneficial: Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality.
Moderate	Adverse: Significant impact on the resource, but not adversely affecting the integrity; Partial loss of/damage to key characteristics, features or elements. Moderate impacts usually extend above the site boundary, and are usually permanent, irreversible or cumulative. Beneficial: Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	Adverse: Some measurable change in attributes quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. Minor impacts usually are only noticeable within the site and are temporary and reversible. Beneficial: Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse: Very minor loss or detrimental alteration to one or more characteristics, features or elements. Beneficial: Very minor benefit to or positive addition of one or more characteristics, features or elements.
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

4.2.7 Determining Significance of Effects

The significance of effects is a combination of the environmental value (or sensitivity) of a receptor or resource and the magnitude of the project impact value (change). In other words, it is this product of the impact acting on the receptor that produces an environmental effect. The following matrix provides criterion used for determining the significance of environmental effects through consideration of the potential magnitude of impact and sensitivity of the associated receptor.

Table 4-5 Criteria for Determining Significance of Effects

		MAGNITUDE OF IMPACT (DEGREE OF CHANGE)				
		No change	**Negligible**	**Minor**	**Moderate**	**Major**
SENSITIVITY OF RECEPTOR	**Very High**	Neutral	Minor	Moderate to Major	Major	Major
	High	Neutral	Minor	Minor to moderate	Moderate to Major	Major
	Medium	Neutral	Negligible to minor	Minor	Moderate	Moderate to Major
	Low	Neutral	Negligible to minor	Negligible to minor	Minor	Minor to moderate
	Very Low	Neutral	Negligible	Negligible to minor	Minor	Minor

As is evident from the matrix, in some cases the significance product is a range (i.e., a 'Minor' Magnitude and a 'Very High' Sensitivity results in a 'Moderate to Major' Significance). In these cases, professional judgement will be used to determine which significance the impact represents.

Table 4-6 Definition of Significance of Effects

SIGNIFICANCE CATEGORY	CRITERIA
Major (Adverse / Beneficial)	• The effect is large scale and would cause a large improvement or deterioration in the environment which will likely (but not exclusively) feature nationally or international important sites and features. • Adverse effects may be considered unacceptable due to exceeded of statutory limits and may require additional studies to ascertain if alternatives (in terms design and location) with the potential for lower impacts should be considered. These effects represent key factors in the decision-making process. • These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
Moderate (Adverse / Beneficial)	• The effect gives rise to noticeable improvement or deterioration to the existing environment at a regional or local scale. • If adverse, are potential concerns to the project and may become key factors in the decision-making process. • Whilst the effects will be experienced, mitigation measures and detailed design work may reduce (or enhance) the effect. Some residual effects will still arise.
Minor (Adverse / Beneficial)	• The effect is small scale and would cause a small improvement or deterioration to the existing environment. • Adverse effects are undesirable but acceptable and within statutory limits and not likely to be key-decision making issues. • Mitigation measures are typically not requited to mitigate such effects. • The cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
Negligible	• No discernible improvement or deterioration to the existing environment as a result of the Project will occur. • Local issue unlikely to be of importance in the decision-making process. • Effects do not exceed statutory limits. • They are of relevance in enhancing the subsequent design of the project and consideration of mitigation or compensation measures.
Neutral	• No effect or effect that is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error. • No mitigation is required.

The approach to assigning significance to an effect relies on reasoned argument, professional judgement and cognisance to the advice and views of the appropriate regulators and organisation. For some disciplines, it is determined by comparison, wherever possible with locally, nationally or internationally accepted standards. If no standards are available then it is necessary to development Project specific limits, based on guidance or best practice as necessary.

4.2.8 Mitigation & Management Measures

A key component of the ESIA process is to explore practical ways of avoiding or reducing potentially significant impacts caused by development of the Project. These are commonly referred to as mitigation and management measures and will be included in the ESIA report and further incorporated in the future Construction Environmental and Social Management Plan (CESMP) and Operational Environmental and Social Management Plan (OESMP) documents that will be prepared by concerned parties. Mitigation will be aimed at preventing, minimising or managing significant adverse impacts to as low as reasonably practicable and enhancing and maximising any potential beneficial impacts of the Project.

The approach taken to identifying and incorporating mitigation measures into the Project will be based on a typical hierarchy of decisions and measures. This is aimed at ensuring that wherever possible, potential impacts are mitigated at source rather than mitigated through restoration after the impact has occurred.

4.2.9 Residual Impacts

The residual impacts section of the ESIA will consider the overall significance of impacts following the implementation of the mitigation & management measures not already included to the design. The significance of such impacts will be re-evaluated based upon the same criteria used to determine the impact significance stated above.

4.2.10 Cumulative Impact Assessment (CIA)

IFC Handbook on Cumulative Impact Assessment defines cumulative impacts as "those that 'result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones" (IFC, 2013).

In practice, the assessment of cumulative effects requires consideration of some concepts:

- Assessment of effects over a larger (i.e., "regional") area that may be transboundary/cross-jurisdictional; (including effects due to natural perturbations affecting environmental components and human actions).
- Assessment of effects during a longer period of time into the past and future;
- Assessment of effects on Valued Environmental Components due to interactions with other actions, and not just the effects of the single action under review; and
- Evaluation of significance in consideration of other than just local, direct effects.

4.3 Framework for Environmental and Social Management

The ESIA will include a standalone framework to guide the Project parties in establishing structures for the management of Environmental and Social risks, impacts, opportunities and compliance associated with both the construction and operational phases of the Project.

The Framework will outline systematic structures and management programmes that will ultimately be prepared to comprise the respective construction and operational phase Environmental and Social Management Systems (ESMS).

This framework will ensure alignment with applicable elements of the established ACWA Power corporate level Health, Safety Security and Environment (HSSE) Management System Framework, which is intended to ensure consistent and structured HSSE project management between ACWA Power projects.

It is intended that the EPC Contractor and O&M Company will prepare their respective CESMP and OESMPs as part of their wider ESMS'.

4.4 ESIA Reporting Structure

In order to align the ESIA with the requirements for environmental and social assessment established by the various lenders and expectations of the Uzbekistan environmental regulator, the ESIA report is proposed to be presented in the following format developed by 5 Capitals:

- Volume 1: Non-Technical Summary
- Volume 2: ESIA - Main Text, Tables and Figures
- Volume 3: Framework for Environmental & Social Management
- Volume 4: Appendices

Volume 1 will include a Non-Technical Summary (NTS) of the ESIA, including the main outcomes, and conclusions.

Volume 2 will comprise the main text of the ESIA and full impact assessment, with mitigation, management and monitoring measures identified.

Volume 3 will provide the Framework for Environmental and Social Management as outlined above.

Volume 4 will comprise all technical appendices relevant to the studies and ESIA.

5 ESIA TERM OF REFERENCE

5.1 Air Quality

5.1.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

THE LAW OF THE REPUBLIC OF UZBEKISTAN "ON ATMOSPHERIC AIR PROTECTION" (1996, AMENDED ON 13.03.2019)

This regulation specifies standards, quality and harmful effects norms, requirements on fuels, lubricants, production and operation of vehicles and other transport means and equipment, ozone layer protection requirements, obligations of enterprises, institutions and organisations toward atmospheric protection, and compensations of damages from atmospheric pollutions.

SaPiN № 0293-11 "Hygienic regulations. List of Maximum Permissible Concentrations (MPC) of contaminants in the atmospheric air of inhabitant areas in the territory of the Republic of Uzbekistan".

Table 5-1 Ambient Air Quality MPC (mg/m3)

POLLUTANT	(MPC MG/M^3)			
	ONE-TIME	24-HOUR	MONTHLY	ANNUAL
NO_2	0.085	0.06	0.05	0.04
NO	0.6	0.25	0.12	0.06
CO	5	4	3.5	3
SO_2	0.5	0.2	0.1	0.05
NH_3	0.2	0.12	0.06	0.04

Note: Maximum one-time concentration - the highest concentration detected at 20-30-minute sampling.

- Average daily concentration is the average of the one-time concentrations detected during the day or obtained with continuous 24-hour sampling.
- Monthly average concentration is the average of the average daily concentration detected during the month.
- Average annual concentration is the average of the number of average monthly concentrations revealed during a year in the course of one-time sampling.

LENDER REQUIREMENTS

EBRD

Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe limits pollutants to the standards shown in the following table.

Table 5-2 EC Ambient Air Quality Standards (µg/m³ unless stated)

POLLUTANT	CONCENTRATION	AVERAGING PERIOD	PERMITTED EXCEEDANCES PER YEAR
$PM_{2.5}$	25	Annual	n/a
PM_{10}	50	24-hour	35
	40	Annual	n/a
Sulphur Dioxide	350	1-hour	24
	125	24-hour	3
Nitrogen Dioxide	200	1-hour	18
	40	Annual	n/a
Lead	0.5	Annual	n/a
Carbon Monoxide	10 mg/m3	Maximum Daily 8-hour mean	n/a
Benzene	5	Annual	n/a
Ozone	120	Maximum Daily 8-hour mean	25 days averaged over 3 years
Arsenic	6 ng/m3	Annual	n/a
Cadmium	5 ng/m3	Annual	n/a
Nickel	20 ng/m3	Annual	n/a
PAH	1 ng/m3 (expressed as concentration of Benzo(a)pyrene)	Annual	n/a

Note: Not being a member State of the EU, it is noted that the Uzbekistan government does not manage ambient air quality in line with these standards, and as such the applicability of these standards in this ESIA assessment will only be for good practice benchmarking purposes, and not compliance purpose/assessment.

EPFIs

WHO ambient air quality standards as adopted by the IFC General EHS Guidelines are presented in the following table.

Table 5-3 WHO Ambient Air Quality Standards (µg/m³)

PARAMETER	24 HOUR	ANNUAL
PM_{10}	150 (Interim target 1)	70 (Interim target 1)
	100 (Interim target 2)	50 (Interim target 2)

PARAMETER	24 HOUR	ANNUAL
	75 (Interim target 3)	30 (Interim target 3)
	50 (Interim target 4)	20 (Interim target 4)
	45 (guideline)	15 (guideline)
$PM_{2.5}$	75 (Interim target 1)	35 (Interim target 1)
	50 (Interim target 2)	25 (Interim target 2)
	37.5 (Interim target 3)	15 (Interim target 3)
	25 (Interim target 4)	10 (Interim target 4)
	15 (guideline)	5 (guideline)
NO_2	120 (Interim target 1) 50 (Interim target 2) 25 (guideline	40 (Interim target 1) 30 (Interim target 2) 20 (Interim target 3) 10 (guideline)
SO_2	125 (Interim target 1)	500 (10-minute guideline)
	50 (Interim target 2)	
	40 (guideline)	
O_3	100 (interim target 1) (8-hour daily maximum)	
	70 (interim target 2) (8-hour daily maximum)	
	60 (8-hour daily maximum guideline)	

5.1.2 Initial Observations and Baseline Conditions

The proposed Project area is located in a remote region of Uzbekistan away from major population clusters and away from key anthropogenic emission sources. However, the site is prone to high winds and it is expected that natural ambient dust concentration can be high due to the sandy soils and limited vegetation.

Within the wider region, the main anthropogenic sources of air and dust emissions are those resulting from the vermiculite mines and cement factories located along the A380. Emissions from the stack of the cement facilities are visible. Additionally, areas within and adjacent to the wind farm Project site were identified as areas allocated for future mining. Therefore,

consultations with the Ministry of Mining and Geology will be undertaken to confirm any prospects for exercising any mining activities.



Figure 5-1 Stack Emissions from the Cement Plants

Visual observation by Juru (2024) confirm the presence of mining sites that contribute to elevated levels of dust and particulates. The following image from February 2024 depicts excavation activities happening at an adjacent mining site.



Figure 5-2 Excavation at a Vermiculite Mine

The industrial facilities in the surrounding areas also require the frequent movement of Heavy Goods Vehicles (HGVs) often carrying materials which can be dispersed by wind if not properly covered and secured. Therefore, elevated particulate matter concentrations in the surrounding region are not uncommon.

5.1.3 Potential Impacts

Table 5-4 Potential Air Quality Impacts

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Ground preparation and earthworks (for turbine pads, OHTL gantries and access road)	Dust/Particulate generation	Increased suspended particles in air and dust deposition (350 m from source – *UK IAQM*)	The local airshed, any herders present in the zone of influence, and local communities along the OHTL route
Vehicle movements on unpaved tracks			
Use of vehicles, mobile equipment and fuel driven plant	Emission of gases (e.g., NOx, SO_2, CO_2, BTEX etc.)	Increased concentration of gaseous pollutants (distinguishable from background within a of 200 m from source - *DMRB*)	
	Emissions of Greenhouse Gases (GHGs)	Contribution to global warming on a global scale	
Use of temporary sanitation facilities and wastewater containment	Odour from sanitary wastewater (only if poorly managed)	Only expected a maximum of 100 m from source for distributed and various temporary toilets/septic tanks.	
Storage of fuels, chemicals and other volatile substances	VOC emissions and odour (only if poorly managed)	Only expected a maximum of 100 m from source for small quantity and distributed storage during construction.	
Operational Phase			
Use of vehicles, mobile equipment and fuel driven plant for maintenance purposes	Emission of gases (e.g. NOx, SO_2, CO_2, BTEX.)	Increased concentration of gaseous pollutants (distinguishable from background within a of 200 m from source - *DMRB*)	Local airshed, any herders utilising the area, and local communities along the OHTL route
	Emissions of Greenhouse Gases (GHGs)	Contribution to global warming on a global scale	

5.1.4 Proposed ToR for the ESIA

Baseline Studies

Baseline monitoring for ambient air quality is not proposed on the basis that a quantitative assessment will not be required to assess the limited expected potential impacts upon receptors and ambient air quality.

Construction Phase Impacts Assessment

A qualitative assessment will be made concerning the potential impacts of construction dust, pollutant emissions and odour; relative to identified receptors that may (or may not) be in the zone of influence for wind turbine, OHTL and access road construction. Impacts from vehicular emissions along roads will also be considered. Impacts during construction are expected to be temporary and limited in extent.

Where potentially significant impacts are determined, applicable mitigation measures will be proposed in the ESIA for further incorporation to the EPC Contractor's CESMP. Such measures are expected to align with typical construction good practices for emissions management, including dust suppression mitigation for all soil moving or vehicle moving activities. Good Industry Practices (GIP) requires such mitigation measures to include water suppression, use of designated roads, and covered stockpiles etc.

Where information is available, an estimate regarding the consumption of fuel during the construction phase will be used to predict greenhouse gas emissions for the construction phase.

OPERATIONAL PHASE IMPACTS ASSESSMENT

The potential operational impacts relating to air quality have been scoped out of detailed assessment, as impacts from maintenance activities are not expected to be discernible at any receptors. However, the ESIA will include best practice mitigation and management measures related to operations. The intention will be for these best practice measures to be included into the Operational Environmental Management Plan (OEMP) and operational phase Environmental Management System (EMS) for effective management and implementation on-site.

5.2 Noise & Vibration

5.2.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

- The SanPin No. 0267-09 relating to rules on acceptable levels for habitable areas in Uzbekistan sets out the acceptable noise levels for habitable areas both inside and outside of buildings in Uzbekistan as shown in the table below.

Table 5-5 Noise Limits under SanPiN No.0267-09

LOCATION	TIME	SANPIN NO. 0267-09
Noise levels in premises of residential, public buildings and on the territory of residential areas	7am to 11pm	55dB(A)
	11pm to 7am	45dB(A)

- The SanPinNo. No 03225-16 Sanitary standards for permissible noise levels in the workplace aims to protect the health of the staff and workers in the workplace. The law represents noise levels for a variety of internal and external application as shown in the table below:

Table 5-6 Work Environment Noise Limits

TYPE OF WORK, WORKPLACE	REQUIREMENT
Performing all types of work on the permanent workplaces in industrial premises and in the enterprises	80db(A)

LENDER REQUIREMENTS

EBRD

The European Commission Environmental Noise Directive (Directive 2002/49/EC) relating to the assessment and management of environmental noise is the main EU instrument to identify noise pollution levels and to trigger the necessary action both at Member State and at EU level. The Directive applies to noise to which humans are exposed, particularly in built-up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, hospitals and other noise-sensitive buildings and areas. It is important to note, however, that the Directive does not set limit or target values, nor does it prescribe the measures to be included in the action plans, thus leaving those issues at the discretion of the competent Member State authorities.

EPFIs

EPFIs are likely to require adherence to WHO noise standards as detailed in World Bank EHS Guidelines (2007), as shown in the following figure.

Table 5-7 World Bank Ambient Noise Level Guidelines

RECEPTOR	ONE HOUR LAEQ DB(A)	
	DAYTIME (07:00 – 22:00)	NIGHT (22:00 – 07:00)
Residential, Institutional, Educational	55	45
Industrial, Commercial	70	70

These relates to receptors and not the plant boundary. Noise impacts should not exceed the levels presented above, or result in a maximum increase in background levels of 3 dB(A) at the nearest sensitive receptor location off-site.

Furthermore, the following requirements have also been specified in the WBG EHS noise guidelines:

- No employee should be exposed to a noise level greater than 85 dB(A) for duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).
- The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound level reaches 140 dB(C), or the average maximum sound level reaches 110 dB(A). Hearing protective devices provided should be capable of reducing sound level at the ear to at least 85 dB(A).
- For every 3 dB(A) increase in sound levels, the allowed exposure period or duration should be reduced by 50%.
- Where feasible, use of acoustic insulating materials isolations of the noise source and other engineering controls should be investigated and implemented prior to the issuance of hearing protection devices as the final control mechanism.
- Medical hearing checks on workers exposed to high noise levels should be performed periodically.

Noise Requirements for Wind Projects

The World Bank/IFC EHS Guidelines for Wind Projects include information relevant to the EHS aspects of onshore and offshore wind energy facilities.

For operational phase noise, the IFC Guideline for Wind Energy include principles for the assessment of sound from wind turbines, which include the following (WBG/IFC, 2015):

- Receptors should be chosen according to their environmental sensitivity (human, livestock or wildlife);
- Preliminary modelling should be carried out to determine whether more detailed investigation is warranted. The preliminary modelling can be as simple as assuming hemispherical propagation (i.e., the radiation of sound, in all directions, from a

source point). Preliminary modelling should focus on sensitive receptors within 2,000 meters (m) of any of the turbines in a wind energy facility;

- If the preliminary model suggests that turbine noise at all sensitive receptors is likely to be below an LA90 to 35 dB(A) at a wind speed of 10 meters/second (m/s) at 10m height during day and night times, then this preliminary modelling is likely to be sufficient to assess noise impact; otherwise, it is recommended that more detailed modelling be carried out, which may include background ambient noise measurements;
- All modelling should take account of the cumulative noise from all wind energy facilities in the vicinity having the potential to increase noise levels;
- If noise criteria based on ambient noise are to be used, it is necessary to measure the background noise in the absence of any wind turbines. This should be done at one or more noise-sensitive receptors. Often the critical receptors will be those closest to the wind energy facility, but if the nearest is also close to other significant noise sources, an alternative receptor may need to be chosen; and
- The background noise should be measured over a series of 10-minute intervals using appropriate wind screens. At least five of these 10-minute measurements should be taken for each integer wind speed from cut-in speed to 12 m/s.

The above principles are referenced from the following key guidance documents:

- ETSU, Report ETSU-R-97 "The Assessment & Rating of Noise from Wind Farms" 1997.
- Institute of Acoustics (IOA) "A Good Practice Guide to the Application of ETSU-R-97 for the Assessment & Rating of Wind Turbine Noise" 2013.
- D. McLaughlin "Wind Shear and its Effect on Wind Turbine Noise Assessment" Acoustic Bulletin, July/August 2012, 39-42.

Vibration Good Practice Guideline

Good practice vibration exposure limits and action values are stated in guidance issued by the American Conference of Governmental Industrial Hygienists (ACGIH), which advises threshold limit values for both hand-arm vibration and whole-body vibration.

5.2.2 Initial Observations and Baseline Conditions

NOISE AND VIBRATION

There are no significant anthropogenic sources of noise and vibration within 4.5 km of the wind farm Project site. The main regional source of noise is the industrial plants along the A380. However, noise from these facilities is not expected to be discernible at wind farm site. There are no noise sensitive receptors at the wind farm site apart from herders which are nomadic.

The OHTL is approximately 1.1 km from an active mining facility. Traffic on the A380, and the mining and cement operations are the primary sources of noise and vibration.

5.2.3 Potential Impacts

Table 5-8 Potential Noise & Vibration Impacts

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Construction activities on-site and for access road and OHTL construction (including temporary plant and use of mobile equipment)	Noise propagation	Increased noise influence at receptors expected up to 500 m or to a maximum of 2 km in very calm and quiet ambient conditions.	Local communities along the OHTL route and herders utilising the wind farm site, and any nearby industries
	Vibration	Impacts within the site footprint and immediately adjacent to the site.	
Movement of vehicles to the site (i.e., along access roads)	Noise propagation	Impacts along road corridors used by construction vehicles to the site. Particularly due to HGV movements	
Operational Phase			
Wind turbine operations (continuous, but varied depending on wind intensity)	Noise propagation	Increased noise influence at receptors primarily expected up to 500 m from turbines or to a maximum expected range of 2 km.	Any herders utilising the area
Crackling/corona noise from OHTL and electrical facilities	Noise propagation	Increased noise influence at receptors primarily expected up to 200 m from OHTL.	Local communities along the OHTL route
Movement of vehicles for maintenance purposes	Noise propagation	Impacts along road corridors used by operational vehicles to the site. Few operational vehicles are expected, so impacts are likely to be minimal.	Local communities along the OHTL route and herders utilising the wind farm site

5.2.4 Proposed ToR for the ESIA

Baseline Studies

Two separate noise monitoring surveys are discussed below. Noise monitoring related to construction noise impacts assessment will be undertaken in all cases, however, more detailed noise monitoring for noise modelling purposes will only be undertaken where preliminary modelling of WTG operational impacts has identified the need for a detailed noise model at sensitive receptors.

Noise monitoring related to construction noise impacts assessment:

Baseline noise monitoring will be measured by Class 1 (Type 1) sound level meter at twelve (12) locations and it will involve the following:

- Each location will be monitored for 24-hours continuously;
- The sound level meter will be placed on a tripod so that the microphone is 1.2 m to 1.6 m above the local ground level (and no closer than 3 m to any reflecting surface (e.g., wall) when measuring near a house, for example);
- Measurements will be taken up till the 12 m/s of wind speed;
- Measurements will not be undertaken during periods of rain;
- There will be taken photo of the noise meter at each monitoring location and also at the nearest receptors (e.g., if near a house) at each location;
- Wind parameters and notes on noise influences (such as noise from any vehicle, human activity or from local infrastructure) will be recorded.

The raw data and graphical representations of the data will be included to the ESIA.

Following from the identification of receptors during the site visit, the baseline noise monitoring will be conducted at the following locations:

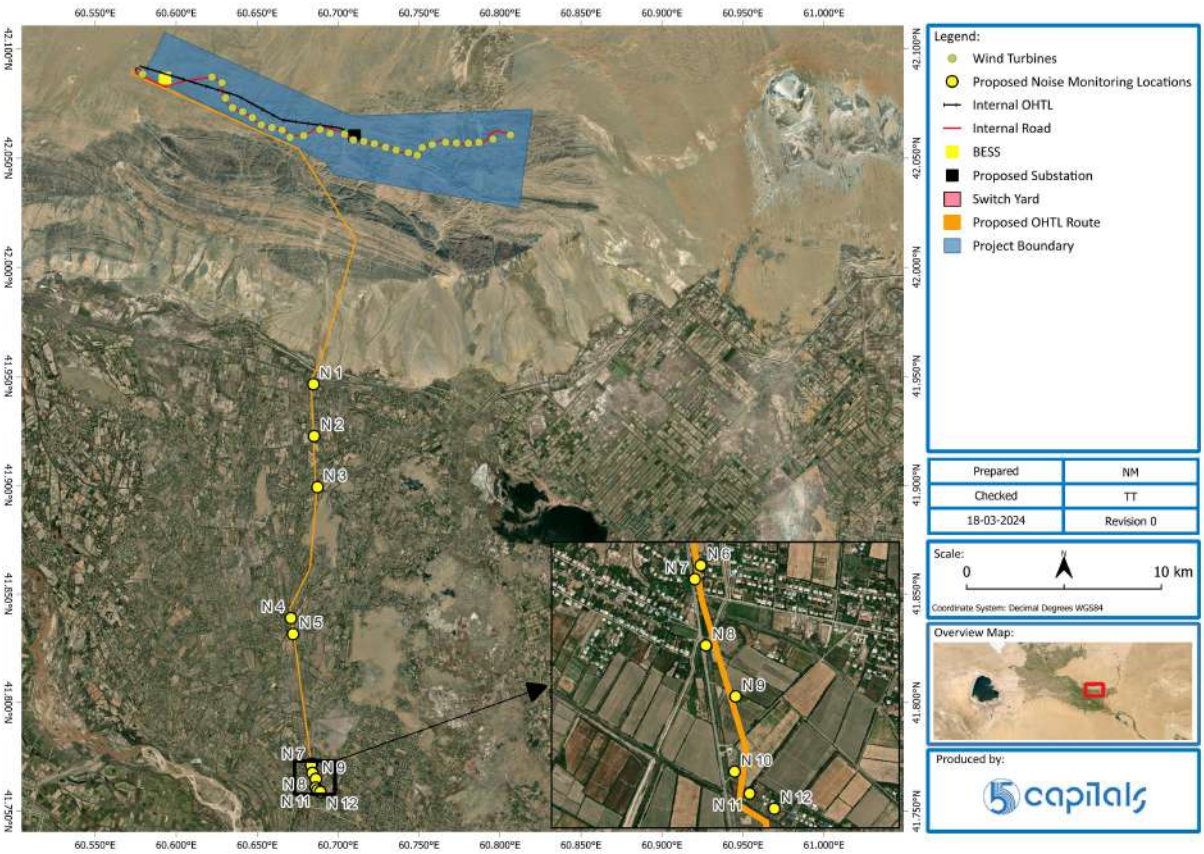


Figure 5-3 Proposed Noise Monitoring Locations

Noise monitoring for operational modelling assessment of noise impacts assessment:

Note: *If the preliminary noise model suggests that turbine noise at any sensitive receptor is likely to be above an LA_{90} of 35 (dB) (A) at a wind speed of 10 m/s at 10 m height during day and night time, then more detailed modelling be carried out, which would include a background ambient noise measurement survey outlined below.*

The EHS Guidelines for Wind Energy recommends screening the potential effects within 2 km from the sound sources. A preliminary screening assessment has been performed using windPRO tool, and it shows that noise levels are expected to drop to between 35 and 40 dB(A) within 1 to 1.5 km from each WTG (Juru Energy, 2021).

There are no permanent residential receptors within 10 km of the proposed WTGs, and herder's shelters were also not identified. Therefore, it is unlikely there will be any operational noise issues on permanent residential receptors and as such detailed noise monitoring is not currently required.

CONSTRUCTION PHASE IMPACTS ASSESSMENT

Noise impacts during the construction phase will be assessed by using calculations established in BS 5228-1:2009 'Code of practice for noise and vibration control on construction and open sites – Noise'. This will be undertaken for construction works at a wind turbine pad & turbine erection location, an OHTL gantry footing & gantry erection location and an access road location. The predicted noise levels will be based on the expected construction equipment and will incorporate reductions in noise due to distance propagation.

Due to the number of turbines and OHTL gantry footings with near identical required construction works, this will be undertaken for one location each and will generate expected noise levels at set distances from these works. It will then be possible to evaluate potential noise impacts at receptors, where these are located within the zone of influence from the works.

Potential impacts will be based upon the degree of change in decibels at receptor locations and will also be compared against applicable noise standards. In situations where residential receptors are located in proximity to construction works, the ABC method stated in BS5228-1:2009 Part 1, paragraph E.3.2 would consider the existing ambient noise environment (the LAeq noise level environment) and identify the noise level needed to be exceeded that would result in a 'significant adverse' impacts.

Due to the remoteness of the Project site and works, vibration impacts are generally not expected and will not be assessed in the ESIA.

OPERATIONAL PHASE IMPACTS ASSESSMENT

No specific assessment of noise quality impacts is proposed, as the preliminary screening assessment has shown that noise levels are expected to drop to between 35 and 40 dB(A) within 1 to 1.5 km from each WTG (Juru Energy, 2021). Additionally, there are no permanent residential receptors within 10 km of the proposed WTGs, and herder's shelters were also not identified. Therefore, it is unlikely there will be any operational noise issues on permanent residential receptors and as such detailed noise monitoring is not currently required.

Other Noise Sources

Electrical Crackling/Corona Noise and Vehicle Noise

The level of potential acoustic impacts is not expected to be significant at the Project's operational stage. Nevertheless, a general assessment of localized noise influences from the occurrence of project-related traffic and corona discharge during operation will be made and management measures will be specified to minimize resultant acoustic impacts.

5.3 Geology, Soils, Surface Water and Groundwater Quality

5.3.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

The protection of geological formations, soil and water resources in Uzbekistan is regulated by the following laws and regulations:

SOIL QUALITY

- SanPiN No.0272-09 Sanitary rules and norms for compiling hygienic justifications for soil protection schemes from pollution in Uzbekistan": The Sanitary Rules and Norms include the basic requirements for development of hygienic justification for the soil protection schemes against pollution, duties and functions of state sanitary supervision bodies in this area.
- SanPiN No.0191-05 Maximum permissible concentrations (MPC) and Approximate allowable concentrations (AAC) of exogenous harmful substances in soil: This defines MPC values of chemicals and pesticides polluting the soil. MPCs and AACs are designed to ensure that there is no negative direct or indirect impact on human health, its future generations and public health through soil contact.
- SanPiN No.0212-06 Sanitary rules and norms for the hygienic assessment of soil contamination of different types of land use: This document provides a unified methodology for hygienic assessment of soil pollution using a nomenclature of indicators of soil hygienic condition, which should be used both in the development of regulatory and technical documentation on the hygiene of soils, and in assessing the degree of its pollution.

WATER RESOURCES

Water resource management, allocation and use in Uzbekistan falls under the Ministry of Agriculture and Water Resources (MAWR), which oversees national authorities I.e. provisional and district departments of agriculture and water resources, and inter provincial and inter district river management authority.

- Constitution of the Republic of Uzbekistan.

Article 55 states "Land, depths, water, flora and fauna and other natural resources are national wealth, should be rationally used and are under state protection."

- The Law of the Republic of Uzbekistan "On water and water use" (1993 as amended on 01.12.2021).

This law enshrines the key objectives for water legislation in Uzbekistan setting the following requirements:

- Article 1 requires "Regulation of water relations; effective use of water; protection of water from pollution, littering and exhaustion; prevention and liquidation of harmful impact on water resources; improvement of state water objects; and protection of the rights of enterprises, organisations, farms and citizens in the field of water relations."
- Article 3 stipulates that "Water resources are the state property and wealth of the Republic of Uzbekistan, should be rationally used and is protected by the state."

The law authorises the State through authorized agencies to carry out management and control of water use and protection.

Other key legislations and standards relevant to the Project include:

- SanPiN No 0255-08 which provides the criteria for hygienic assessment of the level water bodies contamination for health risks to the population in Uzbekistan.
- Decree of the Cabinet of Ministers No.255 of 31.03.2018 On the approval of some administrative regulations of the provision of public services in the field of nature use (scheme for issuing permits for special water use or water consumption) as amended on 15.01.2020.
- SanPiN RUz No. 0318-15. Hygienic and anti-epidemic requirements for the protection of water in reservoirs on the territory of the Republic of Uzbekistan.

The Decree № 981 of December 11 2019 "Regulation on procedure of establishing water protection zones and sanitary protection zones for water bodies on the territory of the Republic of Uzbekistan".

LENDER REQUIREMENTS

EBRD

Performance Requirement 3 on Resource Efficiency and Pollution Prevention and Control establishes general requirements for pollution prevention as follows:

- The assessment process must identify technically and financially feasible pollution prevention and control techniques that are best suited to avoid or minimise adverse impacts on human health and the environment. Such techniques will be appropriate to the nature and scale of the project's adverse impacts and issues; and
- The Project must meet the relevant EU substantive environmental standards, where these can be applied at the project level. Where no EU substantive environmental standards at project level exist, the Project will identify, in agreement with the EBRD, other appropriate environmental standards in accordance with GIP.

As there may be no defined soil and groundwater standards for Uzbekistan, it is proposed to benchmark existing soil and groundwater against the Dutch standards.

EPFIs

IFC Performance Standard 3 on 'Resource Efficiency and Pollution Prevention' requires the client and/or the Project to:

- Avoid or minimise adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; and
- Prevent the release of pollutants to water and land due to routine, non-routine, and accidental circumstances, or when not feasible, minimize and/or control the intensity and mass flow of their release.

5.3.2 Initial Observation and Baseline Conditions

TOPOGRAPHY

The Project site is made up of semi-complex terrain composed of gentle ridges originating from a higher summit at the edge of the Karatau hills located in the west of the Project area. Sultan Uvays Complex is a mountain range in Karakalpakstan, on the right bank of the Amu Darya. The range is located in the extreme southwest of Kyzylkum, separating the desert from the valley of the Amu Darya River. The length is over 50 km, the width is up to 25 km. The ridge has an almost latitudinal stretch in the east, which is replaced by a north-westerly one in its western part. The maximum height reaches 473 m. The massif consists of ridges composed of quartzite, gneiss, marble with granodiorite intrusions. The southern and western slopes are steep, while the northern and eastern slopes are gentle.

The landscape of the OHTL route is characterised by unmodified and modified areas. The northern part goes through the mountain range and desert land, to the south, it goes through agricultural farms and living communities.

GEOLOGY AND SOILS

The Project site is located on Kyzylkum desert and Sultanuizdag mountains. North-western part of site is mainly represented by semi soil and rocky soil. North-eastern part is mountain area.

At the wind farm site there are no aboveground water sources, however, the site visit revealed the presence of dry stream beds that indicate the occurrence of high rainfall events.

The soil of the OHTL route is represented mainly by desert and rocky soil at northern part, and by agricultural area down to the south.

Along the OHTL route there are canal drainage systems (various canals for irrigation and discharge of water after irrigation).

No geotechnical or hydro-geological investigations have been performed at the Project site. However, many of these are being undertaken close to the Project boundary (the nearest ones are less than 2 km away). Existing information about the site indicates that the soil's geomorphological structure is less-like loam interbedded with sand and gravel ranging from 2 m to 40 m deep. The soil cover is represented mainly by grey-brown soils. The north-west of the site is rocky at the surface with traces of rock at about two meters in depth. Ground conditions mean the potential for soil erosion and dust generation during the Project construction phase are high.

HYDROLOGY

The Project area is part of the Amu-Darya hydrographic network which passes more than 5km from the Project area, specifically the OHTL route. No permanent surface water bodies or rivers are observed in the Project site. The nearest waterbody is Akchakol lake, which is located 14 km from the wind farm site to the south and around 9.5 km from the OHTL route to the east. Akchakol lake is used for fishing, recreation, and is a possible area of importance for wintering birds. Additionally, seasonal stream beds are evident, these are typically inundated during the short rainy season, which lasts from June until the end of July. In the wider area, water supply is reliant on the Amu Darya River. Smaller villages along the north bank of the river are not connected to the main supply system. It is reported that water for agricultural purposes is scarce due to increases in upstream water consumption (Juru Energy, 2021).

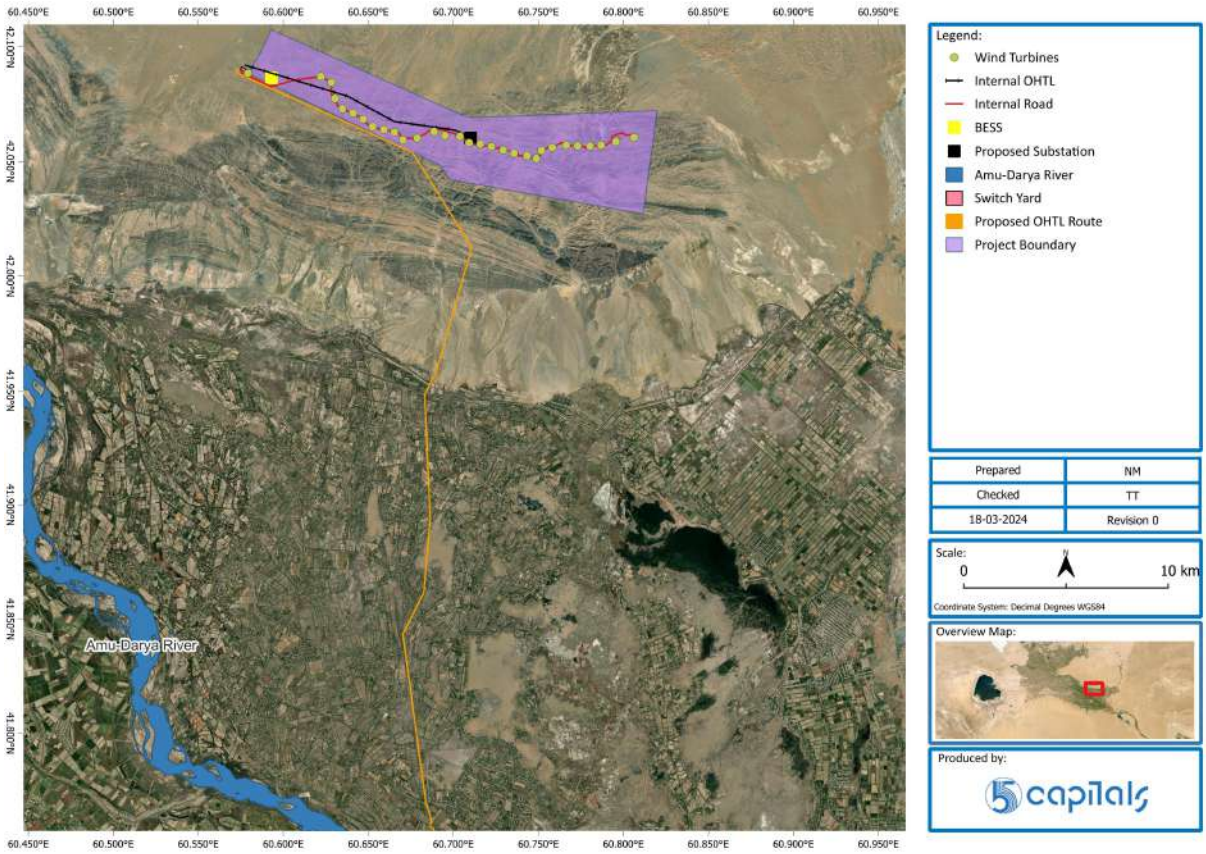


Figure 5-4 Amu-Darya River (Running Diagonally Top Left to Bottom Right)

GROUNDWATER

Water boreholes located in the area are understood to have been constructed as part of a historical water pipeline project that is no longer in progress or developed to support livestock grazing. Groundwater quality is unknown but expected to be unsuitable for drinking without pre-treatment.

SEISMIC HAZARD

The territory of Uzbekistan is characterized by a complex tectonic structure and a high level of seismic activity. Its eastern part belongs to the neotectonic epiplatform orogen of the Western Tien Shan; the western part, to the epi-Hercynian Turan platform. A considerable part of the territory of Uzbekistan belongs to the zone of seismic intensity VII. The Project site is located in medium to high seismic hazard level with relatively high values of Peak Ground Acceleration ("PGA").

5.3.3 Potential Impacts

Table 5-9 Potential Soil, Geology and Groundwater Impacts

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Movement of vehicles, removal of vegetation, construction activities	Soil erosion	Areas in direct footprint of works or project related vehicle movements	Site soils
Site clearance and removal of any site soils	Legacy spills & leaks from (e.g. oils & greases, hydrocarbons and heavy metals)	Cross-contamination of soils which could occur in all construction areas.	Soil quality
Storage, handling and use of hazardous materials, chemicals, fuels and inadequate waste management	Potential spills & leaks associated with construction	Direct impacts to soil (and potentially groundwater if at shallow depths) with potential for runoff to flow paths	Site soils and potentially groundwater (if shallow)
Operational Phase			
Storage, handling and use of limited volumes of hazardous materials, chemicals, fuels, and inadequate waste management	Potential spills & leaks associated with operations	Direct impacts to soil (and potentially groundwater) with potential for runoff to flow paths.	Site soils and potentially groundwater (if shallow).

5.3.4 Proposed ToR for the ESIA

Baseline Studies

Geology

Reference will be provided in the ESIA to available secondary data sources to identify the geological condition of the Project area. Where this has an impact upon the effects of potential pollution, pollution pathways or erosion, this will also be discussed in the relevant assessment sections of the ESIA.

Soil

The ESIA will include an Initial conceptual model to identify the risk of source-pathway-receptor linkage based on a Phase 1 land contamination walkover.

Topsoil samples will not be collected on the basis that the soil analysis results for the Phase 1 project (Nukus 100 MW Wind Farm) revealed homogeneity across all samples. All samples exhibited similar pH, and all samples exceeded the maximum permissible values for copper, zinc, chromium and nickel. Additionally, three samples exceeded the national permissible

values, however, are below the Dutch Intervention Value, yet, copper also exceeds the Dutch Intervention Value. Nonetheless, given that the area is known for its mining potential and therefore the presence of metals in high concentrations is considered to be a natural phenomenon and not as a result of anthropogenic influence. Consultation was conducted with the Central Laboratory regarding the exceedances, and it was explained that high concentrations of metals is expected for the region. In addition, exceedances were observed in all five samples despite the distance between the samples, further indicating that the high concentrations are natural for the region.

Groundwater

Even though geotechnical investigations have not been performed at the Project site, investigations on nearby locations (the nearest ones are less than 2 km away) have shown that groundwater is at a depth of >30 m and therefore groundwater sampling and analysis is not proposed.

Impacts that could be attributable to the construction phase are common for any construction project and considered to be manageable through the implementation of a robust CESMP. As such, appropriate controls relating to construction processes will be included to the mitigation and management section of the ESIA. The same will be applied in the ESIA for the operation phase.

CONSTRUCTION PHASE IMPACTS ASSESSMENT

A qualitative assessment will be made concerning the potential impacts on soil and groundwater quality in the zone of influence for wind turbine, OHTL and access road construction. Potential impacts from flood risk will also be considered. Where potentially significant impacts are determined, applicable mitigation measures will be proposed in the ESIA for further incorporation in the EPC Contractor's CESMP. Such measures are expected to align with typical construction good practices for appropriate handling, transport and storage of chemicals and hazardous materials.

OPERATIONAL PHASE IMPACTS ASSESSMENT

Specific project impacts to soil, geology, surface water and groundwater are not expected during the operational phase as the site will be static and will not have direct interactions with these environmental parameters. Potential risks of concern during the operational phase are expected to be limited to the management and storage of hazardous materials/wastes/wastewater, chemicals and fuels and sanitary provision. Best practice mitigation and management will be proposed in the ESIA for incorporation in the CESMP.

5.4 Terrestrial Ecology and Avifauna

5.4.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

The Law of the Republic of Uzbekistan "On Nature Protection" (1992) as amended in 2021

This law is the key national environmental law for the protection of the environment and the sustainable use of resources and the right for the population to a clean healthy environment. This law states legal, economic, and organisational basis for the conservation of the environment and the rational use of natural resources. Article 25 of this law states that the State Environmental Expertise (SEE) is a mandatory measure for environmental protection, preceded to decision making process. In addition, the law prohibits the implementation of any Project without approval from SEE.

The Law of the Republic of Uzbekistan "On Protected Natural Reserves" (2004) as amended in 2020

This law regulates the use and protection of protected natural territories. The main aim is to ensure preservation of typical, unique, genetic banks of plants and animals, prevent negative impact of human activities on nature, promote the study of natural processes and monitoring of the environment including promotion of environmental education.

The Law of the Republic of Uzbekistan "On Protection and Use of the Wildlife" (1997) as amended in 2016

This law regulates the use, protection, reproduction and restoration of wildlife in order to promote conservation and ensure diversity of species in their natural habitat.

Other laws and regulations include:

- The Law of the Republic of Uzbekistan "On Protection and Use of Vegetation" (1997) as amended in 2021.
- Decree of the Cabinet of Ministers "Regulation on the procedure for using plant world objects and passing licensing procedures in the field of using plant world objects" No. 290 of 10.10.2014 as amended in 2020. The law sets out the requirements to obtain permission to cut wood and shrub plantations that are in the zone of the construction site.

Decree of The President of The Republic of Uzbekistan, Dated December 30, 2021, No. UP-46 on Measures to Accelerate Greening Works and Further Effective Organization of Tree Protection in the Republic

The Decree prohibits the following:

- Acceptance of applications for tree cutting through centers of state services and the Unified Portal of Interactive Government Services.
- Issuance of conclusions on tree and shrub cutting by territorial environmental protection authorities.
- Issuance of permits by district and city administrations for the cutting of trees and shrubs not included in the state forest fund, for which a moratorium has been introduced.
- Pruning and cutting of trees and shrubs damaged by natural factors, plant diseases, and those posing a threat to human life and health, according to the document, can only be carried out by the landscaping authorities.
- Where trees not included in the forest fund have to be cleared for development and construction purposes, compensatory replanting must be carried out at a ratio of 10 young trees for one tree cut.

LENDER REQUIREMENTS

EBRD

EBRD PR6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources establishes general requirements for the conservation of biodiversity and sustainable management of living natural resources covering aspects such as the assessment of issues and impacts on biodiversity.

Where applicable, the Project will intend to follow the targets set out by the EU Biodiversity Strategy including the Habitats Directive 92/43/EEC, the Birds Directive 2009/147/EC and the EU Regulation 1143/2014 on Invasive Alien Species. It is noted however that the targets are unlikely to be triggered by the Project due to the nature and scale of the Project and the existing ecological conditions within the Project site (primarily modified habitat due to farming).

EPFI's

The assessment of impacts upon terrestrial ecology is required with due consideration to IFC Performance Standard 6 on Biodiversity Conservation and Sustainable Natural Resource Management. PS6 establishes requirements for protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources. When avoidance of impacts is not possible, measures to minimise impacts and restore biodiversity and ecosystem services should be implemented. Specifically, it is necessary to determine baseline conditions and categorise the projects habitats as 'critical', 'modified' or 'natural' to undertake the necessary assessment. The Performance Standard defines the different habitats as follows:

- Natural Habitat: "Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition";
- Critical Habitat: "Critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes"; and
- Modified Habitat: "Modified habitats are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed6 coastal zones, and reclaimed wetlands".

5.4.2 Initial Observations and Baseline Conditions

AREAS OF CONSERVATION IMPORTANCE

The review of conservation areas within the project site included a review of the following databases:

- Protected Areas designated on World Database of Protected Areas (protectedplanet.net)
- Important Bird Areas (IBA) and Endemic Bird Areas (EBA) designated by Birdlife International (birdlife.org)
- Key Biodiversity Areas (KBAs) designated by the KBA Partnership (keybiodiversityareas.org)
- Wetlands of International Importance (Ramsar Sites) designated by Ramsar, none of which were found in the study area;
- Biosphere Reserves designated by UNESCO, none of which were found in the study area;
- AZE Sites designated by the Alliance for Zero Extinction, none of which were found in the study area; and
- Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within Natura 2000; as laid out in the EU Habitats and Birds Directives, none of which were found within the study area.

The following table list the areas within the vicinity of the wind farm development project that are of conservation importance.

Table 5-10 Conservation Areas within 50 km of the Project Boundaries

NAME	DESIGNATION	PROXIMITY TO PROJECT AREA
Lower Amudarya Biosphere Reserve	Legally Protected Area (LPA)	• >10 km to the wind farm project site • In proximity to the southern portion of the OHTL interconnection
Khorezm Fish Farm and Adjacent Lakes	• Important Bird Area (IBA) • Key Biodiversity Area (KBA)	• >45 km

As is evident from the table, the Lower Amudarya Biosphere Reserve is located at least 10 km from the wind farm project site. However, the southern portion of the OHTL interconnection segment is in very close proximity to the Lower Amudarya Biosphere Reserve. The reserve contains riparian vegetation, including poplar forests and is home of 91 species of birds and 21 species of mammals amongst which is the rare Tarim Red Deer.

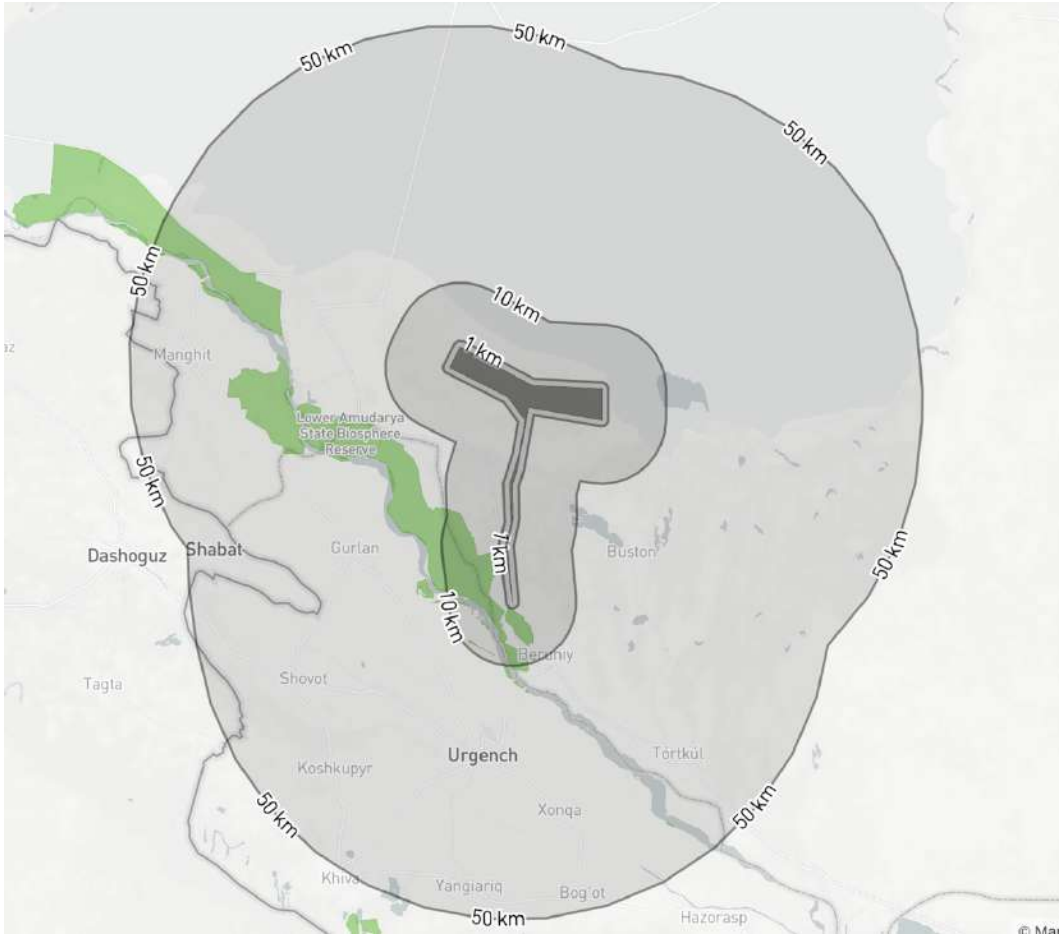


Figure 5-5 Protected Area - Lower Amudarya Biosphere Reserve

The Project area is located a minimum of roughly 45 km from any KBA and IBA. The Khorezm Fish Farm and Adjacent Lakes is designated as a KBA and an IBA, and is known to host large

populations of migratory and breeding birds, however no records of threatened species have been found at this site. The location of the Khorezm Fish Farm and Adjacent Lakes relative to the Project is shown in the following figure.

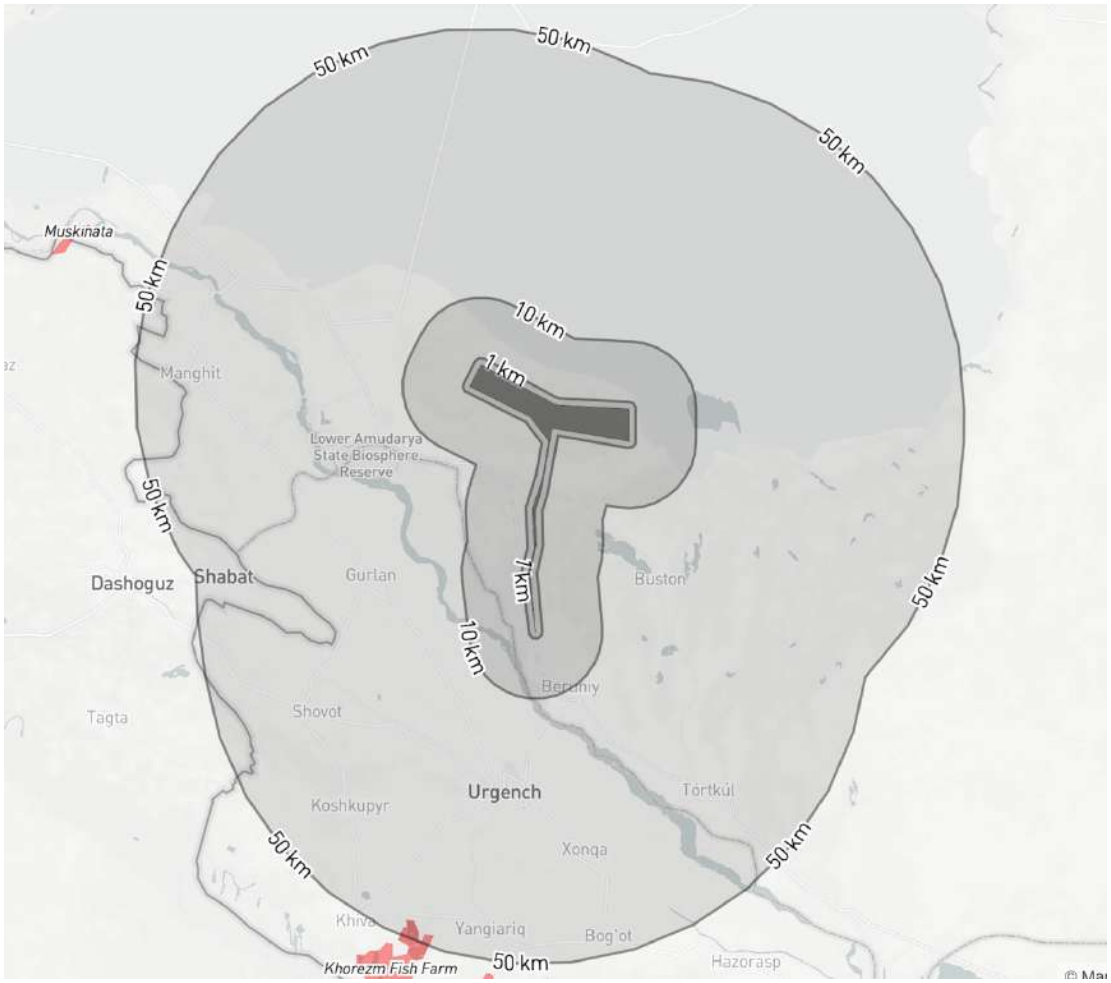


Figure 5-6 KBA - Khorezm Fish Farm and Adjacent Lakes

The trigger species resulting in its designation as an IBA is shown in the following figure.

Khorezm Fish Farm and adjacent lakes UZ011

Summary | Text account | Data table and detailed info | Map | Reference and further resources

IBA Criteria

Year of most recent IBA criteria assessment: 2008

Populations of IBA trigger species

Species	Current IUCN Red List Category	Season	Year(s) of estimate	Population estimate	IBA Criteria Triggered
Red-crested Pochard *Netta rufina*	LC	passage	2007	3,000-7,000 individuals	A4i
Glossy Ibis *Plegadis falcinellus*	LC	passage	2007	800-900 individuals	A4i
Black-headed Gull *Larus ridibundus*	LC	passage	2007	6,000-8,000 individuals	A4i
Pallas's Gull *Larus ichthyaetus*	LC	passage	2007	3,000-4,000 individuals	A4i

Note: This table presents the IBA criteria triggered and the species that triggered then at the time of assessment, the current IUCN Red List category may vary from that which was in place at that time.

Figure 5-7 IBA Trigger Criteria – Khorezm Fish Farm and Adjacent Lakes (BirdLife, 2022b)

The area and region do not have any assessed ecosystems under consideration for the IUCN Red List of Ecosystems, and there are no designated AZE sites or other factors that allude to high evolutionary function.

The habitats within the project area and surroundings appear to be relatively typical of the region, supporting low vegetation density. It is not anticipated that the ecosystems that will be affected are of regional or global significance.

The preliminary screening and the IBAT report generated for the 50 km^2 highlights 3 species classified as Critically Endangered (CR) and 6 species classified as Endangered (EN).

AVIFAUNA (BIRDS)

The project lies within the West Asian-East African Flyway and the Central Asian Flyway.

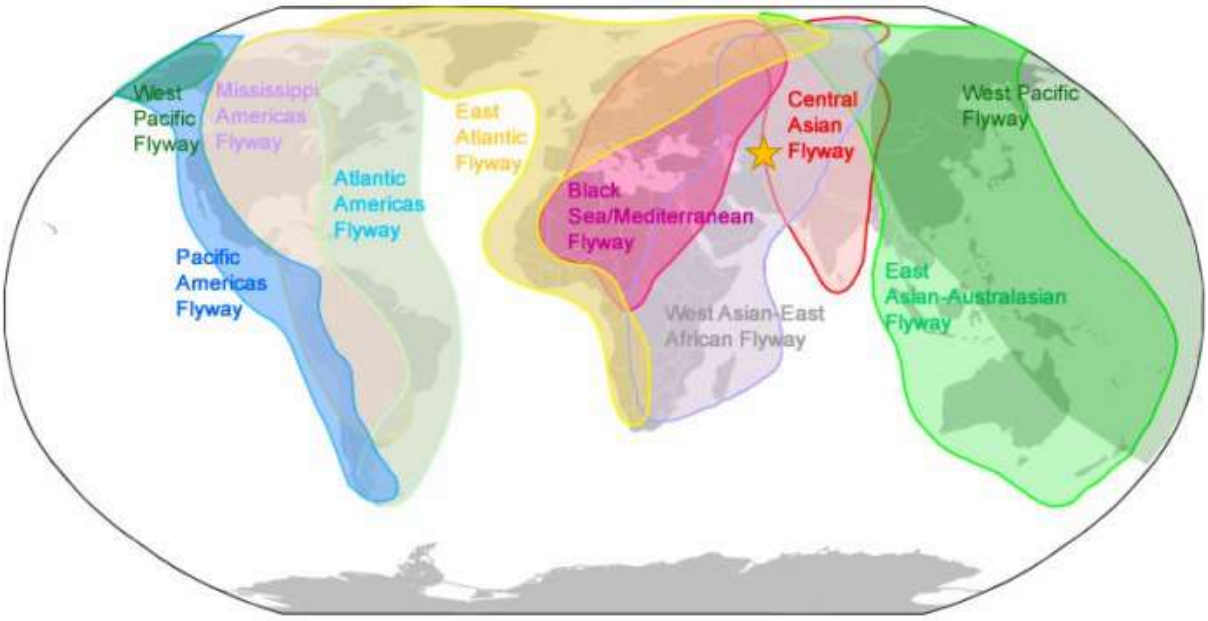


Figure 5-8 Global Migratory Flyways

An assessment of the landforms surrounding the project site enables predictions of general flight paths of migratory flocks*, which typically avoids expanses of flat desert and mountain features and follows along coastlines or river deltas to wetland staging areas and stopover sites. (*migratory flight path prediction is an imperfect science. Migration pathways vary by type of birds, species, age, and even individuals year by year. However, very broad, general patterns can be made based on these behavioural assumptions.)

The below figures provide indicative migratory flight paths for northbound spring migration and southbound autumn migration. Due to the wind farm project location within a relatively expansive patch of desert habitat, with limited water sources apparent, it is anticipated that migratory flight traffic within the project's airspace would be relatively low. However, the baseline surveys conducted in the Project wind turbine area (plus 2 km buffer) are not sufficient to rule out potential bird risks along the OHTL route. Collisions with power lines are well-known to be an important source of anthropogenic fatality, notably in Houbara Bustards, and OHTL may also generate collision risk for various heavy-bodied waterbird species that may migrate along the Amu Darya riparian corridor, through which a portion of the Project-associated OHTL is likely to pass.

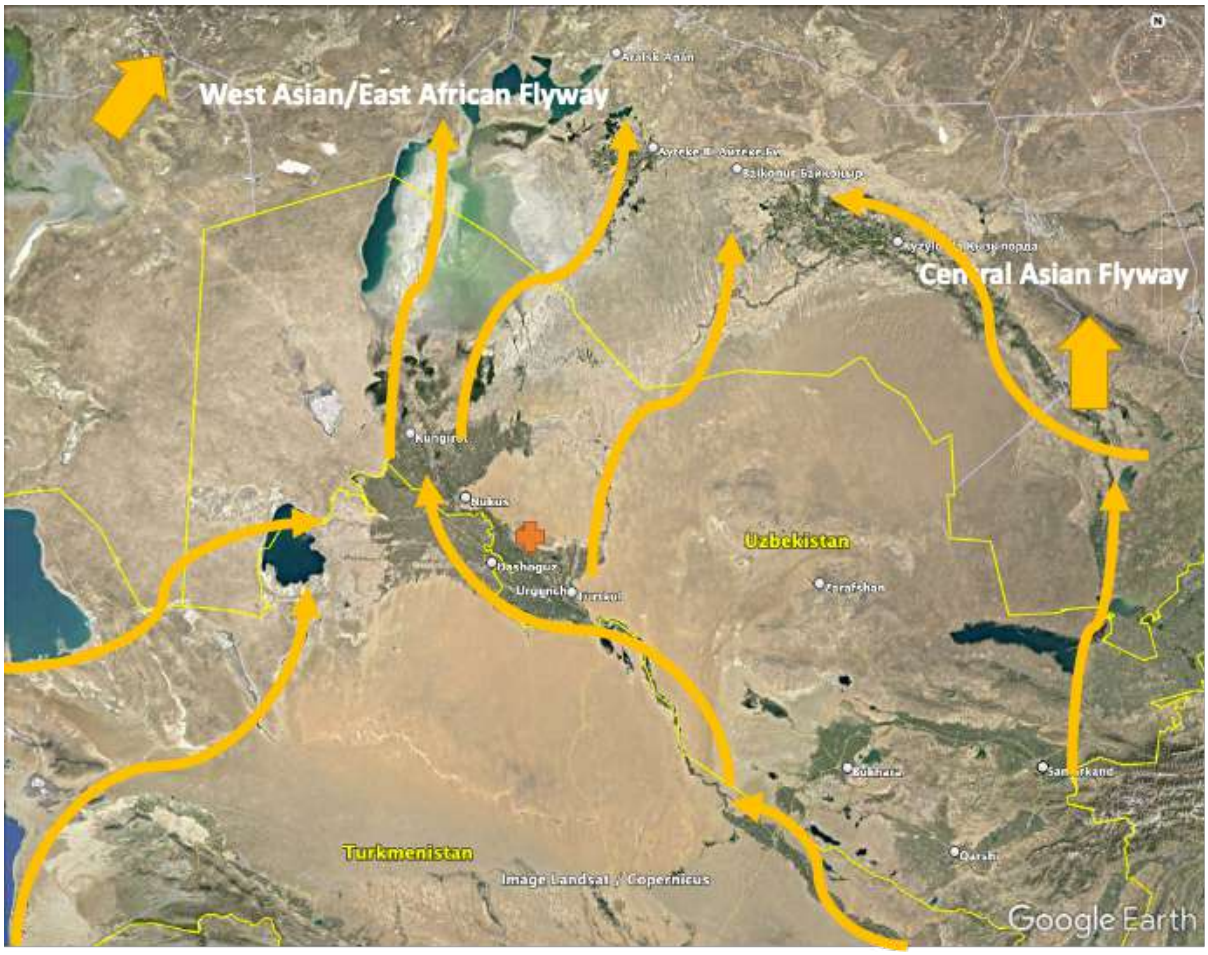


Figure 5-9 Predicted Migratory Flight Paths Northbound (1/2)

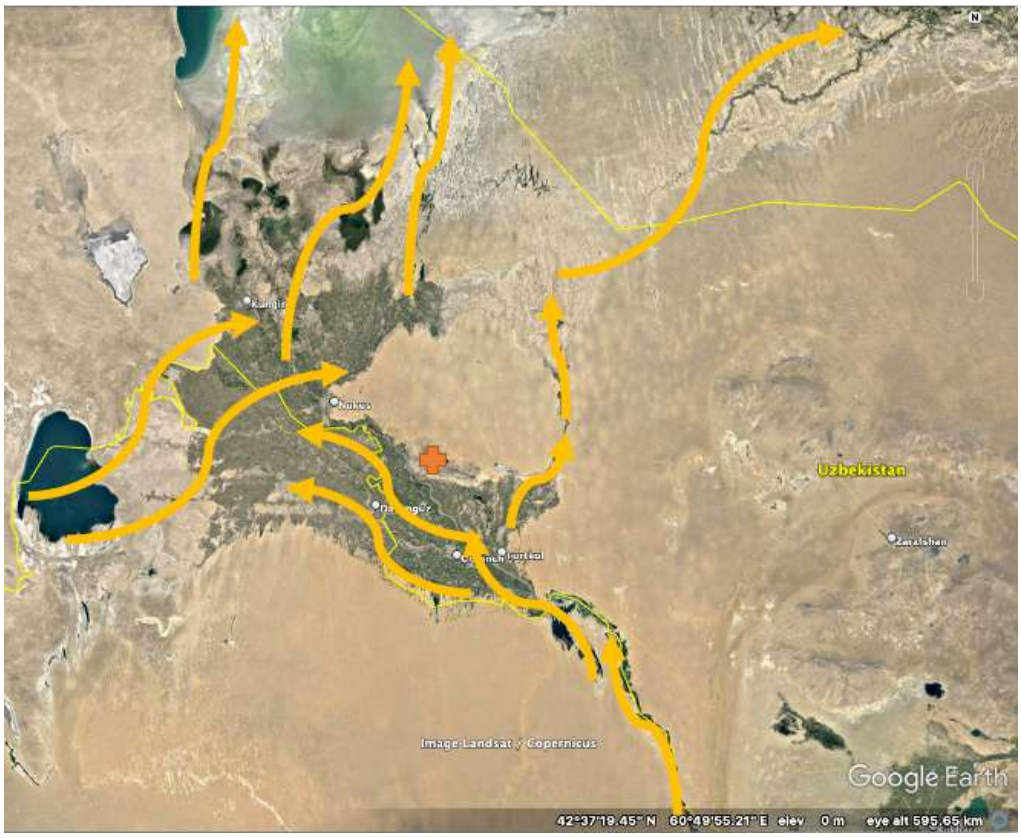


Figure 5-10 Predicted Migratory Flight Paths Northbound (2/2)

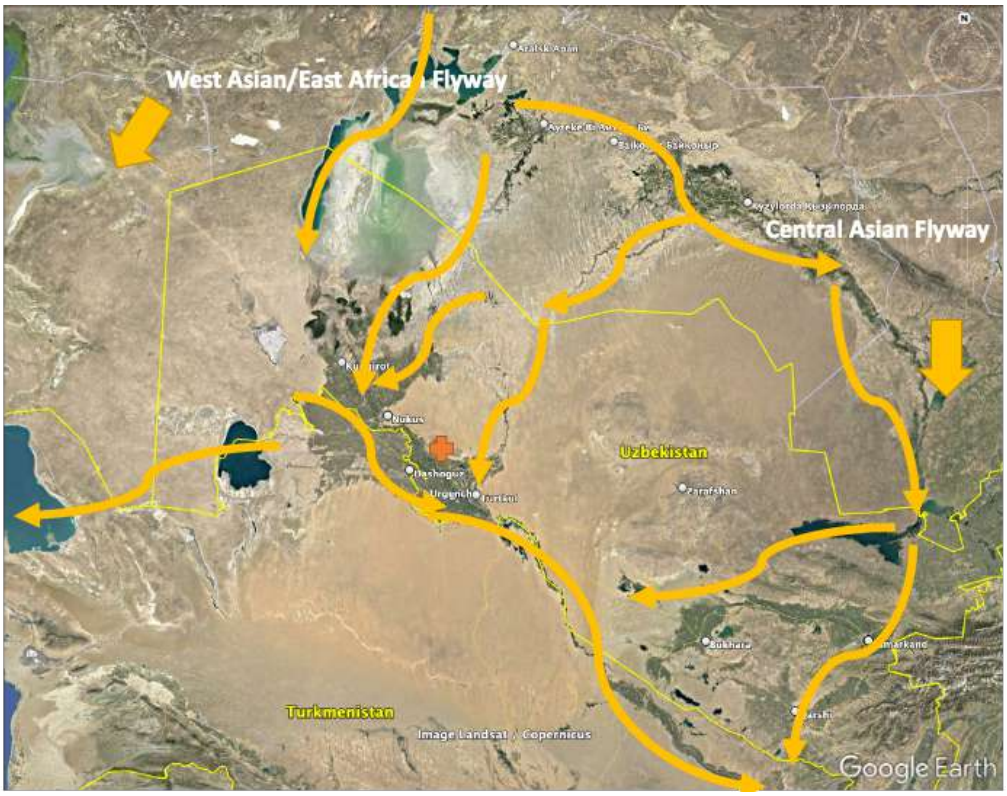


Figure 5-11 Predicted Migratory Flight Paths Southbound

To date the following surveys at the wind farm have been undertaken:

Bird Vantage Point Surveys

- Five VP survey locations, collectively covering at least 90% of the polygon representing the wind turbine area, plus extension up to ca. 1 km outside of the wind turbine area (buffer) on all sides, assuming 2km radius of survey coverage from each VP.
- 3-hour VP surveys conducted by qualified regional ornithologists year-round from March 28, 2021, through March 13, 2022, with at least 36 hours of VP survey conducted at each survey point in each of four seasons, as follows:
  - Spring: March 16-May 17 – 180 total VP survey hours conducted
  - Summer: May 18-August 31 – 180 total VP survey hours conducted
  - Autumn: September 1-November 15- 180 total VP survey hours conducted
  - Winter: November 16-March 15 – 180 total VP survey hours conducted

Specialised Houbara Bustard Surveys

- 3 days of survey during peak breeding display season (April 13, 14, and 15, 2021), following specialized protocol for courtship display surveys.
  - 10 survey points covering wind turbine area plus 2 km buffer
  - 30-minute point count surveys conducted at each point during peak breeding season, during peak display hours (first 3 hours after sunrise, final 3 hours before sunset)

Raptor Nesting Surveys

- 37 days of survey from 4 April through 22 August 2021, divided evenly between 4 driving transects covering Project area plus mountains within 5 km of turbine area, roughly 6-15 km covered per transect, and roughly 4 hours per transect survey, including opportunistic stops for raptor/nest observation (roughly 144 total hours of RN survey, divided evenly between spring and summer seasons).

A summary of the survey results are provided in the following subsections.

Raptor Nesting Surveys

No raptor nests were discovered, nor were any observations of behaviours indicative of possible breeding activity collected during the survey effort, however, it is possible that some tier 1 target species, particularly Golden Eagles, but also possibly Steppe Eagles and Egyptian Vultures may nest in the mountains located to the south (within 5 km) of the Project area.

Houbara Bustard Surveys

No Houbara Bustards were observed during any of the Houbara Bustard specific surveys. Neither was this species observed incidentally during any of the surveys performed at the wind farm. The survey provides a reasonably strong indication that the wind turbine component of the Project does not have a high risk of impacting this protected species (nationally "Vulnerable", globally "Vulnerable").

Bird Vantage Point Surveys and Collision Risk Modelling

The four-season, one-year VP survey effort resulted in a total of 72 species of birds observed within the survey area, including five species classified as tier 1 target species, and 9 species classified as secondary species. The data resulting from the survey effort was used to conduct Collision Risk Modelling (CRM) analysis, using the Band model following Scottish Natural Heritage (SNH) guidance. The results of the CRM analysis indicate that the Project has a low level of collision risk for sensitive bird species.

Among the five tier 1 target species documented at the site, four species were detected within the VP survey effort, and none of these are predicted to experience an annual collision frequency greater than one fatality per 22 years under the most likely collision avoidance rate parameters modelled.

Among the nine tier 2 target species detected at the site during the VP survey effort, only the Common Crane (Grus grus) and Eurasian Kestrel (Falco tinnunculus) were predicted to experience collision frequencies of more than one per year, using the most realistic collision avoidance parameter (1.78 collisions/year predicted for Common Crane; 4.89 collisions/year predicted for Eurasian Kestrel. However, the collision rates predicted for these two commons, widespread, and non-red listed species are not high enough to present a significant likelihood of causing a population-level impact on either species. Among the other tier 2 target species modelled, only the Hen Harrier (Circus cyaneus), Rough-legged Hawk (Buteo lagopus), Long-legged Buzzard (Buteo rufinus), and Merlin (Falco columbarius) were predicted to experience a collision more frequently than once per 10 years, under the most realistic collision avoidance rate scenarios modelled, suggesting that the Project is unlikely to carry a risk of causing a population-level impact in any of them, as these species are also all widespread, abundant, non-redlisted species.

OTHER FAUNA

The fauna of the region includes typical desert species adapted to sandy environments. Common species observed during Juru's ecological walkover in May 2021 include the following:

- *Testudohorsfieldi* (Russian Tortoise)
- *Phrynocephalus moltschanovi*
- *Phrynocephalus rossikowi* (Uzbekistan Toad-head agama)
- *Varanus griseus* (Desert Monitor)
- *Alsophylax szczerbaki* (Szczerbak' s even-fingered gecko)
- *Phrynocephalus interscapularis* (Tajikistan Toadhead Agama/ Lichtenstein's Toadhead Agama)
- *Trapelus sanguinolentus* (Steppe Agama)
- *Hemiechinus hypomelas* (Brandt's hedgehog)
- *Salpingotus heptneri* (Heptner's Pygmy Jerboa)
- *Caracal caracal* (Turkmen Caracal)
- *Mustela eversmanii* (Asiatic Polecat Steppe Polecat)
- *Vormela peregusna* (Marbled polecat)
- *Vulpes vulpes* (Fox)
- *Cervus elaphus bactrianus* (Bukhara Deer)
- *Ovis ammon* (Argali)
- *Gazella subgutturosa* (Goitered Gazelle)

Only two bat species (or species groups), were identified among the calls recorded during the bat acoustic surveys conducted during the 2021 warm season: *Pipistrellus pipistrellus* (detected primarily during May and October), and *Eptesicus sp.* (bottae and/or serotinus, not able to be identified to species based on calls). This represents a very low diversity of bats, consisting exclusively of common, widespread species. No species with elevated national or international conservation/protection status were documented among the recordings.

FLORA

Eight (8) habitats were identified during the scoping site visit undertaken by Juru in February 2024. These are highlighted in the below Figure.

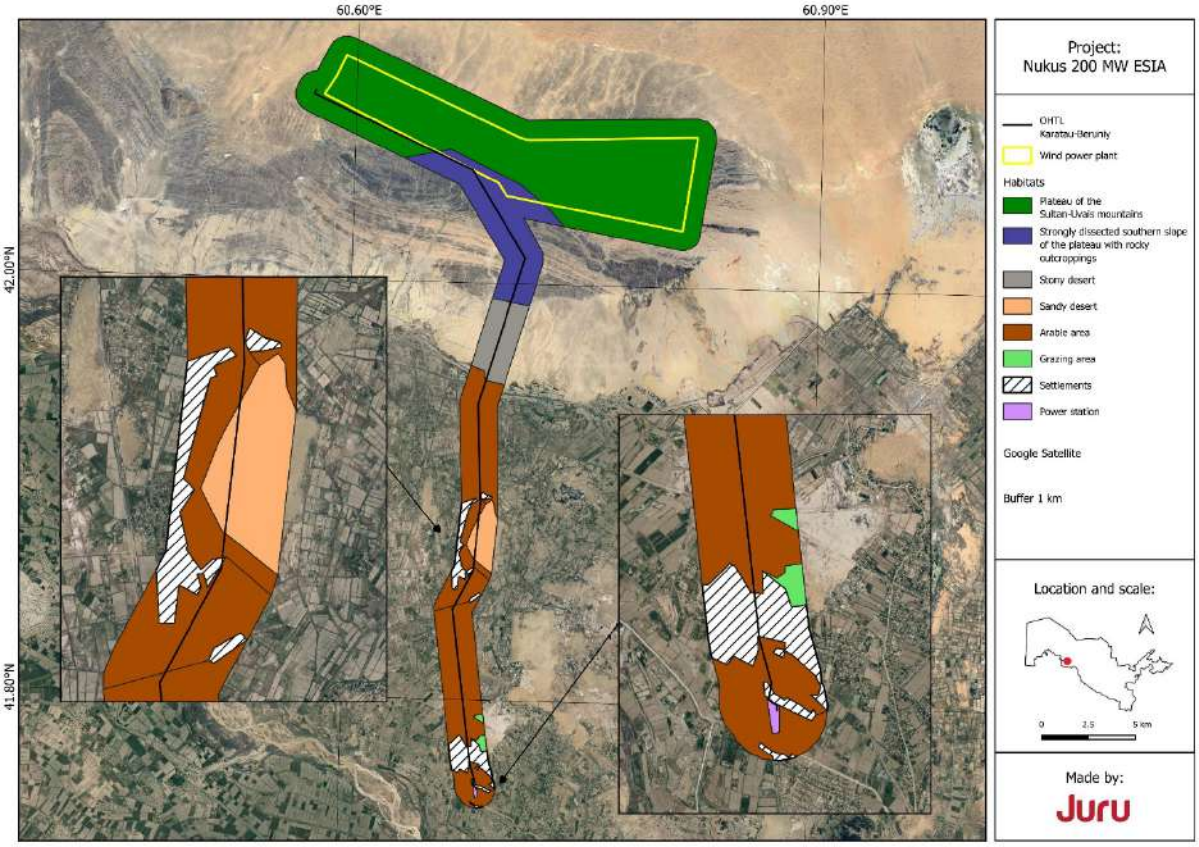


Figure 5-12 Habitats Identified with the Project Area

Source: Nukus 200 MW Scoping Debrief Report, Juru, 2024

These habitats can be divided into two groups:

- Natural (Plateau of the Sultan-Uvais mountains and its slopes, sandy desert, stony desert)
- Modified habitat (settlements, arable area, grazing lands). The strongly dissected southern slope of the plateau with rocky outcroppings can be classified into each group.

The May 2021 site walkover by Juru did not identify any CR or EN flora species. According to the red book of Uzbekistan, the site may be home to some endemic and highly specialised plants; however, in general, the area can be considered to have low diversity.

CRITICAL HABITAT ASSESSMENT

Overview

'Critical Habitat' is a concept applicable to several international financial lending institutions, designed to enable the identification of areas of high biodiversity value in which development would be particularly sensitive and require special attention. The concept has been developed in consultation with numerous international conservation organisations and thus

considers many pre-existing conservation approaches, such as Key Biodiversity Areas (KBA), Important Bird Areas (IBA), and Alliance for Zero Extinction Sites (AZE).

A Critical Habitat Assessment is one of the four principal steps of the biodiversity baseline study that is required to understand biodiversity and ecosystem services in the area that may be affected by a project. This is an assessment of the context in which the development is proposed and therefore does not consider specific impacts at this stage of analysis. It answers the basic question, "How important is the study area for conservation and what PR6 requirements will apply?".

The initial step is a high-level CHA Screening exercise, which identifies all possible biodiversity elements that could trigger criticality, that are relevant for the project area. Based on the findings of the screening exercise, if deemed to be required, a Critical Habitat Assessment is then undertaken utilizing a three-stage approach:

Stage 1 – Desktop Assessment and Stakeholder Engagement: Following the definition of the study area, initial desktop reviews and stakeholder consultation of the local community and qualified specialists through interviews and letters is conducted to understand the possible biodiversity features and use of natural resources within the project landscape from the perspective of all relevant stakeholders.

Stage 2 – Field Surveys and Data Collection: At this stage surveys are undertaken to confirm the seasonal and annual distribution of biodiversity features and ecological functions with the project area.

Stage 3 – Assessment of Findings against Critical Habitat criteria: Determination of critical habitat and priority biodiversity feature status against prescribed thresholds as per EBRD PR6 GN6 (v. January 1, 2020).

The findings of the CHA process are then fed into the overall ESIA and subsequent environmental management and monitoring.

Methodology

The CHA Screening has been undertaken at this stage to identify possible biodiversity elements that may trigger a Critical Habitat or Priority Biodiversity Feature designation as per the criteria set out by the relevant guidelines. The following guidelines have been referenced to ensure a full and complete screening:

- EBRD PR6 Biodiversity Conservation and Sustainable Management of Living Natural Resources.

- EBRD Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (v. January 1, 2020). December 17, 2019.
- IFC PS6 on Biodiversity Conservation and Sustainable Management of Living Resources.
- IFC Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (January 1, 2012, updated June 27, 2019).
- Global datasets and tools for screening critical habitats, legally protected areas and internationally recognised area: Information sheet for Equator Principles Financial Institutions.

Qualifying criteria

There are several international lending organisations that have produced varying criterion for which critical habitat is defined by; however, they are generally aligned with the five IFC PS6 criteria with some institutions specifying additional criteria. The below provides an overview of all applicable criteria as per IFC and EBRD:

- IFC PS6 Criterion 1: Critically Endangered and Endangered Species /// EBRD criterion (ii) its importance to the survival of endangered or critically endangered species.
- IFC PS6 Criterion 2: Endemic and Restricted-range Species /// EBRD criterion (iii) its importance to endemic or geographically restricted species and sub-species.
- IFC PS6 Criterion 3: Migratory and Congregatory Species /// EBRD criterion (iv) its importance to migratory or congregatory species.
- IFC PS6 Criterion 4: Highly Threatened or Unique Ecosystems /// EBRD criterion (i) its high biodiversity value.
- IFC PS6 Criterion 5: Key Evolutionary Processes /// EBRD criterion (v) its role in supporting assemblages of species associated with key evolutionary processes.
- EBRD criterion (vi) its role in supporting biodiversity of significant social, economic or cultural importance to local communities.
- EBRD criterion (vii) its importance to species that are vital to the ecosystem as a whole (keystone species).

Some sensitive ecological features of the study area that may be affected by the project may be considered "priority biodiversity features". Priority biodiversity features (PBF) are defined by the EBRD as a sub-set of biodiversity that is particularly irreplaceable or vulnerable, but at a lower priority level than critical habitats. These features as identified as species or issue that do not merit critical status but remain a concern from a conservation perspective and require careful consideration during project assessment and impact mitigation.

EBRD have established the following criteria for the classification of a PBF:

- PBF Criterion (i): Threatened habitats.
- PBF Criterion (ii): Vulnerable species.
- PBF Criterion (iii): Significant biodiversity features identified by a broad set of stakeholders or governments (such as Key Biodiversity Areas or Important Bird Areas).
- PBF Criterion (iv): Ecological structure and functions needed to maintain the viability of priority biodiversity features.

Summary of Stage I CHA Findings

A Critical Habitat Assessment (CHA) was initiated in parallel with the ESIA scoping phase. The first stage of the CHA involved the identification of species and habitats, which (i) represent Critical Habitats (CH) and Priority Biodiversity Features (PBF) by relevant IFC PS6 and EBRD PR6 qualification criteria and (ii) are likely to occur within the ecological landscape in and around the Project's Area of Influence (AoI).

For the purpose of this preliminary and desk-based analysis, simplified Ecologically Appropriate Area of Analysis (EAAA) were used for all potential CH trigger species, consisting of the Project area, including the OHTL interconnection segment, buffered by 10 km. This EAAA was used for all terrestrial vertebrates, including both flying and non-flying taxa. The search was particularly focused on species that potentially trigger an assessment of CHs and PBFs, and subjected to additional screening against the IFC and EBRD CH/PBF criteria. A detailed narrative of the Stage I CHA process will be provided in the CHA report that will be developed in tandem with the detailed ESIA report. The list of potential CH and PBF trigger species and habitats identified is outlined in the summary table below.

Table 5-11 List of potential CH and PBF trigger species

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion II, PBF criterion II	CH criterion III, PBF criterion II	CH criterion IV, PBF criterion II				
Lesser White-fronted Goose *(Anser erythropus)*	Bird	VU	VU	X		X		16,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life

3 The ecosystems and habitats potentially affected by the Project did not meet any of the criteria for "priority ecosystems," including "threatened ecosystems," "highly threatened or unique ecosystems" (IFC CH criterion 4 = EBRD CH criterion i), "areas associated with key evolutionary processes" (IFC/EBRD CH criterion 5), or "threatened habitats" (PBF criterion i) as defined in EBRD PR6 and the associated Guidance Note 6. Neither were the criteria met for any "significant biodiversity features identified by a broad set of stakeholders or governments" (PBF criterion iii), or "ecological structure and functions needed to maintain the viability of priority biodiversity features" (PBF criterion iv), hence the only biodiversity features included in this table are species (and their habitats) that met one or more of the species-specific CH or PBF criteria/thresholds, as described in the table.

4 https://www.iucnredlist.org/ accessed 11 March, 2024

5 Republic of Uzbekistan, 2019. Republic Uzbekistan Red Data Book

6 Uzbekistan is neither a member of the EU, nor a Bern Convention signatory, hence the specific CH/PBF criteria relating to habitats and species that receive special protection under EU nature legislation are not considered applicable, per EBRD GN6. CH criterion numbers in the column headers refer to them as numbered in EBRD PR6. The corresponding CH criteria and thresholds according to IFC PS6 are the same, but have different numbers, as follows (EBRD CH criterion ii = IFC CH criterion 1; EBRD CH criterion iii = IFC CH criterion 2; EBRD CH criterion iv= IFC CH criterion 3). An X in this column is only checked if the species is a possible CH trigger

7 https://www.iucnredlist.org/ accessed 11 March, 2024

8 PBF = Priority Biodiversity Feature, per EBRD PR6

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										cycle. Project not likely toresult in the species' uplisting to globally EN/CR
Red-breasted Goose *(Branta ruficollis)*	Bird	VU	VU	X		X		56,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle. Project not likely to result in the species' uplisting to globally EN/CR
Common Pochard	Bird	VU	Not listed	X		X		760,000	PBF	EAAA not likely to

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
(*Aythya ferina*)										contain ≥ 1% of the global population at any point in species' life cycle. Project not likely to result in the species' uplisting to globally EN/CR
White-headed Duck (*Oxyura leucocephala*)	Bird	EN	EN	X		X		5,300	PBF	EAAA not likely to contain ≥ 0.5% of the global population and 5 pairs, nor to contain a nationally important concentrat

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										ion of the species
European Turtle Dove (*Streptopelia turtur*)	Bird	VU	VU	X		X	6	12,800,000	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA not likely to contain at least 1% of the global population.
Yellow-eyed Pigeon (*Columba eversmanni)*	Bird	VU	VU	X		X		10,000	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA not likely to contain at least 1% of the global

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										population.
Great Bustard (*Otis tarda*)	Bird	EN	CR	X		X		29,600	PBF	EAAA not likely to contain ≥ 0.5% of the global population and 5 pairs, nor to contain a nationally important concentration of the species
MacQueen's Bustard (*Chlamydotis macqueenii*)	Bird	VU	VU	X		X		33,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle. Project not likely to

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										result in the species' uplisting to globally EN/CR
Little Bustard (*Tetrax tetrax*)	Bird	NT	VU			X		260,000	PBF	EAAA does not contain ≥ 1% of the global population at any point in species' life cycle
Common Crane (*Grus grus*)	Bird	LC	unlisted			X	2856	491,000	PBF	EAAA does not contain ≥ 1% of the global population at any point in species' life cycle
Sociable Lapwing	Bird	CR	VU	X		X		11,200	PBF	EAAA contains less than

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
(*Vanellus gregarius*)										0.5% of global population and is not likely to contain ≥ 1% of the global population at any point in species' life cycle
Dalmatian Pelican (*Pelecanus crispus*)	Bird	NT	EN	X		X		11,400	PBF	EAAA does not contain ≥ 1% of the global population at any point in species' life cycle, and does not contain a nationally important

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										concentration
Egyptian Vulture *(Neophron percnopterus)*	Bird	EN	VU	X		X		12,400	PBF	EAAA contains less than 0.5% of global population and is not likely to contain ≥ 1% of the global population at any point in species' life cycle
Cinereous Vulture *(Aegypius monachus)*	Bird	NT	NT			X		16,800	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
Eurasian Griffon *(Gyps fulvus)*	Bird	LC	VU			X		80,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Short-toed Snake-eagle *(Circaetus gallicus)*	Bird	LC	VU			X	1	50,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Greater Spotted Eagle *(Clanga clanga)*	Bird	VU	VU	X		X		3,900	PBF	Project not likely to result in species' up-listing to globally CR/EN. EAAA does

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										not contain ≥ 1% of the global population at any point in species' life cycle
Booted Eagle (*Hieraaetus pennatus*)	Bird	LC	VU			X		150,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Steppe Eagle *(Aquila nipalensis)*	Bird	EN	VU	X		X	23	50,000	PBF	EAAA contains less than 0.5% of global population and is not likely to contain ≥

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										1% of the global population at any point in species' life cycle
Imperial Eagle *(Aquila heliacal)*	Bird	VU	VU	X		X		2,500	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA does not contain ≥ 1% of the global population at any point in species' life cycle
Golden Eagle	Bird	LC	VU			X	14	85,000	PBF	EAAA not likely to contain ≥ 1% of the

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
(Aquila chrysaetos)										global population at any point in species' life cycle
Pallas's Fish-Eagle (*Haliaeetus leucoryphus*)	Bird	EN	EN	X		X		1,000	PBF	EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 reproductive units, nor to contain ≥ 1% of the global population at any point in species' life cycle, or a nationally important concentration

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
White-tailed Eagle (*Haliaeetus albicilla*)	Bird	LC	VU			X	2	20,000	PBF	EAAA does not contain ≥ 1% of the global population at any point in species' life cycle
Red-footed Falcon (*Falco vespertinus*)	Bird	VU	Not listed	X		X	2	287,500	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA does not contain ≥ 1% of the global population at any point in species' life cycle

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
Saker Falcon *(Falco cherrug)*	Bird	EN	NT	X		X		12,200	PBF	EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 reproductive units, nor to contain ≥ 1% of the global population at any point in species' life cycle.
Peregrine Falcon (*Falco peregrinus*)	Bird	LC	VU	X		X		100,000	PBF	EAAA does not contain ≥ 1% of the global population at any point in species' life cycle.

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
Other migratory waterbird species	Bird	variable	variable			X		≥100,000 (per species)	PBF	No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle.
Other upland migratory bird species	Bird	variable	variable			X		≥100,000 (per species)	PBF	No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle.
European Free-tailed Bat (*Tadarida teniotis*)	Bat	LC	VU			X		Unknown	PBF	EAAA not likely to contain ≥ 1% of the global population

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										at any point in species' life cycle
Other bats	Bat	NT or lower	variable			X		Population sizes for most species poorly known	PBF	No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle.
Marbled Polecat *(Vormela peregusna)*	Mammal	VU	VU	X				unknown	PBF	Project not likely to result in species' up-listing to globally CR/EN
Caracal *(Caracal caracal)*	Mammal	LC	CR	X				Unknown, several dozen in Uzbekistan	PBF	EAAA does not contain a nationally

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										important population
Bukhara Red Deer (*Cervus elaphus bactrianus*)	Mammal	LC	EN	X				800	CH	EAAA includes a nationally significant concentration
Goitered Gazelle (*Gazella subgutturosa*)	Mammal	VU	VU	X		X		42,000	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA does not contain ≥ 1% of global population
Salpingotus heptneri	Mammal	DD	VU		X			Unknown	PBF	EAAA does not contain ≥ 10% of global

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										population.
Central Asian Tortoise *(Testudo horsfieldii)*	Turtle	VU	VU	X				unknown	PBF	Project not likely to result in species' up-listing to globally CR/EN
Uzbekistan Toadhead Agama *(Phrynocephalus rossikowi)*	Lizard	EN	EN	X	X			unknown	PBF	EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 reproductive units
Szczerbak's Even-fingered Gecko *(Alsophylax szczerbaki)*	Lizard	VU	EN	X	X			unknown	PBF	Project not likely to result in species' up-listing to globally CR/EN and EAAA not likely to contain a

Feature [3]	Higher taxon	IUCN global status[4]	Uzbekistan status[5]	Applicable CH/PBF criterion[6]			Total # observations in pre-bid baseline study at wind farm area	IUCN minimum global population estimate[7]	Determination[8]	Rationale
				Threatened/Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species				
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii				
										nationally important concentration

5.4.3 Potential Impacts

Table 5-12 Potential Terrestrial Ecology & Avifauna Impacts

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Preparation of site, movement of construction vehicles etc.	Habitat & flora loss, with disturbance / direct mortality to fauna, introduction of pests / invasive species	Within the Project footprint and areas of associated facility works.	Habitats. Flora and Fauna.
Erection of Wind Turbines, installation of OHTL and construction of access roads,	Disturbance to fauna (including air, noise and lighting impacts)	Within 2 km of construction works	Fauna including avifauna and bats
Operational Phase			
Operation of wind turbine	Collisions of birds and bats	Within the Project footprint, in proximity to each wind turbine generator	Avifauna & Bats
Installation of OHTL	Collision and electrocution of birds	Within the OHTL footprint	Avifauna

5.4.4 Proposed ToR for the ESIA

Critical Habitat Screening and Assessment

'Critical Habitat' is a concept applicable to several international financial lending institutions, designed to enable the identification of areas of high biodiversity value in which development would be particularly sensitive and require special attention.

The initial step of a Critical Habitat Assessment (CHA) is a screening exercise, which identifies all possible biodiversity elements that could trigger criticality, that are relevant for the project area. Based on the findings of the screening exercise, if deemed to be required, a Critical Habitat Assessment is then undertaken.

The results of the screening exercise are summarized in section 5.4.2. A full CHA will be prepared and incorporated into the ESIA once the remaining biodiversity baseline surveys are completed.

Baseline Studies

Bird Surveys

As summarised above, bird surveys have been conducted for the wind farm. Further bird surveys are proposed for the OHTL corridor, which poses a potentially fatal collision risk to heavy-bodied birds, in addition to electrocution risk to raptors, vultures or other large birds.

The bird monitoring survey will include:

- A Vantage Point (VP) survey
- A Raptor nest search

VP Survey

The VP survey will comprise six (6) VPs, as shown in the following figure. 12-hour VP surveys will be conducted at each of these points during the spring migration season. All six VPs will be covered per day. VP survey methods will generally follow SNH (2017) guidance for wind farm bird assessments, minus the elements that are specifically driven by the data requirements of collision risk modelling.

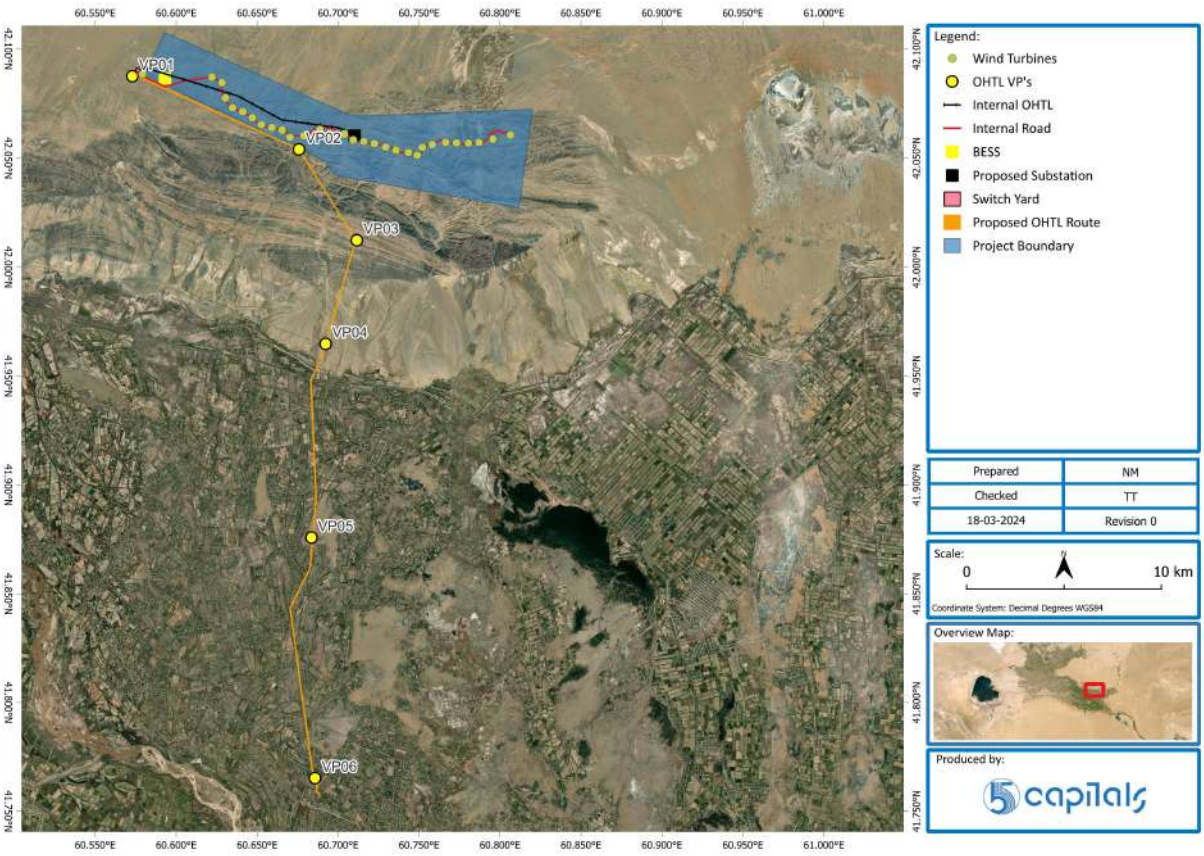


Figure 5-13 OHTL VPs

Raptor Nest Search

In the desert surrounding the Project site, raptors nests in rocky and loess cliffs, in trees and power transmission poles.

The purpose of specialised raptor nest surveys will be to explore the cliffs along planned OHTL in search of nesting sites for birds of prey including old world vultures, falcons, all hawks, eagles, buzzards, kites and harriers. Walked surveys will be undertaken to establish nesting species, locations and any regular roosting sites. Where tracks and paths will allow, sightings and nest/roost sites will be recorded and their locations will be mapped. The survey will be conducted between March and April 2024.

Bat Acoustic Surveys

The bat acoustic survey will be conduct through the 7 months warm season, extending from April to October. Ground level bat acoustic surveys will be conducted due to the lack of structures suitable for accommodating the bat detector at height across the site and surrounding area. The South African guidance requires one ground passive detector for each 5,000 ha. Therefore, two (2) Wildlife Acoustics Song Meter SM4 bat static bat detectors will be used. The South African guidance requires that at least 75% of the nights during the entire warm season must be recorded.

Data will be analysed by the bat specialist using Kaleidoscope Pro Auto Analysis (or similar software) and tabulated after cycle of deployments.

Herpetological Survey

The aim of the field herpetological survey is to assess the status of reptiles and amphibians in the study area of the project territory (specification of the species and quantitative composition, territorial distribution, including places of concentration, the state of habitats). The main tasks of herpetological survey are following:

- Field herpetological survey and processing of field data;
- Analysis of any previous herpetological surveys and other available data (publications, reports, etc.);
- Compilation of the check-list of species recorded within the project site (in particular, threatened species included in the Red Data Book of Uzbekistan and/or the IUCN Red List);
- Conduct the counts of Russian tortoise (Agrionemys horsfieldii – IUCN VU)).

Field studies will be carried out on the project territory according to generally accepted zoological methods for identifying species composition. The field research methodology reflects the following aspects: species composition in the study area; distribution across habitats; daily and seasonal changes in activity.

April is the period of the highest activity of amphibians and reptiles in Uzbekistan. This activity is associated with active nutrition after hibernation, the beginning of the breeding season and

the abundance of food supply associated with intensive vegetation in April. In summer, a number of species including the Russian tortoise go back to hibernation.

The April survey will combine stationary and transect survey methods. Locations for stationary surveys and transects will be selected in accordance with different types of habitats and will be determined during preparatory work based on the maps and literature data.

The quantitative assessment of reptiles and amphibians will be mainly based on the transect survey. The transect method consists in counting individuals along a fixed long line (transect), on both sides of it, with the duration of the survey determined by the known distance, which is selected depending on the type of reptile and the area,

Mammal Survey

The survey for terrestrial mammals (excluding bats) will aim to study mammal species status and distribution on the project territory and its surrounding areas. The following steps will be taken:

- Conducting ground survey on mammal species (except for bats) on the project area in Spring 2024;
- Installing ten (10) non baited camera traps;
- Collecting questionnaire data from local people (if present) on mammal species presence/absence, status and threats;
- Analysis of the preliminary field data including species number and distribution; and
- Compiling a mammal species list based on field data, questionnaire data and data from literature sources, including endangered and non-endangered species.

During the field survey the sufficient number of monitoring sites (stationers) will be studied. The locations for monitoring will be selected to cover different landscapes present on the project territory.

Transect survey will be conducted in Spring (mid-April). Transect survey will also include the nocturnal survey for observation of nocturnal animals using "night accounting in the light of headlights" methodology.

During the field research, non-invasive methodology will be used, not related to the capture and killing of wild animals, including:

- visual observation of mammals both by eye and using 10x binoculars and telescope x60;
- registration of tracks of the vital activity of wild mammals, including animal tracks (paw footprints on the ground), faeces, diggings, burrows, dead animals, etc.

- taking photos of the animals, their tracks and traces of their vital activity, typical habitats etc.

The studied area will be recalculated by multiplying the length of the traversed route by the width of the surveyed transect, which is determined taking into account visibility, landscape, vegetation, particular species and the maximum distance at which different mammalian species and their burrows can be effectively identified.

Botanical Survey

A specialist will undertake a walkover during the spring season to broadly categorise the habitat types of the project site and compile species lists. A report will be prepared detailing the methods and results including details of habitat types present, basic habitat maps and any status of particular protected plant species (IUCN and Uzbekistan Red Data Book).

The report will, in part, compare the results of the 2024 survey to the results and assessment of any previous surveys undertaken (where applicable) to note changes in habitats and species recorded.

The main tasks of expert-botanist are following:

- field botanical survey and processing of field data;
- analysis of any previous botanical surveys and other available data (publications, reports, etc.) compared with the results of the 2024 survey;
- identification and description of the type and extent of the various habitats located within the project footprint;
- identified habitats will be classified according to the IFC PS 6 habitat classification framework and the habitat typology of Uzbekistan;
- detailed description and GIS-based mapping of habitat types present within the project site;
- compilation of the checklist of plant species recorded within the project site (in particular, threatened species included in the Rad Data Book of Uzbekistan and/or the IUCN Red List).

The field survey on the project area will be conducted using the traditional methods of botanical survey commonly used for sampling and mapping of native non-forest vegetation, recognition of floristic composition and spatial patterns of plant communities.

Vegetation structure and species composition will be described from 50x50 m geobotanical sample plots (squares) chosen in an area with homogeneous vegetation. Sample plots (squares) will be located away from roads and boundaries between different vegetation communities (coordinates of these boundaries observed during the survey were recorded

separately). For each square, photographs of the landscape and vegetation will be taken using a digital camera, and following data will be recorded: location and physical environment (including GPS coordinates, elevation, topography, and soil), state of vegetation and disturbance factors (grazing, etc.), plant association, canopy cover (%), canopy height, all plant species present at the plot, their cover and abundance, phenological stage and height. Microcomplexes (e.g., along dry riverbeds) will be described separately. Coordinates of populations of endemic, redlisted or alien species, number of individuals and area occupied by population also will be recorded.

Species cover and abundance will be determined using the Braun-Blanquet cover-abundance scale (1965) widely used in geobotanical and ecological studies as rapid visual assessment technique, but robust and highly repeatable, minimizing among-observer differences.

Esri ArcGIS 10.1 software will be used for vegetation/habitat mapping. The vegetation map will be compiled in ArcGIS by visual interpretation of the satellite image using the field data, a top map (1:100,000) and a soil map of the region.

CONSTRUCTION PHASE IMPACTS ASSESSMENT

A qualitative impact assessment will be made in regard to construction phase impacts on habitats and terrestrial species based on the outcomes of the baseline surveys and the expected construction works. Potential construction-phase impacts that will be assessed against the baseline conditions as determined after surveying include, but are not limited to:

- Habitat loss and fragmentation;
- Biodiversity loss (direct mortality, lowered reproduction and survivorship);
- Biodiversity displacement;
- Biosecurity risks; and
- Environmental Quality (Air quality, noise, lighting, contamination).

OPERATIONAL PHASE IMPACTS ASSESSMENT

A qualitative impact assessment will be made in regard to operational phase impacts on habitats and terrestrial species based on the outcomes of the baseline surveys. Potential operation-phase impacts that will be assessed against the baseline conditions as determined after surveying include, but are not limited to:

- Bat turbine collision;
- Bird turbine collision;
- OHTL electrocution;

- OHTL collision;
- Vehicle collisions; and
- Proliferation of pests.

Collision Risk Modelling

As summarised above, collision risk modelling for avifauna has been undertaken based on the survey data collected for the Project. Updates to the CRM will be conducted once the specifications of the WTG are finalised.

5.5 Landscape and Visual Impacts

5.5.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

Specific legislation in regard to landscape and visual impacts is not known to exist in Uzbekistan and there are no specific requirements for this linked to lender guidelines. However, any Project activities/design that could impact cultural resources may need to be assessed in the context of that cultural resource.

LENDER REQUIREMENTS

EPFIs

- IFC EHS Guidelines for Wind Energy (2015)

Landscape & Visual Impacts

The above EHS Guidelines for Wind Energy outline that '*preparing zones of visual influence maps and preparing wire-frame images and photomontages from key viewpoints is recommended to inform both the assessment and the consultation processes.*'

'*Consideration should also be given to the proximity of turbines to settlements, residential areas, and other visual receptors to minimize visual impacts and impacts on residential amenity, where possible. All relevant viewing angles should be considered when considering turbine locations, including viewpoints from nearby settlements.*'

Shadow Flicker

The above EHS Guidelines for Wind Energy, outline requirements for the modelling of shadow flicker to determine the duration and timing of shadow flicker occurrence under real weather conditions at specific receptors located within the zone of potential shadow flicker impact.

The guidelines require the model to predict flicker based on an astronomical worst-case scenario, which is defined as follows:

- There is continual sunshine and permanently cloudless skies from sunrise to sunset.
- There is sufficient wind for continually rotating turbine blades.
- Rotor is perpendicular to the incident direction of the sunlight.
- Sun angles less than 3 degrees above the horizon level are disregarded (due to likelihood for vegetation and building screening).
- Distances between the rotor plane and the tower axis are negligible.
- Light refraction in the atmosphere is not considered.

The IFC criteria for acceptability of flicker is:

- Not more than a combined 30 hours of flicker per year, and no more than 30 minutes of flicker on the worst-case day of the year.

5.5.2 Initial Observations and Baseline Conditions

LANDSCAPE AND VISUAL AMENITY

Based on initial site observations and review of satellite imagery, the general characteristics of the Project site is predominantly undeveloped open landscape. The landscape of the Project area is steppe and arid. On the western and south-western side of the Project area, there are elevations of Karatau and Sultanuizdag hills. North-western part of site is relatively flat with sandy desert and shrubs, while north-eastern part is covered by hills and mountain rocks. On the western and south-western side of the Project area, there are elevations of Karatau and Sultanuizdag hills.

The wind farm site is in close proximity to the Sultan Uvays Complex and the Mountain Munojat, which are popular cultural and religious sites visited by locals. Mountain Munojat is approximately 2.5 km from the wind farm site, and has a viewpoint towards the site. Panoramic images from the site visit are shown below.



Figure 5-14 Panoramic View from the Western Part of the Wind Farm Site



Figure 5-15 Panoramic View from the Center of the Wind Farm Site

The landscape of the OHTL route is characterised by unmodified and modified areas. The northern part goes through the mountain range and desert land, to the south, it goes through agricultural farms and living communities.



Figure 5-16 Panoramic View along the OHTL Route Overlooking Nearby Mining Work



Figure 5-17 Panoramic View along the OHTL Route Overlooking Residential Buildings, Agricultural Fields, and Infrastructure

SHADOW FLICKER

An initial shadow flicker calculation was carried out by Juru (2021). The model calculation showed the expected yearly shadow (flickering) hours at 2 km from the WTG will be less than 10 hours per year. No permanent residential receptors are located within 10 km of the nearest WTG, and therefore shadow flicker impacts are unlikely to be an issue for the Project, however, this will be reassessed once turbine specifications and locations are confirmed.

5.5.3 Potential Impacts

Table 5-13 Potential Landscape and Visual Impacts

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
General Construction Activities	Changes in Landscape Character	Area of project development and immediate surroundings that provide a buffer to this landscape area.	The wider landscape character as experienced by humans
	Visual impacts to receptors	Receptors with direct, or partial views of the construction works. Potentially extensive under good visibility conditions and dependent on topography.	Human receptors in the zone of influence (Herders, Local road users and receptors along the OHTL right of way)
Operational Phase			
Turbine Operation	Changes in Landscape Character	Area of project development and immediate surroundings that provide a buffer to this landscape area.	The wider landscape character as experienced by humans
	Visual impacts to receptors	Receptors with direct, or partial views of the turbines and OHTL. Potentially extensive under good visibility conditions and dependent on topography (due to height of the WTGs & OHTL, and due to the length of the OHTL).	Human receptors in the zone of influence (Herders, Local road users and receptors along the OHTL right of way)
Turbine operation during specific daytime periods (i.e. low sun) under certain meteorological conditions	Shadow flicker	Queensland Wind Farm Planning Guidelines (Australia), provide screening guidelines for modelling assessment, which only consider sensitive receptors within a distance equivalent to 265 maximum blade chords (the thickest part of the blade).	Human receptors in the zone of influence. **At this stage it is considered likely that there are no receptors to shadow flicker impact.**

5.5.4 Proposed ToR for the ESIA

Baseline Studies

Landscape Character and Visual Amenity

A landscape character and visual amenity baseline survey will be undertaken to determine the landscape character within the study area. Analysis of the zone of theoretical visibility (ZTV) will be undertaken using the latest topographical data and turbine locations and subsequently, visual receptors (such as the cultural heritage sites) will be confirmed and panoramic photos will be taken at selected viewpoints surrounding the project site. The methodology will be based on the UK guidance for Landscape and Visual Impact Assessments.

The objective of the survey will be to establish the existing landscape character of the project area and the likely visual impacts imposed upon sensitive receptors that overlook the proposed project area, and areas of construction works. A description of the landscape character will be derived from on-site observations and satellite imagery.

Shadow Flicker

The baseline survey will be specific to those receptors screened as being required for shadow flicker modelling (if any). The baseline would inventorise local receptors in the potential area of impacts for flicker and characterise their type (i.e., commercial vs. residential etc.) and the alignment of any windows.

CONSTRUCTION & OPERATIONAL PHASE IMPACTS

Landscape and Visual Impacts

The ESIA will apply a measure of value/sensitivity to identified landscape character and visual receptors and determine the likely associated magnitude of impacts in order to quantify significance of impacts. The ESIA will also identify opportunities for mitigation to reduce the magnitude of any identified impacts.

OPERATIONAL PHASE IMPACTS

Shadow Flicker

As outlined above, there are no identified receptors within the screened range for shadow flicker impacts.

In the event that further surveys identify sensitive receptors within the screening area, the effects of shadow flicker will be assessed by predictive modelling software such as SHADOW (as part of Wind Pro software). The model will calculate how often and in which intervals a specific receptor will be affected by shadows generated by one or more wind turbines. These calculations are worst case scenarios (i.e., based on astronomical maximum shadow - calculations which are solely based on the positions of the sun relative to the wind turbine). Shadow-flicker effects on receptors will be expressed in terms of predicted frequency (hours per year). Shadow isolines on a 'shadow map' (i.e., contours indicating total number of hours of shadowing per average year) will be prepared. Based on the outcomes of the study, the results may be required to feedback into the project design in order to reduce potential impacts and highlight any necessary mitigation/management measures.

5.6 Solid Waste and Wastewater Management

Please note: this section considers the management of solid waste and wastewater and not its impacts to environmental receptors. Considerations of such impacts are made in the respective sections for Water Environment and Soil, Geology and Groundwater.

5.6.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

The Law of the Republic of Uzbekistan "On Wastes" (2002) amended in 2019

The principle objective of this law is to prevent the negative impacts of solid wastes on human lives and health as well as the environment, reduce waste generation and encourage rational use of waste reduction techniques.

Article 19 Provided generated waste is subject to export and import operations, or hazardous waste is subject to transportation, an environmental certification procedure shall be completed by the Project to confirm compliance with sanitary and environmental norms and standards associated with waste management.

Article 20 states that transportation of hazardous waste shall be in specially designated types of vehicles with a waste certificate and permit. The responsibility for safe transportation of hazardous waste shall be with the transporting organisation.

Article 22 of the Law on Wastes specifies the general requirements for waste storage and disposal. Waste disposal of recyclable waste is prohibited in Uzbekistan. In addition, storage and disposal of waste in the environment including in nature conservation and protected areas, settlements, health and recreational areas or historical and cultural facilities is prohibited.

SanPiN No 0127-02 – "Sanitary Procedures for inventory, classification, storage and disposal of industrial waste"

This regulation and norm ensure optimal hygienic accounting and inventory of industrial wastes, determination of toxicity index and classification of industrial waste by hazard classes with optimal selection of ways to neutralise and utilise them.

SanPiN of the Republic of Uzbekistan dated 29/7/2002 No 0128-02 – "Hygienic classifier of toxic industrial wastes in the Republic of Uzbekistan. Hazardous waste is classified into four groups known as "hazard classes". Waste hazards are assessed based on this law. Hygienic classifier

of industrial hazardous waste and SanPiN No 0127-02-Sanitary procedures for industrial waste inventory, classification, storage and disposal. Waste hazard classes include:

- Class I: Extremely hazardous waste;
- Class II: Highly hazardous waste;
- Class III: Moderately hazardous waste;
- Class IV: Low hazardous waste; and

Other relevant regulations and standards include:

- SanPiN № 0157-04 "Sanitary requirements to the storage and neutralization of solid domestic waste on special grounds in Uzbekistan"
- SanPiN of the Republic of Uzbekistan dated 16/11/2011 No 0300-11 "Sanitary Rules and Standards for managing collection, inventory, classification, treatment, storage and disposal of industrial waste in the context of Uzbekistan
- Regulation "On the Procedure for the Disposal, Collection, Pay Settlement, Storage and Removal of Waste Industrial Oils" annexed to the Decree of the Cabinet of Ministers dated 04/09/2012 No.258
- Regulation on the Procedure for Handling Coloured and Black Metal Scrap" annexed to the Decree of Cabinet of Ministers dated 06/06/2018 No. 425
- SanPiN No. 0158-04 - Sanitarian Rules and Norms on collection, transportation and disposal of wastes containing asbestos in Uzbekistan

LENDER REQUIREMENTS

Solid Waste

EBRD

EBRD PR3 on Resource Efficiency and Pollution Prevention and Control establishes general requirements with regards to waste management as follows:

- The Project must strive to avoid the generation of hazardous and non-hazardous waste materials and reduce their harmfulness as far as practicable. Where waste generation cannot be avoided, the waste must be reused, recycled or recovered, or used it as a source of energy. Where waste cannot be recovered or reused, the waste must be treated and disposed of it in an environmentally sound manner;
- The Project must identify technically and financially feasible alternatives for the environmentally sound disposal of any hazardous waste considering the limitations applicable to trans boundary movement; and
- When waste disposal is transferred offsite and/or conducted by third parties, chain of custody documentation to the final destination must be obtained and only contractors that are reputable and legitimate enterprises licensed by the relevant regulatory agencies must be commissioned. The Project must

ascertain whether licensed disposal sites are being operated to acceptable standards. Where this is not the case, alternative disposal options must be considered, including the possibility of the Project developing its own recovery and disposal facilities at the project site.

EPFIs

Section 1.6 of "the IFC General EHS Guidelines" is entitled Waste Management and is applicable to all projects that generate, store or handle any quantity of waste; whilst Section 1.5 of the IFC EHS Guidelines covers Hazardous Materials Management. The waste management guidelines state that facilities that generate and store wastes should practice the following:

- Establish waste management priorities at the outset of activities;
- Identify EHS risks and impacts and consider waste generation and its consequences;
- Establish a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes;
- Avoid or minimize the generation of waste materials, as far as practicable;
- Identify where waste generation cannot be avoided but can be minimized or where opportunities exist for, recovering and reusing waste; and
- Where waste cannot be recovered or reused, identify means of treating, destroying, and disposing of it in an environmentally sound manner.

Wastewater

EBRD

EBRD PR3 on Resource Efficiency and Pollution Prevention and Control establishes general requirements for wastewater management as follows:

- The Project must seek to minimise water usage in order to minimise wastewater generation; and
- The Project must identify technically and financially feasible techniques for reusing and recycling effluents in accordance with GIP, which should be implemented as part of the project design.

EPFIs

The IFC/WBG General EHS Guidelines (2007) establish general requirements for direct or indirect discharge of wastewater from utility operations or storm water to the environment.

'Projects with the potential to generate process wastewater, sanitary (domestic) sewage, or storm water should incorporate the necessary precautions to avoid, minimize, and control adverse impacts to human health, safety, or the environment'.

However, wastewater effluent pollutant limits are only established for sanitary wastewater for discharge to the sanitary sewer systems. World Bank General EHS Guidelines (2007) (ref. Table 1.3.1 of IFC EHS Guidelines), provides indicative values for treated sanitary wastewater effluent.

5.6.2 Initial Observations and Baseline

Waste management in Uzbekistan is an issue as waste is being collected and disposed in dump sites in the absence of proper management practices and infrastructures including sorting facilities or landfills. In 2019, a Solid Waste Management Strategy for the period of 2019 – 2028 was put in force. According to the legislation [9] "*In the absence of sufficient waste management services only 40 - 50% of the municipal solid waste generated in rural settlements is being collected while these services are almost absent in the remote rural areas*". The objective of the strategy is to enhance the waste management services including transportation, storage, disposal and recycling.

Based on site visits observations and according to Juru (2021), there is a lack of municipal waste management infrastructure within the Project site area and in Nukus Province and the wider Karakalpakstan, although projects to update the municipal infrastructure are understood to be in the pipeline.

5.6.3 Potential Impacts

Table 5-14 Potential Waste & Wastewater Impacts

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Project construction activities	Solid waste generation (hazardous and non-hazardous)	Overloading of regional waste management infrastructure, potential for pollution incidents if waste is not appropriately managed.	Waste and wastewater management facilities and environmental receptors
	Construction Wastewater		
Operational Phase			
Project operation and maintenance activities	Small amounts of solid waste generation (hazardous and non-hazardous) from the operation of the administration facilities and activities of the employees	Suitable contractors and facilities for the handling and treatment of such wastes	Waste facilities and environmental receptors
	Sanitary and domestic wastewater generated from on-site administration areas		

[9] Resolution Of the President Of The Republic Of Uzbekistan Of April 17, 2019 No. Pp-4291 - Approval Of Strategy According To The Treatment Of Municipal Solid Waste In The Republic Of Uzbekistan For 2019-2028

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
	Stormwater	Potential runoff into any areas containing hazardous materials and eroded soil	Surrounding environment

5.6.4 Proposed ToR for the ESIA

Baseline Studies

Details of available local waste/wastewater treatment/disposal sites and service providers will be outlined. In addition, suitable sites for the disposal of hazardous wastes and materials will be identified.

Construction and Operational Phases Impacts Assessment

The ESIA will inventorise the types of waste and wastewater that is expected to be generated by the Project's construction and operation. Where estimates of waste and wastewater volumes are available these will be provided and broken to specific streams (at least to outline non-hazardous and hazardous streams, or other streams requiring special handling).

Based upon the availability of waste and wastewater service providers and disposal/treatment sites, an assessment can be made as to the needs for the management of such waste and wastewater streams.

The ESIA will include good practice mitigation and management measures for such waste streams, which can then be implemented on-site via the CESMP, OESMP and wider ESMS management programmes.

5.7 Traffic and Transportation

5.7.1 Applicable Requirements & Standards

National Regulations

The Ministry of Transportation is responsible for all transport related activities and their requirements should be fully complied with in terms of routing of HGVs and site vehicles, licensing, road diversions, heavy/wide loads etc. Some of the relevant national requirements for the Project include:

- Law "About traffic safety" of the Republic of Uzbekistan August 19, 1999 No. 818-I (as amended on 29-12-2015): The main objective of this law is to ensure protection of life and health of citizens and their protection.
- Regulations on road safety during transportation of large and heavy loads by road transport (Annex No.2 to the Decree of Cabinet of Ministers No. 342 of

December 26, 2011): This law determines the requirements of ensuring and coordinating traffic safety during the transportation of large size and heavy loads on public roads on the territory of the Uzbekistan. It also details the basic requirements for the technical condition equipment and furnishing of vehicles used for the transport of large and heavy loads as well as safety.

- Criteria and Procedure for Determining International Road Transportation of Loads (approved by the Decree of Ministry of Transport of the Republic of Uzbekistan and State Customs Committee of the Republic of Uzbekistan dated October 31, 2019, No. 6).
- Regulations on transport of loads by road in the Republic of Uzbekistan (Annex to Decree of Cabinet of Ministers No. 213 of 01.08.2014)

LENDER REQUIREMENTS

EBRD

The EBRD PR 4 on Health and Safety establishes management requirements with regards to traffic and road safety risks to workers and potentially affected communities. Relevant EU road and traffic safety management standards must therefore be taken into consideration.

"For Projects that operate moving equipment on public roads and other forms of infrastructure, the client will seek to prevent the occurrence of incidents and injuries to members of the public associated with operation of such equipment."

EPFIs

The assessment will be undertaken with due consideration of the recommendations set out within the IFC/World Bank General EHS Guidelines (2007) Section 3.4 Traffic Safety, within Section 3: Community Health and Safety.

Separate considerations regarding Community Health and Safety are also provided in the IFC EHS Guideline for Wind Energy (2015). This includes relevant items for 'Abnormal Load Transportation'.

5.7.2 Initial Observations and Baseline Conditions

The tarmacked highway (A380) that runs in a northwest/south-east direction west of the Project site is an international road that runs between the cities of Nukus and Bukhara. The access roads that directly approach the Project area from the A380 pass through mountainous ravine up to the plateau where the Project territory is located. The roadway along the section that runs parallel to the site is in poor condition with numerous potholes and cut-outs. The road will require substantial rehabilitation and maintenance. The road is also frequently used by HGVs passing to and from the industrial facilities in the area. There is also a freight railway line that runs adjacent to sections of the A380 closest to the site. There are no airfields or airports within

the region, however, there are two (2) helipads next to the vermiculite mining facilities, as shown in the following figure.



Figure 5-18 Helipads next to Mining Facility

5.7.3 Traffic and Logistics for Transportation of WTGs

A transportation routing survey for the WTGs and equipment is currently being undertaken. The outcome of this survey will be included in the ESIA.

5.7.4 Potential Impacts

Table 5-15 Potential Traffic & Transportation Impacts

ACTIVITY	ASPECT	IMPACTS AND ZONE OF INFLUENCE	POTENTIAL RECEPTORS
Construction Phase			
Movement of vehicles and machinery/ equipment/staff	Transportation of equipment i.e., oversized wind turbines components (blades, turbine tower sections, transformers), cranes etc	Transportation of wide and heavy loads may present a challenge to other road users such as temporary lane closures or increased traffic.	Highway and local road users including local communities
	Increased vehicular flow (particularly HGVs)	Increase in number of vehicles transporting materials and workers may potentially increase the flow of traffic on local roads.	
		Increased potential for incidents and increased road safety risks to communities.	
Operational Phase			

Activity	Aspect	Impacts and Zone of Influence	Potential Receptors
Movement of operation phase vehicles	Increased vehicular flow	Transportation impacts are not expected to be significant but movement of maintenance materials, waste removal and staff may lead to minimal addition of vehicle flow on local roads.	Local road users and local communities

5.7.5 Proposed ToR for the ESIA

The ESIA will include the findings of the transportation/routing survey for the Project and the potential impacts upon the local transportation network and road users in particular.

As stated in the IFC EHS Guidelines for Wind Energy (2015), '*the logistics, traffic, and transportation study should assess impacts on existing offsite roadways, bridges, crossings over culverts, overpasses/underpasses, turning radii, and utilities, as well as whether surface replacements, upgrades, or resettlements will be required*'. Such requirements will be discussed with the client and their selected EPC Contractor to determine any specific mitigation requirements that will be provided as part of the Traffic Management Plan.

5.8 Cultural Heritage

5.8.1 Applicable Requirements & Standards

National Regulations

Relevant legislation in Uzbekistan relating to archaeology and cultural heritage include:

- Law No. ZRU-229 "On protection and use of the objects of archaeological heritage" (13 October 2009).
- Law No. 269-II "On the Protection and Use of Cultural Heritage Sites (30 August 2001, as amended).
- Presidential Decree No. R-5181 "On improving the protection and use of objects of tangible cultural and archaeological heritage" (16 January 2018).
- Resolution of the President of the Republic of Uzbekistan № RP-4068 dated December 19, 2018 "On measures for improving actions for protection of material cultural heritage objects".
- Resolution of the Cabinet of Ministers of the Republic of Uzbekistan № 846 dated October 4 2019 "On approval of the national list of real state sites and objects of material cultural heritage".

The above laws seek to protect and sites and objects of cultural heritage which are considered as part of the national heritage for all the people in Uzbekistan.

In addition, the Criminal Code of the Republic of Uzbekistan includes provisions that prohibit the intentional destruction or damage of objects of tangible cultural heritage under state protection, with further protections in place to protect cultural property in PAs, in particular protected historical and cultural territories, without first obtaining permission.

LENDER REQUIREMENTS

EBRD

EBRD Performance Requirement 8 recognises the importance of cultural heritage, both tangible and intangible for present and future generations. The aim is to protect cultural heritage and to guide clients in avoiding or mitigating adverse impacts on cultural heritage in the course of their business operations. The clients are expected to be precautionary in their approach to the management and sustainable use of cultural heritage.

EPFI's

In accordance with the Equator Principles, the assessment will refer to applicable IFC Performance Standards on Social and Environmental Sustainability, specifically with due consideration of Performance Standard 8 – Cultural Heritage. PS8 aims to protect the adverse impacts of project activities and support its preservation and to promote equitable sharing of benefits from the use of cultural heritage. Cultural heritage in this standard refers to:

- Tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values;
- Unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls; and
- Certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.

5.8.2 Initial Observations and Baseline Conditions

Wind Farm

No cultural heritage sites have been observed within the Project boundaries of the Wind Farm. The nearest cultural site – Munijat mountain is located within 2 km of the wind farm site boundary. Another site - the Sultan Uwais Baba Complex is a collection of buildings and graveyards about 8 km from the wind farm Project site. The shrine to Sultan Uwais Baba is one of the most sacred places in Karakalpakstan and is a popular place of pilgrimage amongst the people of Karakalpakstan and Khorezm.




Figure 5-19 Munojat mountain and the Sultan Uwais Baba Complex (from left to right)

OHTL

At 1.6 km west of the OHTL, a tangible cultural heritage object has been identified, presumed to be a part of an ancient castle based on its appearance. Further details will be clarified during the ESIA stage.

Additionally, there are two cemeteries within the territory. One of which occupies approximaretely an area of 99 hectares and is adjacent to the memorial complex. The other is an ancient cemetery, located near the existing power station and occupies 2.7 hectares.




Figure 5-20 Remnant of the Tower and Cemetery (from left to right)

5.8.3 Potential Impacts

Potential impacts described below are consistent for both the Project site and OHTL.

Table 5-16 Potential Cultural Heritage Impacts

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Earthworks	Excavations of soil	Potential damage or destruction of any unknown buried artefacts in footprint of all works	Unknown buried artefacts
Operational Phase			

Activity	Environmental Aspect	Impacts and Zone of Influence	Potential Receptors
Impacts to cultural heritage are not envisaged during the operational phase unless a cultural receptor is identified within proximity to the Project.			

5.8.4 Proposed ToR for the ESIA

Baseline Studies

Consultation will be conducted with relevant governmental bodies and institutes (i.e., the Cultural Heritage Agency and institute of Archaeological Research under the Science Academy of the Republic of Uzbekistan) in order to gain official confirmation regarding the absence/presence of archaeological and cultural heritage at the site and surrounding areas as well as identification of buffer zones for existing cultural heritage along OHTL route.

The socio-economic surveys will also help establish if the land has any specific physical cultural resources or other intangible cultural value.

Construction Phase Impact Assessment

Unless specific cultural features of importance are identified in/or near to the footprint of works (including temporary facilities), there is not expected to be the need for a detailed assessment of impacts to cultural heritage in the ESIA.

The ESIA will rather establish the need for a 'Chance Finds Procedure' to be developed, so that any potential interactions with unknown buried archaeology can be managed in accordance with a defined process and the applicable regulatory stakeholders.

Operation Phase Impact Assessment

An operation phase impact assessment for cultural heritage is not proposed due to the fact that there will not be the requirement for any additional land excavation or land take as a result of the operation phase. If a nearby feature of cultural importance is identified during the baseline surveys, and it is considered possible that the operation of the Project could detract from its value, then an operation phase impact assessment would be conducted.

5.9 Socioeconomics

5.9.1 Applicable Requirements & Standards

National Regulations

The following legislation provides for relevant socioeconomic aspects, including land access:

The following land Laws are relevant to the Project:

- Civil Code of the Republic of Uzbekistan (1997) as amended on 8.11.2022.
- Land Code of the Republic of Uzbekistan (1998) as amended on 1.10.2022.
- Law of the Republic of Uzbekistan on State Land Cadastre No.666-I of 28.08.1998.
- Presidential Decree №. UP-5495. Decree " On measures on cardinal improvement of investment climate in the republic of Uzbekistan".
- Appendix No. 2 to the Resolution of the Cabinet of Ministers №. 146 (2011), regulation "On the Procedure for Compensation for Losses of Land Owners, Users, Tenants and Owners, as well as Losses of Agricultural and Forestry Production".
- Resolution №. 911 of the Cabinet of Ministers (2019) "On the Procedure for withdrawal of land plots and compensation to owners of immovable property located on the land plot.

Law No 781 " On procedures for the withdrawal of land plots for public needs with compensation" October 1st, 2022. The Law specifies cases when the land plots can be acquired for public need among which construction (reconstruction) of roads and railways of national and local significance is also specified. Law No. 781 also prescribes procedures of land acquisition, communication with project affected people (PAPs), compensation calculation, and demolition of affected assets. From October 1st, 2022, all projects that require the acquisition of land for public needs should be managed following this Law.

LENDER REQUIREMENTS

EBRD

Performance Requirement 1 outlines the need for assessing social impacts as part of ESIA. This is interpreted to include socio-economic effects to individuals/groups/populations that may be impacted by a project.

Performance Requirement 5 on land acquisition, involuntary resettlement and economic displacement refers to Involuntary resettlement as both physical displacement (relocation or loss of shelter) and economic displacement (loss of assets or resources, and/or loss of access to assets or resources that leads to loss of income sources or means of livelihood) as a result of project-related land acquisition and/or restrictions on land use.

Where resettlement is government led, PR5 requires, *'the client (to) collaborate with the responsible government agency, to the extent permitted by the agency, to achieve outcomes that are consistent with the objectives of this PR.'*

Performance Requirement 7 recognises that *'indigenous peoples are social groups with identities and livelihoods that are distinct from dominant groups in national societies. They may*

be among the most marginalised and vulnerable segments of the population.' The PR requires the Project to determine the applicability of this PR as early on in the process as possible.

EPFI's

Several of the IFC Performance Standards have elements that relate to socio-economics. Key requirements for the assessment of socio-economic impacts are outlined in PS1, whilst PS5 on Land Acquisition and Involuntary Resettlement has important requirements relating to projects that acquire land or will necessitate physical or economic displacement to PAPs, including compensatory measures.

5.9.2 Initial Observations and Baseline Conditions

POLITICAL AND ADMINISTRATIVE STRUCTURE

The Republic of Karakalpakstan is a sovereign democratic republic, being a structural part of the Republic of Uzbekistan. Karakalpakstan's administrative centre is Nukus City, with the republic itself consisting of 15 districts. The Wind Farm and OHTL are located in the Beruniy district.

The constitution and the laws of Karakalpakstan were drafted in line with the constitution and the laws of Uzbekistan. The republic has its own flag, emblem and anthem. The Jokargy Kenes (Parliament) of Karakalpakstan, represented by the Chairman of Jokargy Kenes, offers overall guidance for the republic. The highest executive body of Karakalpakstan is the Council of Ministers approved by the Jokargy Kenes. The chairman of the Council of Ministers of Karakalpakstan is also a member of the Cabinet of Ministers of Uzbekistan.

POPULATION AND DEMOGRAPHICS

As of January 1st, 2018, Karakalpakstan's permanent population amounted to a total of 1,842,400 persons with a near 50% split or urban to rural (UNDP, 2018). Nukus is the largest city with 307,400 inhabitants.

The Karauzyak district has a population of 52,000, with the rural population 70.2% (36,500) and the urban population 29.8% (15,500). The population by year is shown in the following figure.

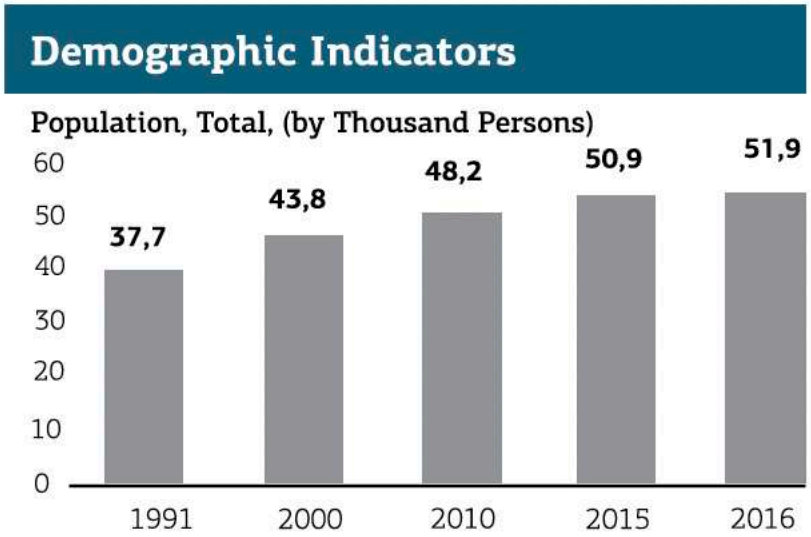


Figure 5-21 Karauzyak Population by Year (UNDP, 2018)

ECONOMY AND EMPLOYMENT

Karakalpakstan Gross Domestic Product (GDP) share accounted for 3.3% of Uzbekistan's GDP. Karakalpakstan Gross Regional Product (GRP) for 2017 was 8,285.2 billion UZS in current prices, 5.7% higher than 2016 indicators. By the end of 2017, the GRP per capita was 4,527.7 thousand UZS, representing a 4.2% growth. The increase is due to the growth in the main sectors of the region's economy, namely:

- Agriculture, forestry and fisheries;
- Industry;
- Construction; and
- Services.

According to Juru (2021) the main branches of industry in the area of influence include light industry, electricity generating industry, food industry, fuel industry, chemical and oil-chemical industry, flour milling industry and industry of construction materials. Information collected during the ESA site visit for the village of Bestam (a typical village along the Amu Darya River) indicates that the main agricultural activities are livestock rearing and agricultural farming. The main crops are tomato, carrot, onions, green pepper, pumpkin, and commercial trees, including apple, grapes, and pomegranate. Local markets are the primary way of selling crops in the area.

Third National Communication of the Republic of Uzbekistan under the UN Framework Convention on Climate Change (2016) states that the total potential of wind energy in Uzbekistan is estimated in the volume of 2.22 million t.o.e./year and that the highest values of total and technical potential are found within Karakalpakstan. As per the tender

documentation it is understood that the region has been highlighted as an area with high wind energy potential and there will likely be future wind projects developed. In addition to this, areas surrounding the Project have been highlighted as mining concession areas.

Land Use and Resettlement

Wind Farm

The wind farm project site is located in isolated and unmodified area. Based on site observations conducted between 2022 and 2024, the primary land use consists of grazing activities, which is evident from the tracks of livestock and various marks. Informal consultations with herders in 2022 indicated that the site is typically utilized by up to 5 herders, though this number may increase to 15-20 during the spring season. However, no structures were observed within the Wind Farm area.



Figure 5-22 Livestock Tracks and Herders' Signs

In addition to grazing activities, the Project site and surrounding areas are actively used for mining purposes. Geological exploration activities were identified during site visit in July 2023, and another site visit in February 2024 confirmed their presence.



Figure 5-23 Geological Exploration at Wind Farm Area

Consultations conducted with Beruniy district municipality in February 2024 revealed that land allocated for the Wind Farm and the wider area is owned by The State Committee on Sericulture and Wool Development Industry (SWID).

Land acquisition will result in permanent land take from SWID due to the placement of wind turbines. Additionally, this will lead to temporary restrictions on grazing activities for herders until the completion of construction works.

OHTL

Unlike the Wind Farm, the proposed OHTL route goes through a highly modified area occupied by rural areas and agricultural fields.

There are 8 residential areas located along the OHTL corridor, with the nearest one located less than 150m away.





Figure 5-24 Residential Areas along OHTL Route



House located within 35 m AoI



House located 44 m within AoI



Houses located within 50 m AoI



Fish Pond of household located within 34 m AoI




House located within 50 m AoI



House located within 22 m AoI

House located within 35 m AoI



House located within 50 m AOI

Figure 5-25 Residential Houses and Structures within the AoI of OHTL

Furthermore, there are various utility infrastructures situated along the OHTL route. These include gas and water pipelines and underground cables. In the northeast, the OHTL route intersects with the railway, and several existing OHTLs run along the proposed OHTL and interest at multiple points.

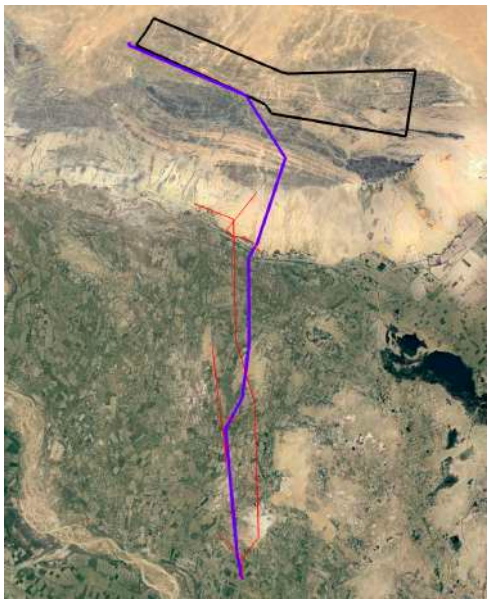


Figure 5-26 Existing OHTL along Proposed Route of Project OHTL







Figure 5-27 Utility Infrastructure along OHTL Route

PUBLIC SERVICES & UTILITIES

Juru (2021) state that public services are limited in the project area.

Preliminary discussions during the ESA site visit indicate that in Karatau, there is one public school, a hospital and a kindergarten. Women are involved in housekeeping, agriculture, livestock activities, with men generally employed in the aggregate mining sector. During the field visit, local mahallya leaders indicated that the population has mid-level educational qualifications. The next nearest health facilities, local business and emergency response facilities are located in Nukus more than 80 km from the Project site.

The village of Bestam (representative of villages in the area) has approximately 50 persons with one primary school (where children study up to grade 4). The nearest secondary school is about 7 km away in a neighbouring village.

Local medical facilities consist of one family and a rural clinic. Drinking water is typically supplied by hand pumps as the village is not connected to the mains supply system. The nearest religious building is approximately 8 km from the site.

INDIGENOUS PEOPLES

The predominant ethnic group in the project area is understood to be the Karakalpaks, and the herder family spoken to during the December site visit is Karakalpak. National laws, specifically the Constitution of the Republic of Uzbekistan, does not officially recognise any IPs. Considering the applicability of PR7 to European ethnic groups, EBRD guidance states that "*in practice, the PR [PR7] is deemed relevant only in Russia as it has been assessed that no group in other EBRD countries of operations (COO) is known to meet the five criteria set out in paragraph 10 of PR7*".

Uzbekistan is defined as a COO by EBRD; however, as a former soviet republic, Juru (2021) have conducted a screening to understand better whether the Karakalpak exhibits traits that trigger any of the five EBRD criteria. The findings indicate that the Karakalpaks may be considered a distinct group with a distinct language but do not meet the other screening

criteria such as collective attachment to geographically distinct habitats or customary cultural practices that are separate from those of the dominant society or culture. Therefore, PR7 has not been triggered, however, ensuring the Karakalpakstan language is used in project communication will be vital to maximising local employment opportunities and providing an effective communication strategy.

5.9.3 Potential Impacts

Table 5-17 Potential Socio-Economic Impacts

ACTIVITY	ASPECT	IMPACTS AND ZONE OF INFLUENCE	POTENTIAL RECEPTORS
Construction Phase			
Project construction	Project employment	Provision of temporary jobs during construction	Local populations
	Skills training to local communities and the Project workforce	Increase in skills sets of population	
	Use of local goods and services	Positive indirect benefits and uplift to local economy from increased local spending	Local businesses and populations
	Land use change	Local herders/farmers may not be able to use the site or some parts of the land during the construction phase.	Herders
	Disruption of local customs	Influx of workers could potentially introduce new habits or practices that are not consistent with local beliefs	Local populations
	Accidental damage to local utility infrastructure, residential areas and agricultural crops from OHTL construction	Damage to residential houses, crops/trees and utility infrastructure (gas/water pipes, communication cables)	Local populations and farmers
Worker Influx	Increase of demand and purchasing locally may inflate process of basic commodities	Increased cost of living for local populations and benefits to local home owners	Local populations
Operational Phase			
Plant operations	Project employment	Provision of employment	Local populations
	Skills training to local communities and the Project workforce	Increase in skills sets of population	

5.9.4 Proposed ToR for the ESIA

IDENTIFICATION OF LAND OWNERSHIP/LAND USE

Landowners and users, both formal and informal, in the Wind Farm area and along the OHTL will be determined through consultations with relevant authorities and site observations. The identified land users will be surveyed to assess the impact on their households resulting from permanent land acquisition and temporary land use restrictions.

SOCIO-ECONOMIC STATUS SURVEYS

A key task of the ESIA baseline surveys is to gather data to:

- Confirm use of land, including past uses (land registry, conditions of land agreements, land valuation, compensation procedures, resettlement issues and etc.).
- Identity socio-economic characteristics of the population in the project area – size, gender and age structure, ethnic composition (including minorities and their vulnerability assessment);
- Characterise the living standards of the population in the project area - size and structure of income, property/other assets and their use, poverty level, living conditions (housing type and amenity);
- Assess access to social (health care, education, social programs) and public (water pipe, sanitary facilities, heat, electricity and gas supply) services;
- Identify the availability of social and cultural facilities (roads, transport, retail outlets);
- Assess existing knowledge about the Project within the communities and land users.

A stakeholder matrix will be prepared and the matrix will determine suggested methods of communication, it is anticipated that the key stakeholders during the assessment will be:

- Herders who utilise the Wind Farm Project site surroundings and the wider mountain area as well as areas along the OHTL for livestock grazing;
- Local industries including mining companies and cement factories;
- Agricultural farms along the OHTL;
- Residential areas in the AoI of the proposed OHTL.

A grievance redress mechanism will also be established as part of the stakeholder engagement process specifically for the Project.

LIVELIHOOD RESTORATION PLAN

Following consultations with stakeholders, the requirement for a Livelihood Restoration Plan (LRP) will be determined. An LRP will be required if involuntary resettlement (referring to both physical and economic displacement) occurs as a result of Project related land acquisition

and/or restrictions on land use. The plan would include information relating to asset valuation and procedures for compensation payment under the existing legislation.

CONSTRUCTION PHASE IMPACTS ASSESSMENT

Worker Influx

The ESIA will aim to establish the likely extent of worker influx as a result of the Project, and how these workers will be housed and catered for to assess impacts upon local populations, particularly in terms of commodity prices.

Project Construction Positive Impacts

The outcomes of the survey of socio-economic condition are expected to highlight and target methods that can be implemented to enhance such benefits of local employment, training provisions and use of local business and services. Where applicable the ESIA will outline provisions that can be implemented during construction.

5.10 Community Health, Safety & Security

5.10.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

Resolution Of Cabinet of Ministers of Republic of Uzbekistan No.95 "On Approval OF General Technical Regulations Of Environmental Safety" (2020)

- Requires the implementation of environmental safety measures for the protection of flora and fauna. This includes the prevention of death of wildlife species due to magnetic fields of power transmission lines and sanitary protection zones.
- Requires transformer substations in power transmission lines, their grids to have equipment (barriers, fences etc.,) to prevent animals from entering the territory of the substation.

Decree of the Cabinet of Ministers of the Republic of Uzbekistan No.1050 "On approval of Rules for Protection of Power Grid Facilities, 2018".

- This determines the procedure for establishing protected zones for power grid facilities, as well as special conditions for using land located within the protected zones and ensure the functioning and operation of the said facilities.
- Construction of power grid facilities with 110, 220 or 500kV in protected areas of state nature reserves, protected areas of nature parks and state biosphere reserves etc shall be allowed with the permission of the Cabinet of Ministers of the Republic of Uzbekistan.

- Protected zones of power grid facilities shall be established on both sides of the power transmission line from the outermost wires and along the perimeter of substations at the following distances for voltages;
    - 110kV: 20 m;
    - 220kV: 25 m; and
    - 500kV: 30 m.

San Rules & Norms No. 0236-07 "Sanitary norms and rules to ensure safety for people living near high voltage power transmission lines, 2007".

- This regulation sets the requirements for ensuring public safety when overhead power lines pass over populated, unpopulated or inaccessible territories.
- It requires sanitary norms and rules to be followed in the design, construction and operation of overhead power lines.
- The distances corresponding to the projection onto the ground of the outer phase wires in a direction perpendicular to the overhead line as follows:
    - Up to 110kV/m: 10 m;
    - Up to 220kV/m: 15 m;
    - Up to 330kV/m: 20 m;
    - Up to 500kV/m: 30 m; and
    - Up to 570kV/m: 40 m.

GENDER-BASED VIOLENCE, HARASSMENT, AND EXPLOITATION

Over the past decade, the Government of Uzbekistan has implemented a number of legal reforms and interventions geared towards the protection of women's rights and the elimination of GBV. An overview of the key executed initiatives to this end is provided in the table below.

Table 5-18 Reforms and Initiatives for Protection of Women's Rights and Support for GBV Victims

INTERVENTION	OBJECTIVES
Establishment of the Law on Protection of Women from Harassment and Abuse (2019)	The national law provides for the protection of women from all forms of harassment and abuse. While violence against women is recognized in the Criminal Code of Uzbekistan, provisions for the registration, investigation, and prosecution of GBV are not prescribed in the Code. In furtherance of the Code, the Act established specific procedures for the management of GBV cases for relevant law enforcement authorities and mandates the provision of medical, psychological, legal, economic, and humanitarian support to victims of GBV. In 2020, systems for the issuance of protection orders for victims of GBV were fully instituted across the country.
Establishment of the Resolution on Measures to Improve the System of Social Rehabilitation and	The Resolution No. PP-3827 of the Head of the State dated 07.02.2018 "On measures to improve the system of social rehabilitation and adaptation, as well as the prevention of domestic violence" identifies priority areas for improving the system

INTERVENTION	OBJECTIVES
Adaptation, and the Prevention of Domestic Violence (2018)	of social rehabilitation and adaptation, prevention of family and domestic violence, and approved the program of practical measures to improve the system of social rehabilitation and adaptation, as well as the prevention of domestic violence. The Resolution provides for the following key measures: 1. Priority areas include improving the social system of rehabilitation, adaptation and preventative measures against domestic violence. 2. A program of practical measures to improve the system of social rehabilitation, adaptation and prevention of domestic violence. 3. A Center for Rehabilitation and Adaptation for victims of violence, as well as the prevention of suicides in territorial divisions of the Women's Committee of Uzbekistan. 4. Public "hot line" on number "1146", for provision of emergency psychological, psycho-therapeutic and legal support and information about organizations that may provide additional assistance.

LENDERS REQUIREMENT

EBRD

Performance Requirement 4 establishes the importance of avoiding or mitigating adverse health and safety impacts and issues associated with project activities on workers, project affected communities and consumers. The objectives of EBRD PR4 are:

- To protect and promote the safety & health of workers by ensuring safe and healthy working conditions and implementing a health and safety management system, appropriate to the relevant issues and risks associated with the Project.
- To anticipate, assess and prevent or minimise adverse impacts on the health and safety of project affected communities and consumers during the project lifecycle from both routine and non-routine circumstances.
- EPFIs

IFC Performance Standard 4 establishes requirements to safeguard local communities from potential risks associated with the Project including impacts associated with introduction of communicable disease, site access and operation, material use etc. The key objectives of PS4 are:

- To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances.
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

5.10.2 Initial Observation and Baseline Conditions

Wind Farm

The project site is located more than 9 km to the south of the nearest permanent residential receptors and communities. Site assessment surveys conducted in 2022, during the tender preparation stage, indicated that the project area is utilized by up to 5 herders for grazing purposes, with numbers increasing to 15-20 during the spring season. Site observations in July 2023 revealed only tracks of livestock, with no herders in sight.

During the Scoping site visit in February 2024, no herders were observed neither within the WF area nor in its surrounding areas.

OHTL

The proposed OHTL route crosses through 8 residential areas, with the distance to the nearest residential receptor being less than 150 meters. Furthermore, the route encounters various features such as drainage canals, gas and water pipelines, as well as underground cables.

The landscape along the OHTL route is predominantly characterized by agricultural farms, with a few areas designated for livestock grazing.

5.10.3 Potential Impacts

This chapter will outline and assess the impacts relating to the safety and security of the public who access the surrounding areas and may be subject to project related impacts. Secondary impacts relating to public health in terms of air quality, noise, waste etc., will be addressed in specific chapters elsewhere in this report.

Table 5-19 Potential Community, Health, Safety and Security Impacts

Activity	Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Influx of workers	Community disgruntlement and conflict with staff and security (potentially including expatriate workers)	Conflict, disease spread, initially on a local basis (potentially wider)	Local populations (where this coincides with Project workers) and those herders that use the site.
	Community health risks		
	Gender Based Violence and Harassment/Sexual Exploitation & Abuse/ Sexual Harassment	Risk posed to local women, young boys and girls by migrant workers from other parts of Uzbekistan and overseas.	
Construction Works	Exposure of community to construction and commissioning hazards	In areas of the WTGs and substation or at associated facilities that may not be fully	

Activity	Aspect	Impacts and Zone of Influence	Potential Receptors
	(including equipment, electrical hazards, hazardous materials, chemicals and fuels, hazardous wastes etc.)	secure, or where there are poor security management practices.	
	Emergency situations (e.g. fire, explosion etc.)	Project footprint and external to the Project areas (depending on type and magnitude of emergency)	Nearby residences and ecological receptors
		Water and gas pipelines, residential structures near OHTL corridor	
	Accidental damage to local infrastructure	Along the OHTL corridor	Residential structures and infrastructure
Movement of construction vehicles	Increased vehicles on local road (particularly HGVs)	Increased potential for incidents and increased road safety risks to communities.	Local communities and other road users
Operational Phase			
Public Access	Safety issues may arise with public access to wind turbines (e.g., unauthorized climbing of the turbine)	WTG's	Public
Blade/ Ice Throw	Failure of the rotor blade can result in the "throwing of a rotor blade or part and during certain cold weather conditions accretion of ice on the blades and risk of pieces of ice thrown from rotor during operation or dropped if turbine is idle (IFC EHS Guideline on Wind Energy, 2015)	The IFC EHS Guideline on Wind Energy, 2015 outlines minimum set back distances should be 1.5 times the height of the turbine (tower + rotor radius).	Nearby land users (e.g. herders and farmers) and ecological receptors
Plant Operations	Emergency situations (e.g. structural damage and possible collapse, spills of any back up fuels (from operational buildings), un-warranted releases of wastewater etc.)	Project footprint (WTGs, access roads and substations) and external to the Project areas (depending on type and magnitude of emergency)	Nearby land users (e.g. herders and farmers) and ecological receptors
Exposure to Electro Magnetic Field (EMF)	Herders, farmers and residents of nearby communities	Exposure of EMF to herders and farmers working and living in a close proximity to OHTL	Herders, farmers and residents of nearby communities
	OHTL maintenance workers	Exposure of EMF during maintenance works	Nearby land users (e.g. herders) and ecological receptors

5.10.4 Proposed ToR for the ESIA

Reasonably foreseeable risks to community health, safety and security will be delineated in the ESIA and where appropriate, provisions for the management of such circumstances will be outlined, with applicable mitigation and management measures.

The ESIA will highlight the need for preparedness and response mechanisms for reasonably foreseeable emergency situation to be addressed in specific construction and operational phase management plans.

5.11 Human Rights, Labour & Working Conditions

5.11.1 Applicable Requirements & Standards

NATIONAL REGULATIONS

The Labor Code of the Republic of Uzbekistan

The Labor Code of the Republic of Uzbekistan, introduced in April 1996, is considered as a base document for work relations. It addresses provisions relating to non-discrimination in labor relations, protection of labor rights, subjects of labor relations, representation of workers and employers, collective agreements and collective bargaining, job placement, labor contracts, working time, rest and leave, wages, guarantee and compensation payments, labor discipline, the material responsibilities of labor contract parties, labor protection, additional guarantees and advantages to certain categories of workers, labor disputes, and State social security.

Article 6 of the Labor Code prohibits discrimination and guarantees that all citizens have equal rights to work; discrimination in labor relations is prohibited. Any differences, non-admission or preference, denial of employment, regardless of nationality, race, gender, language, religion, political beliefs, social status, education, property, leading to a violation of equality of opportunities in the field of labor, are prohibited. A person who considers that he or she has been subjected to discrimination at work may apply to the court for the elimination of discrimination and compensation for material and moral damage caused to him/her.

The Ministry of Employment and Labor Relations of the Republic of Uzbekistan is the main state institution responsible for labor, employment, and social protection policy making. The ministry is tasked with the development and regulation of the labor market and ensuring the employment of the population, the regulation of labor relations and labor protection, the provision of social services for the population, and medical-social rehabilitation of persons with disabilities.

The supervision and monitoring of compliance with Labor Code requirements and the protection of labor rights of citizens is implemented by the State Labor Inspection under the Ministry of Employment and Labor Relations of the Republic of Uzbekistan, and its territorial subordinate structures according to the Statement on the State Labor Inspection.

The Law on "Labor Protection", enacted on September 22, 2016

This law further improves the labor protection system by strengthening the responsibilities of employers and workers, defining public authorities' powers to ensure the proper monitoring of working conditions and safety, increasing the efficiency of public control, and bringing certain provisions of the current law in accordance with the requirements of the newly adopted legislative acts into the modern market economy.

- The Law introduces new concepts and clarifies issues regarding the certification of workplaces on working conditions, audit of the OHS management system, investigation and registration of accidents at work, and occupational diseases. It establishes specific mechanisms for public and trade union participation in the implementation of public control in this field, and secures their rights related directly to OHS activities.

Labour Requirements

The Constitution of the Republic of Uzbekistan (30.04.2023) includes a chapter on the economic and social rights of citizens. According to it, everyone has the following rights:

- Everyone has the right to decent work, to free choice of profession and occupation, favorable working conditions that meet the requirements of safety and hygiene, to fair remuneration for work without any discrimination and not below the established minimum wage, as well as protection from unemployment in the manner prescribed by law. The minimum wage is determined taking into account the need to ensure a decent standard of living for a person. It is forbidden to refuse to hire women, dismiss them from work and reduce their wages for reasons related to pregnancy or the presence of a child. (Article 42).
- The state takes measures to ensure the employment of citizens, protect them from unemployment, and reduce poverty. The state organizes and encourages professional training and retraining of citizens. (Article 43).
- Forced labor is prohibited except in the execution of a sentence imposed by a court decision, or in other cases provided for by law. Any form of child labor that poses a threat to the health, safety, morals, mental and physical development of a child, including those that prevent him from receiving an education, is prohibited. (Article 44).
- Everyone has the right to rest. Employees have the right to rest by establishing the length of working hours, days off and non-working holidays, paid annual leave. (Article 45).

- Everyone has the right to social security in old age, in case of loss of ability to work, unemployment, as well as loss of a breadwinner and in other cases provided for by law. The amounts of pensions, benefits and other types of social assistance established by law cannot be lower than the officially established minimum consumer expenses. (Article 46).

Other relevant national laws and regulations include:

- Ordinance No. 30-31 of the Ministry of Labour and Social Security and the Ministry of Health of the Republic of Uzbekistan approving the list of hazardous jobs mentioned in Article 355, for which the employment of persons under the age of eighteen years is prohibited
- Joint Decree of the Ministry of Labour and Social Protection of the Population (No. 7) and the Ministry of Healthcare (No. 1) of Uzbekistan dated 30 May 2001 to approve the list of occupations with unfavourable working conditions to which it is forbidden to employ persons under 18 years of age.
- Decree No. 133 of 11 March 1997 to approve normative acts necessary for the realization of the Labour Code of the Republic of Uzbekistan
- Decree of the Cabinet of the Ministers No. 1011 of 22 December 2017 "On Perfection of the Methodology of Definition of Number of People in Need of Job Placement, including the Methodology for Observing Households with Regard to Employment Issues, also for the Development of Balance of Labour Resources, Employment and Job Placement of Population".
- Decree of the Cabinet of the Ministers No. 965 of 5 December 2017 "On the Measures of Further Perfection of the Procedure of Establishment and Reservation of Minimum Number of Job Places for the Job Placement of Persons who are in need of Social Protection and Face Difficulties in Searching Employment and Incapable of Competing in Labour Market with Equal Conditions".
- Decree No. 964 of 5 December 2017 "On the Measures for Perfection of the Activity of Self-Government Bodies Aimed at Ensuring Employment, Firstly for the Youth and Women".

Human Rights

- As a member of the United Nations, Uzbekistan supports and implements all the main international instruments of the United Nations relating to the protection of human rights and freedoms, including UN Universal Declaration of Human Rights, Human Rights Council Resolution No. 30/15 on human rights and preventing and countering violent extremism, Convention on the Elimination of all Forms of Discrimination against Women among others.
- Uzbekistan's State Policy on human rights is aimed at preventing violations or any restriction on human rights and freedoms and at establishing the necessary organizational, legal, social, economic, spiritual and moral foundations for the protection of human rights.

Occupational Health and Safety (OHS) legislation

The legislation comprises the Labor Code, the Law on Occupational Health and Safety, the decrees of the President of the Republic of Uzbekistan, Occupational Health and Safety standards, decisions of executive government agencies taken within their competence in the form of decrees, executive orders, regulations, directives, rules, etc.

The Law on Occupational Safety in Hazardous Production Facilities (2006)

The Law stipulates the legal, economic and social terms of ensuring safe exploitation of hazardous production facilities, with the aim of building enterprise capacity and preventing accidents.

In addition to the main legislation, the Republic also has national normative documents addressing the issues of occupational health and safety. These include (i) Sanitary Rules and Norms (SanR&N), (ii) State Occupational Safety Standards (GOST, SSBT), (iii) Construction Norms and Rules (CR&N (SNiPs)), (iv) standards of the content of harmful substances (maximum allowable concentrations and levels), and (v) normative methodological documents on individual issues setting forth requirements for occupational safety in hazardous facilities, when manufacturing or applying various products. In addition to state normative documents, various sectors of industry enforce departmental and interdepartmental norms, requirements and rules of occupational safety and health.

The main state bodies responsible for the implementation of OHS policy are:

- Ministry of Employment and Labor Relations of the Republic of Uzbekistan, including the State Labor Inspection under the Ministry with territorial branches distributed throughout the Republic;
- State Committee for Industrial Safety of the Republic of Uzbekistan (Goskomprombez);
- Sanitary and Epidemiological Welfare and Public Health Committee of the Republic of Uzbekistan under the Ministry of Health of the Republic of Uzbekistan.
- The Ministry of Employment and Poverty Reduction has an OHS directorate and the State Labor Inspection and its regional branches in the Republic of Karakalpakstan, viloyats (provinces), and the Tashkent city and district directorates and branches on labor, employment and social security. They constitute a single system of supervision and monitoring compliance with OHS requirements for ministries and agencies, institutions, organizations, and industrial and agricultural enterprises, with the exception of hazardous facilities that are under the jurisdiction of the State Inspection on Safety in Industry, Mining and the Housing and Utilities Sector.

LENDERS REQUIREMENT

EBRD

PR2 is applicable to Labour and Working Conditions and has the following key objectives:

- Respect and protect the fundamental principles and rights of workers;
- Promote the decent work agenda, including fair treatment, non-discrimination and equal opportunities of workers;
- Establish, maintain and improve a sound worker-management relationship;
- Promote compliance with any collective agreements to which the client is a party, national labour and employment laws;
- Protect and promote the safety and health of workers, especially by promoting safe and healthy working conditions; and
- Prevent the use of forced labour and child labour (as defined by the ILO) as it relates to project activities.

Concerning dedicated accommodation, compliance is required with:

- IFC & EBRD Workers Accommodation: Processes and Standards (2009).

In regard to human rights:

- According to EBRD's Environmental and Social Policy, EBRD is committed to the respect of human rights in the Project they finance. EBRD is also guided by the International Bill of Human Rights and the eight core conventions of the International Labour Organization.

EPFIs

The following applicable IFC Performance Standards aim to identify and ensure that social and economic impacts of a project are addressed in the relevant areas, in particular:

- Performance Standard 2: Labour and Working Conditions;

In accordance with IFC Performance Standard 2 (Labor and Working Conditions) there is a requirement to align with the following conventions:

- ILO Convention 29 on Forced Labor;
- ILO Convention 87 on Freedom of Association and Protection of the Right to Organize;
- ILO Convention 98 on the Right to Organize and Collective Bargaining;
- ILO Convention 100 on Equal Remuneration;
- ILO Convention 105 on the Abolition of Forced Labor;
- ILO Convention 138 on Minimum Age (of Employment);
- ILO Convention 182 on the Worst Forms of Child Labor;
- ILO Convention 111 on Discrimination (Employment and Occupation);

- UN Convention on the Rights of the Child, Article 32.1; and
- UN Convention on the Protection of the Rights of all Migrant Workers and Members of their Families.

In regard to human rights:

- In line with EP IV requirements, the United Nations Human Rights Guiding Principles apply to the Project. HRGP II on "The corporate responsibility to respect human rights" recognises that it is the responsibility of businesses and corporations to respect human rights. It is a global standard of expected conduct for all business enterprises wherever they operate. It exists independently of a States' ability and/or willingness to fulfil their human rights obligations and does not diminish those obligations.

5.11.2 Initial Observation and Baseline Conditions

Uzbekistan is strengthening legislations to empower existing institutions to eliminate child labour, forced labour as well as human trafficking. Following the Presidential Decree on "Additional Measures to Further Improve the System of Combating Trafficking in Persons and Forced Labour" (July 2019), the existing Interdepartmental Commission of the Republic for Combating Human Trafficking has been re-organised into a National Commission under the guidance of the President of the Senate. In addition, regional commissions were created in each of the Country's regions and a national rapporteur was eventually appointed.

Later in August 2020, the Law on Human Trafficking was amended by introducing new concepts, preventive measures, and a procedure to identify victims of human trafficking (including minors and their rights).

However, there is lack of documentation regarding construction labour and the provision of adequate working conditions across the different sectors. Despite the State's efforts to manage and regulate working conditions (e.g., minimum work wage, limiting working hours up to 40 hours per week, abandoning overtime working hours less than 120 hours), data concerning the enforcement of these laws in the private sector is not available. The most common violations committed by private sector employers include breaches of wage, overtime, and occupational health and safety standards. Although regulations provide standards for workplace safety, workers reportedly operate without the necessary protective clothing and equipment at some hazardous job sites. More specific information is not available regarding sectors with prevalent occupational safety violations, nor is specific data on groups of workers subjected to dangerous conditions or who perform their jobs without the necessary safety equipment.

5.11.3 Potential Impacts

Table 5-20 Potential Labour & Working Conditions Impacts

Activity	Aspect	Impacts and Zone of Influence	Potential Receptors
Construction Phase			
Employment of staff	Contracting especially for vulnerable groups (e.g. women, ethnic minorities)	Discrimination and exploitation. Risk of poorly formed contracts (or no contracts), risks of non-compliance with labour law and lender requirements, employment of labour that is forced or child labour.	Project workforce (PC, EPC Contractor and Sub-Contractors)
Day-to-day and specific construction & commissioning activities	Close contact of workforce	Risk of spread of diseases between the workforce and potentially the local community	Project workforce and local community
	Risks to worker occupational health and safety	Injury or death to workers where key risks are not suitably managed.	Project workforce
	Working Conditions	Poor conditions provided to workers with lack of welfare facilities, first aid, or other typical working amenities.	Project workforce
	Human rights	Relating to wages, working hours, health, collective bargaining & freedom of association, freedom of movement etc	Project workforce
	Gender (especially in relation to women)	Gender based violence & harassment, wage discrimination based on gender, employment benefits & guarantees etc	Project workforce
Workers Accommodation	Dedicated Project Worker Camp & Accommodation	Poor quality housing without access to all (or some/inadequate) required amenities and/or other non-compliance with the EBRD and IFC Worker Accommodation Guidelines.	Applicable to Project workforce requiring dedicated accommodation
Procurement/supply chain	Human rights	Forced labour, child labour, human trafficking, right to health, freedom of movement	Supply chain workers, vulnerable groups
	Environment	Environmental impacts such as air, water and soil pollution	Environment
Operational Phase			
Employment of staff	Contracting especially in relation vulnerable groups such as women and ethnic minorities.	Discrimination and exploitation. Risk of poorly formed contracts (or no contracts), risks of non-compliance with labour law and lender requirements, employment of labour that is forced or child labour.	Project workforce (PC, O&M Company and Sub-Contractors)
Day-to-day and specific operational and maintenance activities	Close contact of workforce	Risk of spread of diseases between the workforce and potentially the local community	Project workforce and local community
	Risks to worker occupational health and safety	Injury or death to workers where key risks are not suitably managed.	Project workforce

Activity	Aspect	Impacts and Zone of Influence	Potential Receptors
	Working Conditions	Poor conditions provided to workers with lack of welfare facilities, first aid, or other typical working amenities.	Project workforce

5.11.4 Proposed ToR for the ESIA

The ESIA will highlight applicable requirements and risks that the Project may encounter related to labour and working conditions, similar to those outlined above. This will also include necessary compliance requirements to meet lender guidelines.

It will aim to identity appropriate mitigation and management measures to ensure that such risks are minimised and/or appropriately managed throughout the entire project workforce and any key supply chains.

5.12 Climate Affairs

5.12.1 Applicable Requirements & Standards

NATIONAL REQUIREMENTS

Uzbekistan submitted its Third National Communication to the UNFCCC and it ratified the Paris Agreement in November 2018 which brought its Intended Nationally Determined Contribution (INDC) into effect for the period up to 2030. The long-term objective of the INDC is to decrease specific emissions of greenhouse gases per unit of GDP by 10% by 2030 from level of 2010. This envisages the support from the international organisations and financial, ensuring access to advanced energy saving and environmentally sound technologies and resource allocation for climate financing.

The ratification of the Paris Climate Agreement committed Uzbekistan to transitioning to a green economy, and adoption of the following normative documents:

- Decree of the President of the Republic of Uzbekistan. № PD-4477, dated October 4, 2019 "On approval of the Strategy on transition of the Republic of Uzbekistan to the "green" economy for the period 2019-2030".,
- Decree of the President of the Republic of Uzbekistan, № PD-5863, dated October 30, 2019, "On approval of the Concept of environmental protection of the Republic of Uzbekistan until 2030".

Priority areas of "The Strategy on transition of the Republic of Uzbekistan to the "green" economy for the period 2019-2030" regarding to the electricity producing industry are:

- Reconstruction and modernization of generating capacities of existing power plants with implementation of highly efficient technologies based on combined cycle gas and gas turbine units;
- Improvement of configurations and modernization of main power networks to increase the stability of the power system;
- Implementation of organizational and technical measures, including optimization of modes;
- Increasing the level of automatization of technological processes; and
- Full equipment of power consumption systems with automatic control and metering devices.

LENDER REQUIREMENTS

EBRD

According to EBRD Environmental and Social Policy, climate change shall be considered throughout the assessment process and identify appropriate climate resilience and adaptation measures to be integrated into the project design.

EBRD is committed to 'engage, whenever appropriate, in innovative investments and technical assistance to support no/low-carbon investments and climate change mitigation and adaptation opportunities, as well as identify opportunities to avoid, minimise or reduce greenhouse gas emissions in projects. EBRD requires its clients to assess risks caused by climate change to the projects. EBRD will also support its clients in developing climate adaptation measures and climate resilient investments as well as in managing risks caused by climate change'.

EPFIs

Equator Principles IV establishes that impacts to climate should be avoided where possible, and in support of the 2015 Paris Agreement recognises that EPFIs have a role to play in improving the availability of climate-related information.

Factors including climate change are required to be incorporated into the Project Review and Categorisation (EP1), while a key element of EP IV (under EP2 for Environmental and Social Assessment) is that an assessment of climate change risks is expected in an ESIA.

For projects that have Scope 1 & 2 GHG emissions of over 100,000 tonnes of CO_2 equivalent per annum, there are also other requirements linked to alternative analysis and client annual reporting on GHG emissions.

5.12.2 National Context

Uzbekistan is among the countries most vulnerable to climate change and has identified agriculture, economy, population health, energy, water resource management and disaster risk reduction as its most vulnerable sectors (WBG, 2021). Average annual air temperatures have risen steadily and significantly in Uzbekistan over the past century, albeit with no variation from year to year. From 1950 to 2013, temperatures rose at an average rate of 0.27°C per decade. Analysis in the total annual precipitation amount averaged by various regions of Uzbekistan for the period 1950-2013 show very low trends towards decreases.

Climate observations in Uzbekistan show that the number of days of high air temperature (>40°C) has increased from the 1950's to 2000s. The number of days with low temperature (below either -15°C or -20°C) has decreased.

According to Third National Communication of the Republic of Uzbekistan under the UN Framework Convention on Climate Change (2016) the different regions of Uzbekistan face varying vulnerability to climate change. Karakalpakstan, where the Project is located, is classified as one of the three most vulnerable territories in Uzbekistan to climate change.

5.12.3 Climate Projections

Climate projection data is modelled data from the global climate model compilations of the Coupled Model Inter-comparison Projects (CMIPs), overseen by the World Climate Research Program. The following data is summarised from the World Bank Climate Change Knowledge Portal.

TEMPERATURE

- Climate change is expected to produce increases in monthly maximum temperatures across Uzbekistan. The model ensemble's estimate of warming under the highest emission pathway (RCP 8.5) is an average temperature increase of 2.4°C by mid-century and nearly 5°C by end of the century.
- The number of hot days in Uzbekistan is projected to increase by 28.6 days by 2040-2059 days, under an RCP 8.5 scenario.
- The number of tropical nights (minimum temperature above 20°C) is projected to increase by over 31 days by 2040-2059, under an RCP 8.5 scenario.

PRECIPITATION

- Uzbekistan will experience a high variability of rainfall across different agroecological and climatic zones.
- Across the country, however, there have been some spatial differences in precipitation trends, with annual precipitation declining between 50-100mm in some central and eastern districts and moderately increasing in areas surrounding the Aral Sea.
- Increased heat and precipitation variability will lead to increased evapotranspiration in summer months resulting in a decrease in river flowing conditions.
- Future projections suggest that increased glacier melting (glaciers in Central Asia have shrunk by 25% and are expected to shrink by another 25% over the next 20 years) is expected to impact water availability and river flow in the short to long term in Uzbekistan.

DROUGHTS

The risks of dry years and droughts is also anticipated to increase in Uzbekistan due to decreases in river runoff and increases in population growth. This will be especially prevalent in the downstream reaches of the rivers in the Amu-Darya River basin such as Karakalpakstan.

5.12.4 Key Vulnerabilities

According to the World Bank Climate Change Knowledge Portal (2021), impacts from climate change make Uzbekistan increasingly vulnerable to: droughts, high temperatures, heat waves, heavy precipitation, mudflows, floods, and avalanches.

The key vulnerabilities for Karakalpakstan and the Project are that:

- Summer months are expected to have high temperatures, prolonged heat waves, and expanded summer season. Heat waves, and increased frequency of the consecutive number of days above 39°C are expected to occur throughout the country. Climate warming is also expected to shift boundaries of spring frosts with potential for adverse impacts on the agricultural sector.
- Droughts may become more frequent due to river runoff decrease, particularly for areas with increased demand and consumption from economic development and population growth. This is especially relevant due to the Project's location to the Amu Darya.

5.12.5 Potential Impacts

Climate affairs impacts can be split into three distinct categories:

IMPACTS FROM THE PROJECT ON CLIMATE CHANGE

As a renewable energy Project, there will be a net-benefit impact with respect to climate change as a result of the Project, however, the development of the project, specifically the construction phase will still have impacts that can impact climate affairs. These are covered in the following table.

Table 5-21 Potential Climate Impacts Arising from the Project

ACTIVITY	ASPECT	IMPACTS AND ZONE OF INFLUENCE	POTENTIAL RECEPTORS
Construction Phase			
Construction activities, increase in traffic due to construction vehicles	Combustion of fossil fuels	GHG emissions	Global climate

Activity	Aspect	Impacts and Zone of Influence	Potential Receptors
Site preparation activities	Changing of topography and land cover	Change of water flows and potential increased risk of flooding	Downstream riverbeds / communities
Operational Phase			
Use of maintenance vehicles	Combustion of fossil fuels	GHG emissions	Global climate

Physical Impacts from Climate Change on the Project

The Project may also be at risk from the impacts arising from climate change such as increased temperatures and water droughts leading to risks to the construction workforce. Flash flooding due to increased rainfall intensity during the construction and operation phases may also lead to impacts as well as potential pollution incidents. Wind power generation relies on the availability of wind and wind speeds. Climate change can impact wind speeds and other factors like air density, potentially yielding either positive outcomes, such as enhanced energy production, or detrimental ones, such as interruptions in generation during extreme weather events or decreased output due to lower wind speeds or air density.

Climate Transition Risks

There are no foreseeable climate transition risks due to the fact that the Project is a renewable energy project, which is a key part of wider global and national policies/agendas and 2030 Energy Strategy to reduce GHG emissions and improve Uzbekistan's energy mix from an environmental perspective.

5.12.6 Proposed ToR for the ESIA

Construction and Operation Phase Assessment

The ESIA will quantify GHG emissions from the use of construction plant and vehicles and the GHG emissions avoided by the operation of the Project. In addition, the ESIA will describe potential risks to the Project from climate change impacts in both the construction and operation phases and will propose appropriate mitigation and management measures to alleviate risks.

The ESIA will include a detailed Climate Change Risk Assessment (CCRA). The detailed Climate Change Risk Assessment (CCRA) will confirm the range of physical climate risks identified for the Project, on the basis of the climatic projections drawing on the best available information. The characterization of the physical risks will take account of the relevant hazards, means of exposure and vulnerability of potentially affected project infrastructure and beneficiaries.

To conclude the CCRA analysis, the materiality of the Project's physical climate risks will be evaluated based on the Project's inferred congruence with National Climate Contributions (NCC) and the degree of spill-over risk to the Project's power production targets and financial performance. Appropriate climate-proofing measures will be provided subsequently.

APPENDIX B – NATIONAL EIA: MEEPCC CONCLUSIONS (WF & OHTL)

O‘ZBEKISTON RESPUBLIKASI EKOLOGIYA, ATROF-MUHITNI MUHOFAZA QILISH VA IQLIM O‘ZGARISHI VAZIRLIGI
DAVLAT EKOLOGIK EKSPERTIZASI MARKAZI

Manzil: 10017, Toshkent sh, Mirzo Ulug`bek tumani, Sayram kuchasi, 15-uy,
Tel: 71-203-00-22

DAVLAT EKOLOGIK EKSPERTIZASI XULOSASI

TARTIB RAQAM **01-02/01-833**
HUJJAT TURI Atrof-muhitga ta'sir to'g'risidagi ariza loyihasi

Davlat ekologik ekspertizasi buyurtmachisi: JURU ENERGY CONSULTING MCHJga berildi.
STIR: 303454532
Obyekt nomi: Оценка воздействия на окружающую среду по объекту: «Строительство двухцепной ВЛ 220 кВ протяженностью 44,3 км в Берунийском районе Республики Каракалпакстан» (проект ЗВОС)
Loyihalarini ishlab chiquvchi nomi: JURU ENERGY CONSULTING MCHJ
STIR: 303454532
Davlat ekologik ekspertizasi mas’ul eksperti: DUROVA TAMARA TIMOFEYEVNA

O‘zbekiston Respublikasi Vazirlar Mahkamasining 2020-yil 7-sentabrdagi 541-son qarori bilan tasdiqlangan 1-ilovaga muvofiq, ushbu davlat ekologik ekspertizasi obyekti **atrof-muhitga ta’sir ko‘rsatishning** II toifa **toifasining** 10–**bandiga mansub.**

O‘tkazilgan davlat ekologik ekspertizasi natijasi: Ijobiy xulosa
Davlat ekologik ekspertizasi xulosasi: Ilovasiz huquqiy hujjat hisoblanmaydi
Berilgan sana: 27.05.2024
Amal qilish muddati: 27.05.2027

Ekologik ekspertiza obyektining ekologik talablarga muvofiqligi, joylashuv nuqtalari koordinatalari, atrof-muhitni muhofaza qilish chora-tadbirlari, bajarilishi shart bo‘lgan talablar va boshqalar to‘g‘risida ilovada keltirilgan O‘zbekiston Respublikasi ekologiya, atrof-muhitni muhofaza qilish va iqlim o‘zgarishi vazirligining Davlat ekologik ekspertiza markazi va filiallarining ekspert xulosasi ushbu davlat ekologik ekspertizasi xulosasining ***ajralmas qismi hamda unda belgilangan talablar*** *bajarilishi shart hisoblanadi.*

Izoh: ***Buyurtmachi tomonidan davlat ekologik ekspertizasi xulosasida nazarda tutilgan ekologik talablarga rioya etilmaganda, davlat ekologik ekspertizasi xulosasi qonunchilikda belgilangan tartibda bekor qilinadi.***

Bosh direktor **G‘.Muxamedov**

Davlat ekologik ekspertizasining
2024-yil 27 maydagi 01-02/01-833-son
xulosasiga ilova

Davlat ekologik ekspertizasi natijalari bo‘yicha
Ekspert xulosasi talablari

ООО «JURU ENERGY CONSULTING», компании «ACWA Power» следует:

- провести дополнительные исследования по наличию растительности, а также по рептилиям, предусмотренные Проектом на весну 2024 года, с разработкой и внедрением соответствующих мероприятий;

- в случае необходимости формовки деревьев при строительстве и эксплуатации ВЛ 220 кВ с целью сохранения требуемого проектом ЗВОС габарита от кроны до проводов ВЛ **получить разрешение на формовку** деревьев в установленном законодательством порядке (ПКМ РУз от 22.08.2022 г. №464 «О дальнейшем совершенствовании порядка посадки, ухода и использования деревьев и кустарников, не входящих в государственный лесной фонд»);

- в случае попадания деревьев в зону строительства ВЛ 220 кВ **пересмотреть проектное решение** по данному участку, либо решить пересадку или компенсационную посадку деревьев и кустарников в соответствии с ПКМ РУз № 464 от 22.08.2022 г «О совершенствовании порядка посадки, ухода и использования деревьев и кустарников не входящих в лесной фонд».

- выполнить предусмотренные проектом ЗВОС мероприятия по предотвращению и снижению неблагоприятного воздействия на окружающую природную среду при строительстве и эксплуатации ВЛ;

- в целях дальнейшего совершенствования системы управления деятельностью в сфере обращения с бытовыми и строительными отходами в соответствии с приложением №1, гл.2, п.4 постановления Кабинета Министров Республики Узбекистан № 40 от 28.01. 2021 г. «О мерах по дальнейшему совершенствованию порядка проведения работ, связанных со строительными отходами», все виды строительных отходов направлять на рациональное повторное использование, захоронение и переработку, либо передавать другим юридическим лицам и индивидуальным предпринимателям, осуществляющим сбор, транспортировку, захоронение и (или) переработку этих отходов;

- учесть, что при проектировании строительства новых зданий и сооружений высотой более 12 метров от поверхности земли и (или) общей

площадью более 500 квадратных метров не допускается отведение площади для озеленения менее 25 процентов от общей площади земельных участков);

- создавать «зеленые пояса» на своей и прилегающей территории (Основание: Указ Президента РУз от 31 мая 2023 года №УП81 «О мерах по трансформации сферы экологии и охраны окружающей среды и организации деятельности уполномоченного государственного органа», п. 13д.

Министерству экологии, охраны окружающей среды и изменения климата Республики Каракалпакстан следует взять под контроль выполнение компанией «ACWA Power» предусмотренных проектом ЗВОС мероприятий по предотвращению и снижению неблагоприятного воздействия на окружающую природную среду при строительстве ВЛ 220 кВ протяженностью 44,3 км от ПС «Беруни» до ПС «Каратау», которую планируется проложить на территории Берунийского района Республики Каракалпакстан.

Не допускать несанкционированную вырубку древесной растительности и добычи строительных материалов, а также неорганизованное размещение отходов.

Ma’sul ekspert: DUROVA TAMARA TIMOFEYEVNA

Obyekt haqida qisqacha ma’lumot

Директору

ООО «JURU ENERGY CONSULTING»,

ИсмаиловуЖ.Ш.

копия: Компании «ACWA Power»,

Министерству экологии, охраны окружающей среды и изменения климата

Республики Каракалпакстан

На государственную экологическую экспертизу представлены материалы первого этапа оценки воздействия на окружающую среду по объекту: «Строительство двухцепной ВЛ 220 кВ протяженностью 44,3 км в Берунийском районе Республики Каракалпакстан».

Инициатор планируемой деятельности: компания: «ACWA Power».

Основанием для строительства ВЛ 220 кВ протяженностью 44,3 км является Соглашение о государственно-частном партнерстве, подписанным 28 марта 2024 года и ряд других нормативных и законодательных актов.

Маршрут ВЛ 220 кВ начинается от существующей ПС «Беруни» до проектируемой ПС «Каратау» ВЭС NUKUS-II.

При протяженности ВЛ 220 кВ 44,3 км, количество углов поворотов составляет - 16 ед. Точка 1 и точка 18 - точки захода и выхода ВЛ от ПС «Беруни» до ПС «Каратау».

В проекте ЗВОС представлены координаты точек выхода - захода ВЛ и координаты углов поворотов ВЛ по маршруту, а также расстояние между точками.

Общая площадь отвода земель под строительство ВЛ 220 кВ, протяженностью 44,3 км, составляет - 564701,3 м^2, из них: в постоянное пользование (под опоры и охранную полосу) - 8809,34 м^2; во временное пользование (на период строительства) - 555891,9 м^2.

Минимальное расстояние до жилой и хозяйственной застройки на всем протяжении проектируемой трассы ВЛ 220 кВ составляет 30 м, что соответствует нормативным требованиям по установлению санитарно-

защитных разрывов для вновь проектируемых ВЛ согласно п. 2.23.4 СанПиН № 0350-17 «Санитарные нормы и правила по охране атмосферного воздуха населенных мест Республики Узбекистан» и п.4.2.СанПиН № 023607 "Санитарные нормы и правила обеспечения безопасности людей, проживающих вблизи высоковольтных линий электропередач". Расстояние до жилой застройки также отвечает нормативным требованиям по размерам охранной зоны согласно ПУЭ (Правилам устройства электроустановок, 7 издание).

К проекту ЗВОС приложен Акт от 26.01.2024 года инспекции Министерства экологии, охраны окружающей среды и изменения климата Республики Каракалпакстан по деревьям, произрастающим в зоне строительства ВЛ 220 кВ.

Согласно Указа Президента Республики Узбекистан №УП-46 от 30.12.2021 года «О мерах по ускорению работ по озеленению дальнейшей эффективной организации охраны деревьев в Республике»: п.2. действие моратория на вырубку ценных видов деревьев и кустарников, не входящих в государственный лесной фонд, **продлен на бессрочный период.**

Согласно проекту ЗВОС декоративные деревья в придорожных посадках и садах, пересекаемые трассой, сохраняются. С целью исключения необходимости вырубки, деревья перед началом строительства и в процессе эксплуатации ВЛ подлежат формовке виде подрезке до допустимой высоты и обрезке боковых ветвей.

В случае попадания деревьев в зону строительства ВЛ 220 кВ ООО «JURU ENERGY CONSULTING» и компании «ACWA Power» следует пересмотреть проектное решение по данному участку, либо решить пересадку или компенсационную посадку деревьев и кустарников в соответствии с ПКМ РУз № 464 от 22.08.2022 г «О совершенствовании порядка посадки, ухода и использования деревьев и кустарников не входящих в лесной фонд».

Согласно проекту ЗВОС критерием для выбора трассы ВЛ 220 кВ являлось: обеспечение кратчайшего расстояния между энергообъектами (ПС «Беруни» и ПС «Каратау»); минимальное количество пересечений существующих объектов; избежание сноса жилых домов.

Согласно СанПиН РУз № 0350-17, СЗЗ для ВЛ напряжением 220 кВ составляет 30 м по обе стороны от проекции на землю крайних фазных проводов в направлении, перпендикулярном к ВЛ.

Заключение СЭС об установлении СЗЗ для проектируемой ВЛ 220 кВ представлено к проекту ЗВОС (приложение №3).

К проекту ЗВОС приложены протоколы Общественных слушаний по намечаемой деятельности ООО «JURU ENERGY CONSULTING» и «ACWA Power», проведенных в апреле 2024 года при участии заинтересованных

сторон, в том числе и населения, проживающего в непосредственной близости к проектной трассе, в установленном законодательством порядке.

По итогам Общественных слушаний было принято решение об общественной поддержке намечаемой деятельности ООО «JURU ENERGY CONSULTING» и «ACWA Power» на рассматриваемой территории, на что оформлены протоколы от апреля 2024 года с приложенными к ним фотоматериалами (приложение № 3 к проекту ЗВОС).

Размещение трассы на местности, пересечения с инженерными сооружениями выполнены в соответствии с действующими нормативами и согласованы с заинтересованными организациями (приложение к проекту ЗВОС №1)

К проекту ЗВОС приложен ситуационный план трассы ВЛ 220 кВ, согласованный с различными ведомствами Берунийского района Республики Каракалпакстан (приложение №2 к проекту ЗВОС).

Маршрут ВЛ проходит в основном по пустынным необрабатываемым и неиспользуемым землям, в обход жилых построек и с минимальным пересечением объектов инфраструктуры.

Для прохождения трассы снос жилья не требуется, в связи с чем изменений условий проживания населения по всей длине строящейся трассы не ожидается. Также и вырубка деревьев не требуется.

Охраняемые природные территории и заповедные зоны вблизи строящейся трассы отсутствуют.

В проекте ЗВОС представлена достаточная информация по климатической характеристике района реализации проекта, по существующим источникам воздействия на окружающую среду, анализ которой показал, что участок строительства ВЛ 220 кВ располагается в зоне с допустимой экологической ситуацией по состоянию атмосферного воздуха, поверхностных и подземных вод, почв, грунтов и растительности.

К проекту ЗВОС приложено Заключение экспертов по биоразнообразию о результатах исследований по биоразнообразию, проведенных экспертами компании «Juru», на проектной территории «Ветровой электростанции Nukus-IIмощностью 200МВт в Берунийскам районе Республики Каракалпакстан» **и «Двухцепной ВЛ 220 кВ протяженностью 44,3 км в Берунийс.ком районе Республики Каракалпакстан»** (JV5 JEC-OLJT – 24-414 от 30.04.2024 г.).

Проектная территория была обследована в марте и апреле 2024 года специалистами по ботанике, по герпетологии, по орнитологии и териологии, по биоразнообразию.

Результаты исследования показали присутствие таких редких видов, включенных в национальную и международную Красные книги, как балобан (Falcocherrug), джейран (Gazellasubgutturosa),среднеазиатская черепаха

(Testudohorsfieldi).А также видов находящихся под национальной охраной, как беркут (Aquilacfaysaetus),корсак (Vvlpescorsac), длинноиглый еж (Paraechinushypomelas) с выводом, чтов рамках Проекта будут предпринятымеры по снижению угроз и сохранению этих видов.

Воздействие, связанное с изъятием земельных ресурсов, определяется только в виде отвода земель под опоры и охранную полосу.

Воздействие на поверхностные воды не ожидается, переход через крупные водотоки отсутствует.

Система организации на территории строительных площадок при проведении строительных работ сбора, временного накопления и перемещения отходов позволит исключить их воздействие на почвы, грунты, подземные и поверхностные воды.

Анализ альтернативных вариантов проектного решения показал, что предлагаемый вариант прохождения трассы является оптимальным с точки зрения негативных последствий для окружающей среды.

В период строительства трассы ВЛ 220 кВ будет выполняться комплекс работ, состоящий из следующих последовательно выполняемых этапов: подготовительных работ (разбивка центров опор и оси трассы ВЛ, переустройство инженерных сооружений на трассе ВЛ, развозка материалов по трассе); строительных работ (разбивка котлованов, земляные работы и устройство фундаментов и заземляющих устройств, сборка, установка, выверка и закрепление опор); монтажных работ (раскатка и соединение проводов и тросов, подъем их на опоры, натягивание и закрепление на опорах); пусконаладочных работ и сдачи ВЛ в эксплуатацию.

Объем строительно-монтажных работ незначителен, продолжительность строительства ВЛ 220 кВ – 6 месяцев.

Временная строительная площадка представляет собой участок строительства, где временно располагается строительная бригада с необходимым строительным оборудованием, автотранспортом и средствами жизнедеятельности строительной бригады (вагончик, биотуалет), емкостями для складирования отходов.

Для недопущения беспокойства местных жителей, стройплощадка будет расположена максимально возможно отдаленно от жилых строений. Специфика строительства ВЛ не имеет постоянства нахождения строительной бригады на одном месте. Закончив работы на одном месте, бригада не задерживается на одном и том же участке.

При проведении строительных работ будет иметь место выбросов загрязняющих веществ в атмосферный воздух и образование строительных отходов, водопотребление воды на питьевые нужды в количестве 68,625 м^3, что будет временным, локальным, обратимым и незначительным.

Анализ проектных решений не выявил источников выделения и выбросов загрязняющих веществ в атмосферу при эксплуатации ВЛ 220 кВ. Постоянные рабочие места при обслуживании ВЛ после введения её в эксплуатацию отсутствуют, ремонтно-профилактические работы осуществляются выездными бригадами, в связи с чем водопотребление и водоотведение при эксплуатации ВЛ отсутствует.

Также технологический процесс передачи и распределения электроэнергии не сопровождается образованием отходов. Всё оборудование ВЛ относится к оборудованию длительного периода эксплуатации без образования каких-либо постоянных отходов производства. Однако, в дальнейшем, по истечении более длительной эксплуатации оборудования, при выполнении текущего ремонта линий электропередач возможно образование отходов, в виде использованных при ремонте материалов.

При строительстве основными процессами, во время которых выделяются в атмосферу загрязняющие вещества, являются: земляные, погрузочно-разгрузочные работы при складировании оборудования и тары, работа двигателей строительных машин, механизмов и автотранспорта.

При проведении строительства ВЛ 220 кВ в атмосферу ожидается поступление загрязняющих веществ в количестве 3,6311 т за период строительства.

Наибольший вклад в привнос загрязняющих веществ при проведении строительных работ вносят: оксид углерода (46,62 %), диоксид азота – 1,279 т/год (14,93%).

Анализ расчетов рассеивания показал, что наибольший вклад в уровень загрязнения атмосферы вносят выбросы оксида углерода, диоксида азота, пыли неорганической, максимальные концентрации которых не превышают установленных квот.

После ввода в строй проектируемой трассы ВЛ 220 кВ загрязнение атмосферы будет прекращено.

При эксплуатации ВЛ предусмотрена охранная зона в виде полосы шириной 30 м в каждую сторону от крайнего провода, в пределах которой запрещается проведение любых видов строительных работ.

По истечении срока строительства, земли, определенные во временное пользование, подлежат возврату землепользователю после проведения необходимых работ по рекультивации нарушенных земель.

Все комплектующие ВЛ доставляются на строительную площадку уже в готовом виде, образование отходов при строительстве ВЛ имеет малую вероятность, но возможно образование следующих видов отходов:

III класса опасности - отходы растворителей, красок, отходы смеси разнородных затвердевших пластмасс (тара из-под краски);

IV класса опасности - обтирочный материал, загрязненный маслами (содержание масел менее 15 %), строительный мусор, ТБО от жизнедеятельности рабочего персонала;

V класса опасности - строительный щебень, потерявший потребительские свойства, отходы стальных электродов (огарки и остатки стальных сварочных электродов).

Общее количество отходов за строительный период составляет 1,0675 т.

Отходы от эксплуатации спецтехники и автотранспорта непосредственно на площадке не образуются. Техническое обслуживание и ремонт спецтехники, используемой при строительстве, осуществляется на базе подрядной организации.

Образующиеся отходы от автотранспортных средств (шины изношенные, отходы от аккумуляторных батарей, фильтры промасленные, масла отработанные и др.) формируются на базе механизированных служб и утилизируются подрядчиком.

При функционировании высоковольтной линии образование отходов не прогнозируется.

Для минимизации отрицательного воздействия отходов на состояние окружающей среды для всех видов отходов будет предусмотрен раздельный сбор отходов по физико-химическим показателям и классу опасности, а также будут организованы места для безопасного временного их хранения.

На территории строительных площадок при проведении строительных работ система организации сбора, временного накопления и перемещения отходов позволит исключить их воздействие на почвы, грунты, подземные и поверхностные воды.

Анализ альтернативных вариантов проектного решения показал, что предлагаемый вариант прохождения рассматриваемой трассы является оптимальным с точки зрения негативных последствий для окружающей среды.

Аварийные риски при эксплуатации трассы ВЛ 220 кВ, рассмотренные проектом, связаны в основном с падением опор и обрывом проводов, экологические последствия которых для окружающей среды минимизированы мероприятиями по усилению опор, соблюдением необходимых разрывов между ВЛ и инженерными коммуникациями, применением аппаратуры высокочастотной защиты и противоаварийной автоматики.

Проектом ЗВОС предусмотрен ряд мероприятий по предотвращению и снижению неблагоприятного воздействия рассматриваемого объекта строительства на окружающую природную среду: установка специальных емкостей для сбора и временного размещения отходов, образующихся при

строительстве ВЛ, с последующим вывозом в специализированные организации и на полигоны для захоронения твердых бытовых отходов; съем плодородного слоя при разработке котлованов под установку опор с вывозом в места, определенные землепользователем, и другие природоохранные мероприятия.

К проекту приложены План рекультивации нарушенных земель, План управления окружающей средой (ПУОС), который также обеспечит защиту окружающей среды; План мониторинга окружающей среды (приложения к проекту ЗВОС №№8,9,10)

Экологическая экспертиза рассмотренных материалов проекта ЗВОС показала, что представленные материалы соответствуют требованиям законодательных документов к первому этапу оценки воздействия на окружающую среду.

Центр по государственной экологической экспертизе при Министерстве экологии, охраны окружающей среды и изменения климата **согласовывает** материалы первого этапа оценки воздействия на окружающую среду по проекту «Строительство двухцепной ВЛ 220 кВ протяженностью 44,3 км в Берунийском районе Республики Каракалпакстан».

В случае несоблюдения Заказчиком указанных в данном заключении государственной экологической экспертизы требований, действие настоящего заключения государственной экологической экспертизы прекращается (Основание: постановление Кабинета Министров Республики Узбекистан от 7 сентября 2020 года №541 «О дальнейшем совершенствовании механизма оценки воздействия на окружающую среду» п.57.).

Ma’sul ekspert: DUROVA TAMARA TIMOFEYEVNA

O‘ZBEKISTON RESPUBLIKASI EKOLOGIYA, ATROF-MUHITNI MUHOFAZA QILISH VA IQLIM O‘ZGARISHI VAZIRLIGI
DAVLAT EKOLOGIK EKSPERTIZASI MARKAZI

Manzil: 10017, Toshkent sh, Mirzo Ulug`bek tumani, Sayram kuchasi, 15-uy,
Tel: 71-203-00-22

DAVLAT EKOLOGIK EKSPERTIZASI XULOSASI

TARTIB RAQAM **01-02/01-835**
HUJJAT TURI Atrof-muhitga ta'sir to'g'risidagi ariza loyihasi

Davlat ekologik ekspertizasi buyurtmachisi: JURU ENERGY CONSULTING MCHJga berildi.
STIR: 303454532
Obyekt nomi: Оценка воздействия на окружающую среду по объекту: «Строительство ветряной электрической станции (ВЭС) NUKUS-II мощностью 200 МВт в Берунийском районе Республики Каракалпакстан» (проект ЗВОС)
Loyihalarini ishlab chiquvchi nomi: JURU ENERGY CONSULTING MCHJ
STIR: 303454532
Davlat ekologik ekspertizasi mas’ul eksperti: DUROVA TAMARA TIMOFEYEVNA

O‘zbekiston Respublikasi Vazirlar Mahkamasining 2020-yil 7-sentabrdagi 541-son qarori bilan tasdiqlangan 1-ilovaga muvofiq, ushbu davlat ekologik ekspertizasi obyekti **atrof-muhitga ta’sir ko‘rsatishning** II toifa **toifasining** 29–**bandiga mansub.**

O‘tkazilgan davlat ekologik ekspertizasi natijasi: Ijobiy xulosa
Davlat ekologik ekspertizasi xulosasi: Ilovasiz huquqiy hujjat hisoblanmaydi
Berilgan sana: 27.05.2024
Amal qilish muddati: 27.05.2027

Ekologik ekspertiza obyektining ekologik talablarga muvofiqligi, joylashuv nuqtalari koordinatalari, atrof-muhitni muhofaza qilish chora-tadbirlari, bajarilishi shart bo‘lgan talablar va boshqalar to‘g‘risida ilovada keltirilgan O‘zbekiston Respublikasi ekologiya, atrof-muhitni muhofaza qilish va iqlim o‘zgarishi vazirligining Davlat ekologik ekspertiza markazi va filiallarining ekspert xulosasi ushbu davlat ekologik ekspertizasi xulosasining ***ajralmas qismi hamda unda belgilangan talablar*** *bajarilishi shart hisoblanadi.*

Izoh: ***Buyurtmachi tomonidan davlat ekologik ekspertizasi xulosasida nazarda tutilgan ekologik talablarga rioya etilmaganda, davlat ekologik ekspertizasi xulosasi qonunchilikda belgilangan tartibda bekor qilinadi.***

Bosh direktor **G‘.Muxamedov**

Davlat ekologik ekspertizasining
2024-yil 27 maydagi 01-02/01-835-son
xulosasiga ilova

Davlat ekologik ekspertizasi natijalari bo‘yicha
Ekspert xulosasi talablari

ООО «JURU ENERGY CONSULTING» следует:

- до ввода объекта в эксплуатацию разработать заключительный этап процедуры ОВОС – Заявление об экологических последствиях и представить на государственную экологическую экспертизу в установленном законодательством порядке;

- в материалах ЗЭП предоставить акт обследования предприятия, утвержденный Министерством экологии, охраны окружающей среды Республики Каракалпакстан, о выполнении природоохранных мероприятий и проектных решений, предусмотренных проектом ЗВОС;

- в соответствии с Законом Республики Узбекистан «Об охране и использовании животного мира», ст. 11. 30. 31. 35. разработать, утвердить, согласовать с региональной инспекцией по контролю за охраной н использованием биоразнообразия и охраняемых природных территорий мероприятия, обеспечивающие сохранение путей миграции, мест обитания и размножения птиц до начала строительства объекта и предусмотреть учет краснокнижных видов животных, растений и мероприятия по их сохранению;

- обеспечить выполнение требований постановления Президента РУз «О мерах но дальнейшему совершенствованию системы управления деятельностью в сфере обращения с бытовыми и строительными отходами» №4845 от 29.09.2020 г., п.5 и постановления Кабинета Министров за №40 от 28.01.2021 г. «О мерах по дальнейшему совершенствованию порядка проведения работ со строительными отходами» (приложения за №№3-7);

- составить и представить соответствующие договора, связанные с вывозом отходов и стоков в течение определенного времени из мест их скопления;
- принять соответствующее решение по утилизации лопастей ветрогенераторов;
- обеспечить проведение рекультивации нарушенного почвенно-растительного покрова, а также временных дорог после завершения строительных работ;
- обеспечить выполнение рекомендаций проекта ЗВОС по снижению неблагоприятного воздействия рассматриваемого объекта на все аспекты окружающей среды на этапе строительства;
- обеспечить очистку хозяйственно-бытовые сточных вод, образующихся при эксплуатации ВЭС, на установке «биосептик» с последующим использованием очищенных стоков на полив территории и зеленых насаждений;

- обеспечить выполнение Плана управления охраной окружающей среды (ПУОС), Плана мониторинга окружающей среды, а также мер смягчения негативных воздействий на окружающую среду в период строительства и эксплуатации ВЭС, предусмотренных проектом ЗВОС;

- учесть, что при проектировании строительства новых зданий и сооружений высотой более 12 метров от поверхности земли и (или) общей площадью более 500 квадратных метров не допускается отведение площади для озеленения (деревьев, кустарников, иных растений и саженцев) на прилегающих к ним территориях менее 25 процентов от общей площади земельных участков);

- создать «зеленые пояса» на своей и прилегающей территории (Основание: Указ Президента РУз от 31 мая 2023 года №УП81 «О мерах по трансформации сферы экологии и охраны окружающей среды и организации деятельности уполномоченного государственного органа», п. 13д.

Министерству экологии, охраны окружающей среди и изменения климата Республики Каракалпакстан необходимо предусмотреть контроль за:

- выполнением требований природоохранного законодательства в период строительства ветровой электростанции;

-выполнением рекомендуемых организационно технических природоохранных мероприятий, направленных на снижения негативного воздействия намечаемого объекта на окружающую среду в период строительства ВЭС, предусмотренных проектом ЗВОС и Плана ПУОС, а также требований, указанных в настоящем заключении.

Не следует допускать ввода данного объекта в эксплуатацию без положительного заключения государственной экологической экспертизы на Заявление об экологических последствиях.

Ma’sul ekspert: DUROVA TAMARA TIMOFEYEVNA

Obyekt haqida qisqacha ma’lumot

Директору

ООО «JURU ENERGY CONSULTING»

ИсмаиловуЖ.Ш.

копия:

Министерству экологии, охраны окружающей среды и изменения климата

Республики Каракалпакстан

На государственную экологическую экспертизу представлены материалы первого этапа оценки воздействия на окружающую среду по объекту: «Строительство ветряной электрической станции (ВЭС) NUKUS-II мощностью **2**00 МВт в Берунийском районе Республики Каракалпакстан.

Реализация проекта осуществляется компанией «ACWA Power».

Основанием для строительства ВЭС NUKUS-II является Соглашение о государственно-частном партнерстве, подписанным 28 марта 2024 года и ряд других нормативных и законодательных актов.

Проектом рассматривается выдача электроэнергии в сеть Узбекистана

от проектируемой ветровой электростанции NUKUS-II мощностью 200 МВт, используя энергию ветра района с высоким ветровым потенциалом.

Местоположение площадки проекта определено Правительством РУз.

Строительство ВЭС NUKUS-II 200 МВт планируется в горной местности на горном хребте плато Султан Увайз. Расположение ветровых генераторов предусмотрено на самых высоких точках скальной гряды горного хребта. Перепад высот с юга на север со 144 м до 387 м, и далее к северу спуск к пустынным землям на уровне 240 м, относительно уровня моря.

Отведенная по строительство ВЭС площадка расположена на незаселенных землях, имеет повышенный ветровой потенциал, свободна от зданий и сооружений, без наличия объектов инфраструктуры. Тип земли на площадке реализации проекта строительства ВЭС - необрабатываемые скальные земли. Древесная растительность отсутствует.

Общая площадь, выделенная под строительство ВЭС NUKUS-II200 МВт, составляет 6502,0 га, границами которой являются: с северной, западной и восточной сторон - пустующие земли; с южной стороны - горная гряда, за ней на расстоянии 2,4 км - святое место паломничества вершина горы Мунаджат (2,6

км от крайнего ветрогенератора), далее святилище - Султан Увайс зираат (5,6 км от крайнего ветрогенератора).

Поверхностные водотоки на территории расположения ВЭС отсутствуют.

Наиболее близким крупным водным объектом к площадке строительства ВЭС является река Амударья, являющаяся основной водной артерией в районе и протекающей в 20 км к югу от площадки ВЭС.

В проекте ЗВОС представлена достаточная информация по климатической характеристике района реализации проекта, по существующим источникам воздействия на окружающую среду, анализ которой показал, что участок строительства ВЭС располагается в зоне с допустимой экологической ситуацией по состоянию атмосферного воздуха, поверхностных и подземных вод, почв, грунтов и растительности.

К проекту ЗВОС приложено Заключение экспертов по биоразнообразию о результатах исследований по биоразнообразию, проведенных экспертами компании «Juru», на проектной территории «Ветровой электростанции Nukus-II мощностью 200МВт в Берунийскам районе Республики Каракалпакстан» и «Двухцепной ВЛ 220 кВ протяженностью 44,3 км в Берунийс.ком районе Республики Каракалпакстан» (JV5 JEC-OLJ T – 24-414 от 30.04.2024 г.).

Проектная территория была обследована в марте и апреле 2024 года специалистами по ботанике, по герпетологии, по орнитологии и териологии, по биоразнообразию.

Результаты исследования показали присутствие таких редких видов, включенных в национальную и международную Красные книги, как балобан (Falco cherrug), джейран (Gazella subgutturosa), среднеазиатская черепаха (Testudo horsfieldi). А также видов находящихся под национальной охраной, как беркут (Aquila cfaysaetus), корсак (Vvlpes corsac), длинноиглый еж (Paraechinus hypomelas) с выводом, что в рамках Проекта будут предприняты меры по снижению угроз и сохранению этих видов.

Южная сторона района относительно расположения ВЭС характеризуется большим наличием объектов инфраструктуры, жилых поселков, сельхозугодий.

На расстоянии 9,0 км в южном направлении от границы ВЭС проходит ветка ж/д дороги, далее на расстоянии 9,5 км проходит автодорога А-380, являющаяся основной транспортной артерией рассматриваемого района.

Охраняемая зона - Нижний Амударьинский государственный резерват расположен на расстоянии 16.0 к юго-западу от площадки ВЭС.

Ближайшие жилые дома населенного пункта поселка Кызылкала расположены от рассматриваемой территории на расстоянии 8,0 км, что соответствует установленной Службой санитарно - эпидемиологического благополучия и общественного здоровья Республики Узбекистан санитарно-защитной зоне для рассматриваемой ВЭС, ширина которой определена 250 м (письмо Службы СЭБ и ОЗ приложено к проекту ЗВОС).

К проекту ЗВОС приложены Акты проведенных председателями с участием жителей 5 махалей (Махтумкули, Найман, Дустлик, Абай, Кызыл Кала) общественных слушаний, в ходе которых обсуждены с вопросы реализации намечаемого проекта и воздействия его деятельности на окружающую среду, на что со стороны жителей получена поддержка (Акты с фотоматериалами приложены к проекту ЗВОС).

К проекту ЗВОС приложен Протокол Общественного слушания от 24.04. 2024 года, проведенного хокимиятом Берунийского района Республики Каракалпакстан с участием представителей заинтересованных сторон: председателей и жителей махаллей Махтумкули, Найман, Дустлик, Абай, Кызыл Кала; Министерства экологии, охраны окружающей среды и изменения климата Республики Капакалпакстан; службы санитарно-эпидемиологического благосостояния и общественного здоровья; ООО «JURU ENERGY CONSULTING» и других заинтересованных сторон.

По итогам Общественного слушания было принято решение об общественной поддержке намечаемой деятельности «ACWAPower» sideSolarLLC» на рассматриваемой территории.

Предлагаемая ветряная электростанция является наиболее перспективным в энергетике и отличается от традиционной ТЭС отсутствием потреблением углеводородного сырья, высокой эффективностью, а также значительно низким воздействием на окружающую среду.

Настоящим проектом предусматривается строительство ветровой электростанции мощностью 200 МВт в составе 29-ти единиц ветрогенераторов со всеми вспомогательными сооружениями и зданиями.

Согласно проекту ЗВОС продолжительность строительного периода рассматриваемой ВЭС составляет 1 год,

Оборудование ВЭС, преобразующее ветровую энергию в электрическую, включает в себя: турбину (ротор), осуществляющий превращение энергии ветрового потока прямолинейного движения; генератор, осуществляющий преобразование механической энергии в электрическую; мачту; систему управления турбиной; мультипликатор; хвост или систему азимутального привода; выпрямитель, который необходим при использовании генераторов переменного тока.

В проекте ЗВОС представлена достаточная информация по принципу работы ВЭС, заключающемуся в использовании кинетической энергии ветра для вращения подвижной части ветряка, соединенной с ротором генератора энергии. Находящийся внутри редуктор увеличивает скорость движения вала. Вследствие этой работы создается трехфазный переменный ток.

Благодаря наличию статорной обмотки ветрогенератора механическая энергия превращается в электрический ток.

В рамках проекта ЗВОС произведены расчеты загрязняющих веществ, выделяющихся **в процессе строительства** ветровой электростанции. Согласно произведенным расчетам, ожидаемые выбросы временных загрязняющих веществ в период строительства ветровой электростанции составят 40,754 т. Наибольший

вклад в загрязнение привносят оксид углерода – 14,9285 т (36,63%); пыль неорганическая – 10,0461 т (24,65%);

Анализ расчетов полей рассеивания приземных концентраций загрязняющих веществ показал, что максимальные концентрации всех загрязняющих веществ за границами площадки ВЭС в период строительства не превышают установленных квот для Республики Каракалпакстан.

Выбросы загрязняющих веществ **при эксплуатации** ветровой электростанции при выработке электроэнергии с использованием лишь энергию ветра **отсутствуют,** что является основным преимуществом предлагаемого ВЭС с позиции охраны окружающей среды.

Незначительный выброс загрязняющих веществ в атмосферу возможно будет происходить от следующего оборудования: через неплотности - силовых трансформаторов, наполненных маслом, выбросы от которых представлены в виде незначительных углеводородов масла в количестве 0,0028 т/год; от резервного (аварийного) источника питания для подстанции – дизель-генератора, используемого исключительно в аварийных ситуациях, при работе которого в атмосферный воздух будут поступать загрязняющие вещества 7 наименований в общем количестве - 0,0004 т/год.

При проведении строительных работ на площадке вода используется для приготовления строительного раствора, полива территории с целью снижения пыления, а также на хозяйственно-бытовые нужды строителей (200 человек). Водоснабжение при проведении строительных работ привозное.

На питьевые нужды строителей частично используется привозная бутилированная вода, приобретаемая самостоятельно строительным подрядчиком. водоотведение которых на временных строительных площадках для сбора хоз-бытовых сточных вод предусматривается в специально оборудованные места с герметичными емкостями (биотуалеты). Содержимое биотуалетов подлежит вывозу на ближайшие очистные сооружения.

Для приготовления строительного раствора, полива территории с целью снижения пыления вода будет привозиться водовозами из ближайшего ирригационного коллектора в количестве 13,2 м^3/сут. или 4818,0 м^3/год. Расход воды относится к безвозвратным потерям. Производственные стоки отсутствуют.

В процессе эксплуатации рассматриваемой ВЭС вода на площадке ВЭС используется в хозяйственно бытовых целях. Источником водоснабжения для хозяйственно-бытовых нужд работающих в количестве 20 человек на ВЭС будет привозная вода с ближайшего поселка. Общее водоотведение хозяйственно-бытовых стоков при эксплуатации ВЭС составит 4,03 м^3/сут. или 1470,22 м^3/год, которые намечается по внутриканализационным системам направлять в биологический септик наземного исполнения, расположенного на открытой площадке территории ВЭС, в той части территории, где расположены административные и функционально-вспомогательные участки. Биосептик соединяет в себе и механическую, и биологическую очистку сточных вод. Очищенную воду, согласно проекту ЗВОС, можно использовать повторно для полива участка, а ил в качестве удобрения для растений.

На проектируемой ветровой электростанции, мощностью 200 МВт в ходе строительства и после ввода в эксплуатацию будут образовываться отходы, как производственного, так и бытового характера.

В процессе строительства ВЭС ожидается образование 6098,425 т/год следующих отходов: : отходы бетона и железобетона - 5 класс опасности; отходы песка - 5 класс опасности; строительный щебень, потерявший потребительские свойства - 5 класс опасности; отходы стальных электродов (огарки и остатки стальных сварочных электродов - 5 класс опасности; отходы растворителей, красок - 3 класс опасности; отходы смеси разнородных затвердевших пластмасс (тара из-под краски) - 3 класс опасности; обтирочный материал, загрязненный маслами (содержание масел менее 15 %) - 4 класс опасности; строительный мусор - 4 класс опасности; ТБО (мусор от временных бытовых помещений несортированный, исключая крупногабаритный) - 4 класс опасности.

Отходы от эксплуатации спецтехники и автотранспорта непосредственно на площадке не образуются. Техническое обслуживание и ремонт спецтехники, используемой при строительстве, осуществляется на базе подрядной организации.

Строительная организация-генподрядчик осуществляет сбор и временное складирование ТБО и производственных отходов, образовавшихся при проведении строительных работ, в специально обустроенных местах с последующим вывозом на утилизацию специализированным организациям, согласно договору, на выполнение строительно-монтажных работ. Организация - генподрядчик несет полную ответственность за санитарно-эпидемиологическую и экологическую обстановку перед заказчиком и инспектирующими органами.

Вывоз строительных отходов с площадки строительства осуществляется силами строительной организации согласно договорам с организациями по утилизации отходов.

Анализ проектного решения показал, что **при эксплуатации ВЭС** основных и вспомогательных участков, а также при ремонтных работах, ориентировочно будет образовываться 11 видов отходов в количестве 131,558 т/год: отработанные лопасти ветрогенераторов – 104,4 т, 4 класс опасности; отработанное трансформаторное масло – 11,675 т/год, 2 класс опасности; отработанный силикагель – 1,15 т/год, 4 класс опасности;; лом черного металла – 0,5 т/год, 5 класс опасности; лом цветного металла – 0,2 т/год, 4 класс опасности; промасленная ветошь с содержанием масла более 15% – 0,05 т/год, 3 класс опасности; отработанные светодиодные лампы - 0,008 т/год, 4 класс опасности; отходы бумаги (макулатура) – 0,035 т/год, 4 класс опасности; ; пищевые отходы столовой – 1,54 т/год, 5 класс опасности; твердые бытовые отходы от жизнедеятельности работающих – 1,0 т/год, смет от уборки территории – 11,0 т/год, 4 класс опасности.

В настоящее время утилизация лопастей ветрогенераторов из композитных материалов, образующихся по истечению времени эксплуатации либо ликвидации объекта, является существенной проблемой ветроэнергетики.

Предлагаемые методы утилизации лопастей генераторов находятся в стадии разработки, а применяемые методы (такие как механическое измельчение, сжигание и пиролиз) обладают рядом недостатков, что не позволило рассматриваемым проектом ЗВОС заявить о решении проблемы переработки лопастей в полной мере. **При последующем проектировании необходимо принять соответствующее решение по утилизации лопастей ветрогенераторов.**

Образуемые отходы в процессе эксплуатации ВЭС в установленном порядке планируется вывозить специализированным организациям для утилизации, а бытовые и строительные отходы будут вывозиться согласно заключенным договорам.

По рассмотренному ряду возможных аварийных рисков на ветровой электрической станции мощностью 200 МВт после реализации проекта, в проекте даны рекомендации по их предотвращению, исключению и минимизации.

В проекте ЗВОС разработаны рекомендации по снижению неблагоприятного воздействия рассматриваемого объекта на все аспекты окружающей среды как на этапе строительства так на этапе и эксплуатации.

В проекте ЗВОС представлены План управления Окружающей Средой с мерами смягчения негативных воздействий на окружающую среду и План мониторинга Окружающей Средой в период строительства и эксплуатации рассматриваемой ВЭС.

Государственная экологическая экспертиза проекта показала, что представленные материалы соответствует требованиям природоохранного законодательства к первому этапу оценки воздействия на окружающую среду.

Центр по государственной экологической экспертизе при Министерстве экологии, охраны окружающей среды и изменения климата **согласовывает** материалы первого этапа оценки воздействия на окружающую среду по объекту: «Строительство ветряной электрической станции (ВЭС) NUKUS-II мощностью **2**00 МВт» в Берунийском районе Республики Каракалпакстан».

Ma’sul ekspert: DUROVA TAMARA TIMOFEYEVNA

MINISTRY OF ECOLOGY, ENVIRONMENTAL PROTECTION AND CLIMATE CHANGE OF THE REPUBLIC OF UZBEKISTAN
STATE ENVIRONMENTAL EXPERTISE CENTER
Address: 10017, Tashkent, Mirzo Ulugbek district, Sayram street, 15, Tel: 71-203-00-22

STATE ENVIRONMENTAL EXPERTISE EXPERT CONCLUSION

NUMBER: 01-02/01-833
DOCUMENT TYPE: Draft Environmental Impact Statement

Issued to the Client of the State Environmental Expertise: JURU ENERGY CONSULTING LLC
TIN: 303454532
Subject name: Environmental impact assessment for the project: "Construction of the 44.3 km-long 220 kV double-circuit overhead line in the Beruniy district of the Republic of Karakalpakstan" (Draft Environmental Impact Statement)
Name of the project developer: JURU ENERGY CONSULTING LLC
TIN: 303454532
Responsible expert of the State Environmental expertise: DUROVA TAMARA TIMOFEYEVNA

According to Attachment 1, approved by Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 541 dd. September 7, 2020, **this subject of the State Environmental expertise qualifies for p.10 of** Category 2 **of environmental impact.**

Result of the State Environmental expertise: Positive conclusion

The state environmental expertise conclusion: This document is not considered legal without the accompanying attachment

Issue date: 27.05.2024
Validity period: 27.05.2027

The attached expert conclusion of the State Environmental expertise Center of the Ministry of ecology, environmental protection and climate change of the Republic of Uzbekistan and its branches on compliance of the subject of environmental expertise with ecological requirements, coordinates of location points, environment protection measures, requirements that must be fulfilled, etc. is ***an integral part of this conclusion of the State Environmental expertise and it is mandatory to fulfill requirements specified therein.***

Note: If the Client does not comply with environmental requirements stipulated in the conclusion of the State Environmental expertise, the conclusion of the State Environmental expertise shall be canceled in accordance with the procedure established by the laws.

General Director **G. Mukhamedov**

Attachment to the conclusion
of the State Environmental Expertise
dd. May 27, 2024 No. 01-02/01-833

Requirements of the expert conclusion

on results of the state environmental expertise

JURU ENERGY CONSULTING LLC, ACWA Power to:

- carry out extra study on the existence of vegetation and reptiles, as specified by the project, in spring of 2024, and develop and implement appropriate actions;

- obtain permission to shape trees in accordance with the legislation if shaping is required during construction and operation of the 220 kV OHL in order to retain the dimensions required by the draft EIS, from the crown to the overhead line wires (DCM RUz dd. August 22, 2022 No. 464 “On further improvement of the procedure planting, care and use of trees and shrubs not included in the state forest fund");

- in the event of trees entering the 220 kV OHL construction area**, revise the project design** for this area, or decide replanting or compensatory planting of trees and shrubs in accordance with the DCM of the Republic of Uzbekistan No. 464 dd. 08.22.2022 “On improving the procedure for planting, care and use of trees and shrubs not included in the forest fund."

- carry out measures provided for by the draft EIS to prevent and reduce adverse impacts on the environment during construction and operation of the OHL;

- in order to further improve the household and construction waste management system in accordance with Attachment 1, Chapter 2, p. 4 of Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 40 dd. January 28. 2021 “On measures to further improve the procedure for carrying out works related to construction waste”, all types of construction waste should be forwarded for rational reuse, disposal and recycling, or given away to other legal entities and individual entrepreneurs engaged in collection, transportation, disposal and (or) processing of the waste;

- take into account that when designing construction of new buildings and structures with a height of more than 12 meters from the ground surface and (or) a total area of more than 500 square meters, it is not allowed to allocate less than 25 percent of the total area of land for landscaping;

- create “green belts” on its own and adjacent territories (Basis: Decree of the President of the Republic of Uzbekistan dd. May 31, 2023 No. UP-81 “On measures

to transform the sphere of ecology and environmental protection and organize the activities of the authorized state body", p. 13e.)

The Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Karakalpakstan to take control of implementation by ACWA Power of the measures provided for in the draft EIS to prevent and reduce adverse impacts on the natural environment during the 44.3 km-long 220 kV OHL construction from the Beruniy substation to the Karatau substation, planned to be built on the territory of the Beruniy district of the Republic of Karakalpakstan.

Do not allow unauthorized cutting of trees and extraction of building materials, as well as unorganized waste disposal.

Responsible expert: DUROVA TAMARA TIMOFEYEVNA

Summary of the facility

To: Ismailov J.Sh.

Director of JURU ENERGY CONSULTING LLC

copy: ACWA Power Company,

Ministry of Ecology,

Environmental Protection

and Climate Change of the Republic of Karakalpakstan

Materials from the first stage of environmental impact assessment for the "Construction of the 44.3 km-long 220 kV double-circuit overhead line in the Beruniy district of the Republic of Karakalpakstan" project were submitted for the state environmental assessment.

Initiator of the planned activity: ACWA Power.

The basis for construction of the 44.3 km-long 220 kV double-circuit overhead line is the Public-Private Partnership Agreement signed on March 28, 2024 and a number of other regulatory and legislative documents.

The route of the 220 kV OHL begins at the existing Beruniy substation and extends to the proposed Karatau substation of the NUKUS-II wind farm.

With the 220 kV overhead line length of 44.3 km, the number of turning angles is 16 units. Point 1 and point 18 are the entry and exit points of the OHL from the Beruniy substation to the Karatau substation.

The draft EIS specifies coordinates of the OHL entry and exit points and coordinates of the OHL turning angles along the route, as well as the distance between the points.

The total area of land allocation for the 44.3 km-long 220 kV OHL construction is 564,701.3 m^2, of which: for permanent use (for supports and protective strip) - 8809.34 m^2; for temporary use (during the construction period) - 555891.9 m^2.

The minimum distance to residential and commercial buildings along the entire length of the designed 220 kV OHL route is 30 m, which meets the regulatory requirements for establishment of sanitary spaces for newly designed OHL in accordance with p. 2.23.4 of SanPiN No. 0350-17 "Sanitary norms and rules for

protection of atmospheric air of populated areas of the Republic of Uzbekistan" and p. 4.2. of SanPiN No. 023607 "Sanitary standards and rules for ensuring safety of people living near high-voltage power lines." The distance to residential buildings also meets regulatory requirements for the size of the protective zone in accordance with the PUE (Electrical Installation Rules, 7th edition).

The inspection report of Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Karakalpakstan dd. January 26, 2024 is attached to the draft EIS regarding trees growing in the 220 kV OHL construction area.

According to Ordinance of the President of the Republic of Uzbekistan No. UP-46 dd. December 30, 2021 “On measures to accelerate landscaping works and further effective organization of tree protection in the Republic”: p. 2. The moratorium on cutting down valuable species of trees and shrubs not included in the state forest fund, **was extended for an indefinite period.**

To avoid the necessity of cutting down trees, they should be pruned to an acceptable height and have their side branches trimmed both before construction and during operation of the OHL.

If trees fall within the 220 kV OHL construction zone, JURU ENERGY CONSULTING LLC and ACWA Power should either reconsider the project design for this area or arrange for the replanting or compensatory planting of trees and shrubs in accordance with DCM of the Republic of Uzbekistan No. 464 dd. August 22, 2022, “On improving the procedure for planting, caring for, and using trees and shrubs not included in the forest fund.”

As outlined in the draft EIS, the criteria for selecting the 220 kV overhead line route included ensuring the shortest distance between power facilities (Beruniy substation and Karatau substation), minimum number of intersections with existing structures, and avoiding demolition of residential buildings.

As outlined in SanPiN RUz No. 0350-17, the sanitary protection zone (SPZ) for a 220 kV overhead line is 30 meters on both sides of the footprint of the outer phase wires, measured perpendicular to the overhead line.

The Sanitary Epidemic Station’s conclusion on establishing a sanitary protection zone for the proposed 220 kV OHL is included in the draft Environmental Impact Assessment (Attachment 3).

Attached to the draft EIS are the Minutes from the Public hearings on the planned activities of JURU ENERGY CONSULTING LLC and ACWA Power, held in April 2024. These hearings involved stakeholders, including residents living near the project route, in accordance with the legal requirements.

As a result of the Public hearings, a decision was made to support the planned activities of JURU ENERGY CONSULTING LLC and ACWA Power in the designated area. This decision was documented with Minutes dd. April 2024, along with attached photographic materials (Attachment 3 to the draft EIS).

The route placement on the ground and intersections with engineering structures meet the current standards and were agreed with relevant organizations (Attachment 1 to the draft EIS).

Attached to the draft EIS is a general layout of the 220 kV OHL route, approved by various authorities of the Beruniy district of the Republic of Karakalpakstan (Attachment 2 to the draft EIS).

The OHL route primarily traverses desert, uncultivated, and unused lands, avoiding residential buildings and minimizing intersections with existing infrastructure.

The route does not require demolition of any housing, so no changes in the living conditions of the population along the entire length of the route are expected. Additionally, there is no need for cutting down trees.

There are no protected natural areas or preserved areas near the route under construction.

The draft EIS provides sufficient information on the climatic characteristics of the project area and existing sources of environmental impact. Analysis shows that the construction site of the 220 kV OHL is situated in an area with an acceptable environmental condition regarding air quality, surface and groundwater, soil, and vegetation.

Attached to the draft EIS is the Biodiversity Experts' Conclusion regarding the findings of biodiversity surveys carried out by Juru experts. These studies were conducted within the project area of the 200 MW Nukus-II Wind Power Plant, in the Beruniy district of the Republic of Karakalpakstan, and **the 44.3 km-long 220 kV double-circuit overhead line in the Beruniy district of the Republic of Karakalpakstan** (JV5 JEC-OLJT - 24-414, dd. April 30, 2024). The surveys conducted in March and April 2024, involved specialists in botany, herpetology, ornithology, theriology, and biodiversity assessment.

The survey results revealed the presence of rare species listed in both national and international Red Lists, such as the saker falcon (Falco cherrug), goitered gazelle (Gazella subgutturosa), and Russian tortoise (Testudo horsfieldii). Additionally, species under national protection, including the golden eagle (Aquila chrysaetos), corsac fox (Vulpes corsac), and Brandt's hedgehog (Paraechinus hypomelas) were identified. The conclusion drawn from the survey indicates that within the Project framework, measures will be implemented to mitigate threats and conserve these species.

The impact associated with land allocation is primarily limited to land acquisition for supports and a protective strip. No significant impact on surface waters is anticipated, and there are no major stream crossings expected.

A waste management system will be established to organize the collection, temporary accumulation, and movement of waste within construction site during construction activities, thereby mitigating their impact on soils, grounds, and surface waters.

Analysis of alternative design solutions demonstrated that the proposed route is optimal in terms of minimizing negative environmental impacts.

Construction of the 220 kV OHL route will involve a set of works, consisting of several sequential stage: preparatory work (laying out the centers of supports and the axis of the OHL route, rearranging engineering structures along the route, and distribution of materials along the route); construction works (laying out excavation pits, excavation works, installing foundations and grounding devices, as well as assembling, installing, aligning, and securing the supports); installation work, (rolling out and connecting wires and cables, lifting them onto supports, tensioning, and securing them); commissioning works and start-up of the OHL.

The scope of construction and installation work is minimal, with the construction of the 220 kV overhead line expected to take 6 months.

The temporary construction site is an area where a construction team is temporarily located, equipped with the necessary construction equipment, vehicles, and living facilities for the construction team (such as a trailer and portable toilet), as well as waste storage containers.

To minimize disturbance to local residents, the construction site will be situated as far from residential buildings as possible. Due to the nature of the OHL overhead line construction, the construction team does not remain in one place for an extended period. Once work is completed in one area, the team moves on to the next location.

During construction, pollutants will be emitted into the air, and construction waste will be generated. Water consumption for drinking needs will total 68.625 m3. These impacts will be temporary, local, reversible, and insignificant.

The analysis of project designs revealed no sources of pollutant release and emissions into the air during the 220 kV OHL operation. There are no permanent jobs required for maintenance of the OHL after it is commissioned; repair and maintenance works will be performed by mobile teams, thus removing the requirement for water usage and drainage during operation.

Additionally, the process of transmitting and distributing electricity does not generate waste. All OHL equipment is designed for long-term operation without

producing any permanent operational waste. However, over time, routine repairs of the power lines may generate waste in the form of materials used for these repairs.

During the construction phase, primary activities resulting in the release of pollutants into the air include excavation, loading and unloading operations when storing equipment and containers, as well as operation of construction machinery, mechanisms, and vehicles.

During construction of the 220 kV overhead line, it is expected that around 3.6311 tons of pollutants will be released into the air.

The most significant contributors to pollutant emissions during construction are carbon monoxide (46.62%) and nitrogen dioxide (14.93%), amounting to 1.279 tons per year.

Dispersion calculation analysis reveals that carbon monoxide, nitrogen dioxide, and inorganic dust are the primary contributors to atmospheric pollution, with maximum concentrations remaining within established limits.

Once the proposed 220 kV OHL route is commissioned, air pollution will cease.

During the OHL operation, a protective zone is established, consisting of a 30-meter-wide strip on each side of the outermost wire, where any construction work is prohibited.

Upon completion of the construction period, lands temporarily allocated for use will be returned to the land user after necessary reclamation work is carried out on the disturbed lands.

All OHL components will be delivered to the construction site fully assembled; thus, waste generation during the OHL construction is unlikely. However, the following types of waste may still be generated:

Hazard class III - waste of solvents, paints, waste of a mixture of dissimilar hardened plastics (paint containers);
Hazard class IV - cleaning material contaminated with oils (oil content less than 15%), construction waste, solid life wastage of working personnel;
Hazard class V - construction crushed stone that has lost its consumer properties, waste steel electrodes (cinders and remains of steel welding electrodes).
The total amount of waste during the construction period is 1.0675 tons.

Waste from operation of special equipment and vehicles is not generated directly on the site. Maintenance and repair of special equipment used during construction is carried out at the contractor’s premises.

The generated waste from motor vehicles (worn-out tires, waste from batteries, oiled filters, used oils, etc.) is generated at the premises of mechanized services and disposed of by the contractor.

No waste generation is expected during the operation of the high-voltage line.

To minimize the negative impact of waste on the environment, separate collection of waste according to physical and chemical indicators and hazard class will be provided for all types of waste, and places will be arranged for their safe temporary storage.

On the territory of construction sites during construction work, a system for organizing the collection, temporary accumulation and movement of waste will eliminate their impact on soils, ground, ground and surface waters.

Analysis of alternative project design solutions indicated that the proposed route is optimal in terms of minimizing the environmental impact.

Emergency risks during the 220 kV OHL operation, as considered by the project, are primarily associated with potential fall of supports and broken wires. The environmental consequences of such incidents are minimized through measures such as reinforcement of the supports, maintaining necessary clearances between the overhead line and utilities, and utilizing high-frequency protection equipment and emergency automation.

The draft EIS outlines several measures to prevent and mitigate the adverse environmental impact of the construction project. These measures include installing special containers for collection and temporary disposal of waste generated during the OHL construction, with subsequent removal to specialized organizations and landfills for solid waste disposal. Additionally, the fertile soil layer removed during excavation of pits for support installation will be relocated to areas designated by the land user. Other environmental protection measures are also included.

Attached to the draft are the Disturbed Land Reclamation Plan, Environmental Management Plan (EMP) which will also ensure environmental protection, and Environmental Monitoring Plan (Attachments 8, 9, and 10 to the draft EIS).

The environmental expertise of the reviewed draft EIS materials showed that they meet requirements of legislative documents for the first stage of the environmental impact assessment.

The State Environmental Expertise Center under the Ministry of Ecology, Environmental Protection, and Climate Change **agrees upon** the materials for the first stage of the Environmental Impact Assessment for the "Construction of the 44.3 km-long 220 kV double-circuit overhead line in the Beruniy district of the Republic of Karakalpakstan" project.

If the Owner fails to comply with requirements specified in this state environmental expertise conclusion, validity of this conclusion will be terminated (Basis: Decree of the Cabinet of Ministers of the Republic of Uzbekistan dd. September 7, 2020, No. 541 “On further improvement of the mechanism of environmental impact assessment,” p. 57).

Responsible expert: DUROVA TAMARA TIMOFEYEVNA

MINISTRY OF ECOLOGY, ENVIRONMENTAL PROTECTION AND CLIMATE CHANGE OF THE REPUBLIC OF UZBEKISTAN
STATE ENVIRONMENTAL EXPERTISE CENTER
Address: 10017, Tashkent, Mirzo Ulugbek district, Sayram street, 15, Tel: 71-203-00-22

STATE ENVIRONMENTAL EXPERTISE
EXPERT CONCLUSION

NUMBER: 01-02/01-835
DOCUMENT TYPE: Draft Environmental Impact Statement

Issued to the Client of the State Environmental Expertise: JURU ENERGY CONSULTING LLC
TIN: 303454532
Subject name: Environmental impact assessment for the project: "Construction of the 200 MW NUKUS-II wind power station (WPP) in the Beruniy district of the Republic of Karakalpakstan" (Draft Environmental Impact Statement)
Name of the project developer: JURU ENERGY CONSULTING LLC
TIN: 303454532
Responsible expert of the State Environmental expertise: DUROVA TAMARA TIMOFEYEVNA

According to Attachment 1, approved by Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 541 dd. September 7, 2020, **this subject of the State Environmental expertise qualifies for p.29 of** Category 2 **of environmental impact.**

Result of the State Environmental expertise: Positive conclusion

The state environmental expertise conclusion: This document is not considered legal without the accompanying attachment

Issue date: 27.05.2024
Validity period: 27.05.2027

The attached expert conclusion of the State Environmental expertise Center of the Ministry of ecology, environmental protection and climate change of the Republic of Uzbekistan and its branches on compliance of the subject of environmental expertise with ecological requirements, coordinates of location points, environment protection measures, requirements that must be fulfilled, etc. is ***an integral part of this conclusion of the State Environmental expertise and it is mandatory to fulfill requirements specified therein.***

Note: If the Client does not comply with environmental requirements stipulated in the conclusion of the State Environmental expertise, the conclusion of the State Environmental expertise shall be canceled in accordance with the procedure established by the laws.

General Director **G. Mukhamedov**

Attachment to the conclusion

of the State Environmental Expertise

dd. May 27, 2024 No. 01-02/01-835

Requirements of the expert conclusion

on results of the state environmental expertise

JURU ENERGY CONSULTING LLC to:

- before the facility is put into operation, develop the final stage of the EIA process - the Statement on Environmental Effects (SEE), and submit it for the state environmental expertise as required by law;

- in the SEE materials, include the Enterprise Inspection Report, approved by the Ministry of Ecology and Environmental Protection of the Republic of Karakalpakstan, detailing implementation of environmental measures and project designs outlined in the draft EIS;

- in accordance with the Law of the Republic of Uzbekistan "On Protection and Use of Wildlife" (p. 11, 30, 31, and 35), develop, approve, and agree upon with the Regional Inspectorate for Control over Protection and Use of Biodiversity and Protected Natural Areas, measures to ensure preservation of migration routes, habitats, and breeding places of birds before the start of construction. This includes registering Red List species of animals and plants and implementing measures for their conservation;

- ensure adherence to requirements of p. 5 of Decree of the President of the Republic of Uzbekistan No. 4845 dd. September 29, 2020 "On measures to further improve the activity management in the field of household and construction waste management", and Decree of the Cabinet of Ministers No. 40 dd. January 28, 2021, "On measures to further improve the procedure for carrying out works with construction waste" (Attachments 3-7);

- prepare and submit relevant agreements for removal of waste and sewage from their accumulation sites within a specified timeframe;

- make appropriate arrangements for disposal of wind generator blades;

- ensure reclamation of disturbed soil and vegetation cover, as well as temporary roads, upon completion of construction works;

- implement recommendations of the draft EIS to minimize adverse environmental impact of the facility during the construction phase;

- ensure treatment of household wastewater generated during the WPP operation at the bioseptic installation, and subsequently use the treated wastewater for irrigating the area and green spaces;

- ensure implementation of the Environmental Management Plan (EMP), the Environmental Monitoring Plan, and measures to mitigate adverse environmental impacts during both construction and operation phases of the WPP, as outlined in the draft EIS;

- take into consideration that when designing construction of new buildings and structures exceeding a height of 12 meters from the ground level and/or with a total area exceeding 500 square meters, an area for landscaping (trees, shrubs, and other plants) in adjacent territories must not be less than 25 percent of the total land area;

- establish "green belts" on both its own and adjacent territories (Basis: Decree of the President of the Republic of Uzbekistan dd. May 31, 2023, No. UP81 “On measures to transform the sphere of ecology and environmental protection and organize activities of the authorized state body,” p. 13e).

The Ministry of Ecology, Environmental Protection, and Climate Change of the Republic of Karakalpakstan to ensure control over the following aspects:

- compliance with environmental legislation during construction of the wind power plant.

- implementation of recommended organizational and technical environmental measures aimed at minimizing the adverse environmental impact of the proposed facility during its construction, as outlined in the draft Environmental Impact Statement (EIS) and Environmental Management Plan (EMP), as well as the requirements specified in this conclusion.

Do not allow start-up of the facility without a positive conclusion from the State Environmental Expertise for regarding the Statement of Environmental Effects.

Responsible expert: DUROVA TAMARA TIMOFEYEVNA

Summary of the facility

To: Ismailov J.Sh.

Director of JURU ENERGY CONSULTING LLC

copy: Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Karakalpakstan

Materials for the initial stage of environmental impact assessment have been submitted for the "Construction of the 200 MW NUKUS-II wind power station (WPP) in the Beruniyy district of the Republic of Karakalpakstan" project.

ACWA Power is implementing the project, initiated under a Public-Private Partnership Agreement signed on March 28, 2024, alongside other regulatory documents.

The project aims to supply electricity to Uzbekistan's grid from the proposed NUKUS-II WPP, utilizing wind energy from an area with substantial wind potential.

The project site location is designated by the Government of the Republic of Uzbekistan.

The chosen site for the NUKUS-II wind farm is on the Sultan Uwaiz plateau's mountain range, where wind generators are positioned at the highest points of rocky ridge of the mountain range. The height difference from south to north is from 144 m to 387 m, and further to the north there is a descent to desert lands at a level of 240 m, above sea level.

The designated site for the wind farm construction is situated on the undeveloped land with high wind potential, devoid of buildings, structures, and infrastructure. The land at the project site is uncultivated rocky terrain without any woody vegetation.

The allocated area for the NUKUS-II 200 MW WPP construction spans 6502.0 hectares, with open lands bordering the northern, western, and eastern sides. To the south, there is a mountain range, followed by the sacred pilgrimage site of Mount Munajat (located 2.6 km from the outermost wind generator), and the Sultan Uwais Ziraat sanctuary (located 5.6 km from the outermost wind generator).

There are no surface watercourses around the wind farm.

The Amu Darya River, the area's principal waterway, flows 20 kilometers south of the WPP site.

The draft EIS contains sufficient information on the climatic characteristics of the project area, as well as existing sources of environmental impact. The analysis revealed that the wind farm construction site is located in an area with an acceptable environmental situation in terms of atmospheric air, surface and groundwater, soils, and vegetation.

Attached to the draft EIS is the Biodiversity Experts' Conclusion on the results of biodiversity surveys conducted by experts from Juru in the project area of the 200 MW Nukus-II WPP in the Beruniy District of the Republic of Karakalpakstan and the 44.3 km-long 220 kV Double Circuit OHL in the Beruniy district of the Republic of Karakalpakstan" (JV5 JEC-OLJ T – 24-414 dd. 30.04.2024). The project area was surveyed in March and April 2024 by specialists in botany, herpetology, ornithology and theriology, and biodiversity.

The survey's findings revealed the presence of uncommon species listed in both national and international Red Lists, including the saker falcon (Falco cherrug), goitered gazelle (Gazella subgutturosa), and Russian tortoise (Testudo horsfieldi), as well as species under national protection, such as the golden eagle (Aquila cfaysaetus), corsac fox (Vvlpes corsac), and Brandt's hedgehog (Paraechinus hypomelas), with the conclusion that measures will be taken within the scope of the Project to decrease risks and conserve these species.

The southern side of the region, relative to the WPP, is characterized by a high concentration of infrastructure, residential communities, and farming.

A railway line is located 9.0 kilometers south of WPP's boundary, followed by the A-380 highway at a distance of 9.5 km, which is the area's primary transportation artery.

Lower Amudarya State Reserve, a protected zone, is located 16.0 kilometers southwest of the WPP.

The nearest residential buildings in Kyzylkala are 8.0 km away from the territory under consideration, which corresponds to the Sanitary protection zone established by the Republic of Uzbekistan's Service for Sanitary-Epidemiological Welfare and Public Health for the proposed WPP, the width of which is determined to be 250 m (a letter from the SEWPH is attached to the draft EIS).

The draft EIS includes the Certificates of public hearings held by the chairmen with the participation of residents of five makhallas (Makhtumkuli, Naiman, Dustlik, Abay, and Kyzyl Kala), during which implementation of the proposed project and environment impact of its activities were discussed, and for which the residents voiced their support.

The draft EIS is accompanied by the Protocol of the Public Hearing dd. April 24, 2024, conducted by the khokimiyat of the Beruniy district of the Republic of Karakalpakstan with the participation of representatives of stakeholders: chairmen and residents of the Magtymguly, Naiman, Dustlik, Abay, Kyzyl Kala mahallas; Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Kapakalpakstan; sanitary-epidemiological welfare and public health services; JURU ENERGY CONSULTING LLC and other stakeholders.

Based on results of the Public Hearing, a decision was made on public support for the planned activities of ACWAPower sideSolar LLC in the territory in question.

The proposed wind power plant is the most promising in the energy industry and varies from standard thermal power plants in that it does not consume hydrocarbon raw materials, is highly efficient, and has a relatively low environmental effect.

This project provides for construction of the 200 WPP, which will include 29 wind generators as well as all supporting structures and facilities. Based on the draft EIS, the WPP is expected to take one year to construct.

The WPP equipment that converts wind energy into electrical energy includes: a turbine (rotor) that converts the energy of a wind flow of rectilinear motion; a generator that converts mechanical energy into electrical energy; a mast; a turbine control system; a multiplier; a root or azimuth drive system; a rectifier, required when using alternating current generators.

The draft EIS provides sufficient information on the WPP operating concept, which is to use the wind's kinetic energy to rotate a moving section of the wind turbine connected to the rotor of the energy generator. The gearbox placed within boosts the shaft's speed. This work produces three-phase alternating current.

The wind generator's stator winding converts mechanical energy into electrical electricity.

The EIS project included estimations of pollutants emitted during construction of the WPP. According to the estimations, the wind power plant's construction is expected to emit 40.754 tons of temporary pollutants. Pollution is primarily caused by carbon monoxide (14.9285 tons, 36.63%), followed by inorganic dust (10.0461 tons, 24.65%).

Calculations of dispersion fields of ground-level concentrations of pollutants indicate that maximum concentrations of pollutants outside the WPP site during construction do not exceed the quotas established for the Republic of Karakalpakstan.

There are no emissions of pollutants during the **WPP operation** when generating electricity using only wind energy, which is the main advantage of the proposed WPP from the standpoint of environmental protection.

The following devices can emit little amounts of pollutants into the air: through leaks - oil-filled power transformers, emissions from which are minor oil hydrocarbons in the amount of 0.0028 t/year; from a backup (emergency) power source for the substation - a diesel generator, used exclusively in emergency situations, during operation of which 7 types of pollutants will be released into the atmosphere in the amount of 0.0004 t/year.

During construction, water is utilized at the construction site to prepare cement mortar, to prevent dust, and to meet the demands of the builders' household needs (200 persons). During construction work, water will be supplied.

For drinking needs of construction workers, imported bottled water, purchased independently by the construction contractor, is partially used. At temporary construction sites, specially equipped places with sealed containers (dry closets) are provided for the collection of household wastewater. The contents of dry closets must be transported to the nearest wastewater treatment plant.

To prepare the cement mortar and water the area in order to reduce dust, water will be brought by water carriers from the nearest irrigation collector in the amount of 13.2 m3/day, or 4818.0 m3/year. Water consumption is considered irreversible loss. There are no industrial wastes.

During operation of the WPP under consideration, water at the WPP site will be utilized for domestic purposes. To meet the household needs of the 20 individuals working at the wind farm, water will be sourced from the nearest village. The total disposal of household wastewater during the WPP operation is estimated to be 4.03 m3 per day or 1470.22 m3 per year. These wastewater streams are planned to be directed through intra-sewage systems to a ground-based biological septic tank situated in an open area of the WPP territory, specifically within the administrative and functional auxiliary areas. The biological septic tank integrates both mechanical and biological treatment processes for wastewater. Purified water, as outlined in the draft EIS, can be recycled for site irrigation, while the sludge can serve as fertilizer for plants.

At the proposed 200 MW WPP, both industrial and domestic waste will be produced during construction and after commissioning.

During the WPP construction phase, the following waste generation totaling 6098,425 t/year is expected: concrete and reinforced concrete waste - Hazard Class 5, sand waste - Hazard Class 5, construction crushed stone with depleted consumer properties - Hazard Class 5, waste from steel electrodes (cinders and remnants of steel welding electrodes) - Hazard Class 5, waste from solvents and paints - Hazard Class 3, waste from a mixture of different hardened plastics (such as paint containers) - Hazard Class 3, cleaning materials contaminated with oils (with an oil content below 15%) - Hazard Class 4, construction waste - Hazard Class 4, solid waste (unsorted waste from temporary residential premises, excluding large items) - Hazard Class 4.

Waste from operation of special equipment and vehicles is not generated directly on the site. Maintenance and repair of special equipment used during construction is carried out at the contractor’s premises.

The construction organization, acting as the general contractor, is responsible for collecting and temporarily storing both solid waste and industrial waste generated during construction activities. These wastes are stored in specially equipped areas and subsequently removed for disposal by specialized organizations, as outlined in the contract for construction and installation work. The general contractor organization bears full responsibility for sanitary, epidemiological and environmental situation to the owner and inspecting authorities.

The construction waste will be removed from the site by the construction organization in accordance with contracts concluded with waste disposal organizations.

Analysis of the project design indicates that during the WPP operation of main and auxiliary sections, as well as during repair activities, approximately 11 types of waste will be generated annually, amounting to 131.558 tons: spent wind generator blades - 104.4 tons, Hazard Class 4; waste transformer oil - 11.675 tons per year, Hazard Class 2, spent silica gel - 1.15 tons per year, Hazard Class 4; ferrous metal scrap - 0.5 tons per year, Hazard Class 5; non-ferrous metal scrap - 0.2 tons per year, hazard class 4; oily rags with an oil content of over 15% - 0.05 tons per year, Hazard Class 3; waste LED lamps - 0.008 tons per year, Hazard Class 4; paper waste - 0.035 tons per year, Hazard Class 4; canteen food waste - 1.54 tons per year, Hazard Class 5; solid household life wastage of working personnel - 1.0 tons per year; estimated sweepings from cleaning the territory - 11.0 tons per year, Hazard Class 4.

Currently, disposal of wind turbine blades made from composite materials presents a major challenge for the wind energy industry, especially when these blades reach the end of their operational lifespan or when the facility is decommissioned.

The proposed methods for recycling wind turbine blades are still under development. Current techniques, such as mechanical grinding, combustion, and pyrolysis, have various disadvantages, preventing the EIS project from fully addressing the problem of blade recycling. **In future designs, it will be necessary to find an appropriate solution for disposal of the wind turbine blades.**

The plan involves transporting the waste generated during the WPP's operation to specialized organizations for disposal, following the prescribed procedures. Household and construction waste will be removed in accordance with the established contracts.

Considering the potential emergency risks at the 200 MW WPP after the project realization, the project provides recommendations for prevention, elimination, and minimization of these risks.

The draft EIS includes recommendations to minimize the facility's adverse environmental impacts during both the construction and operation stages.

The draft EIS outlines the Environmental Management Plan, detailing measures to mitigate negative environmental impacts, as well as the Environmental Monitoring Plan to be implemented during the WPP construction and operation.

The State environmental expertise of the project confirmed that the submitted materials comply with the requirements of environmental legislation for the first stage of the environmental impact assessment.

The State Environmental Expertise Center under the Ministry of Ecology, Environmental Protection and Climate Change **agrees upon** the materials of the first stage of environmental impact assessment for the "Construction of the 200 MW NUKUS-II wind power station (WPP)" in the Beruniy district of the Republic of Karakalpakstan" project.

Responsible expert: DUROVA TAMARA TIMOFEYEVNA

APPENDIX C – NOISE MONITORING

Noise baseline report

Consulting Firm:

Juru Energy Ltd
Suite 1, One George Yard, London,
United Kingdom, EC3V 9DF
www.juruenergy.com

Prepared for:

5 Capitals Environmental and Management Consulting
Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE
www. 5capitals.com.

April 2024

Table of Contents

1. Introduction 4
2. Measurement methodology 5
2.1. Noise 5
2.2. Statistical analysis 6
3. Measurement equipment 6
4. Monitoring results 7
4.1. Summary table noise 7
4.2. National standards 12
4.3. Summary graph results 13
5. Conclusion 32
5.1. Noise 32
Annex 1 Certificates of equipment 33
Annex 2 Table of statistical parameters 37
Annex 3 Noise and wind raw data 41

Table of Figures

Figure 1: Noise monitoring locations 4
Figure 2: Variations of noise levels during daytime 19
Figure 3: Noise equipment at N 1 20
Figure 4: Noise equipment at N 2 21
Figure 5: Noise equipment at N 3 22
Figure 6: Noise equipment at N 4 23
Figure 7: Noise equipment at N 5 24
Figure 8 Noise equipment at N 6 25
Figure 9: Noise equipment at N 7 26
Figure 10: Noise equipment at N 8 27
Figure 11: Noise equipment at N 9 28
Figure 12: Noise equipment at N 10 29
Figure 13: Noise equipment at N 11 30
Figure 14: Noise equipment at N 12 31

Table of Tables

Table 1:Location of nearest sensitive receptors 5
Table 2: Testing methods 6
Table 3: The measurement equipment used for noise monitoring 6
Table 4: Summary of average noise values for 24 hr measurement per location, dB 10
Table 5: Acceptable values of octave sound pressure levels by Purpose of premises or territories 12
Table 6: Permissible sound pressure levels, sound levels and equivalent sound levels at workplaces in industrial premises and on the territory of enterprises 12

1. Introduction

In order to characterise the sound of the area of the proposed development to support future monitoring obligations or noise grievances, a continuous environmental baseline noise monitoring was carried out from the 23 March 2024 to 7 April 2024 (N1 - N12) at 12 nearest sensitive receptors (NSRs) for daytime and night-time noise (24hr).

Twelve monitoring locations were chosen based on proximity to the proposed Windfarm and OHTL facilities, proximity to settlements and to provide representative conditions for the NSR that may be affected by the Project. Plant area Is situated to the North of potentially affected area within the plateau of Sultan-Uvais mountains. The main type of activity in this area is mining. The OHTL runs south of the factory site, along the asphalt road where settlements are situated. The majority of noise monitoring points are located south of the project site to assess the noise impact along the OHTL route in residential areas and near the asphalt road. Noise monitoring locations are situating at the following places (**Error! Reference source not found.**).

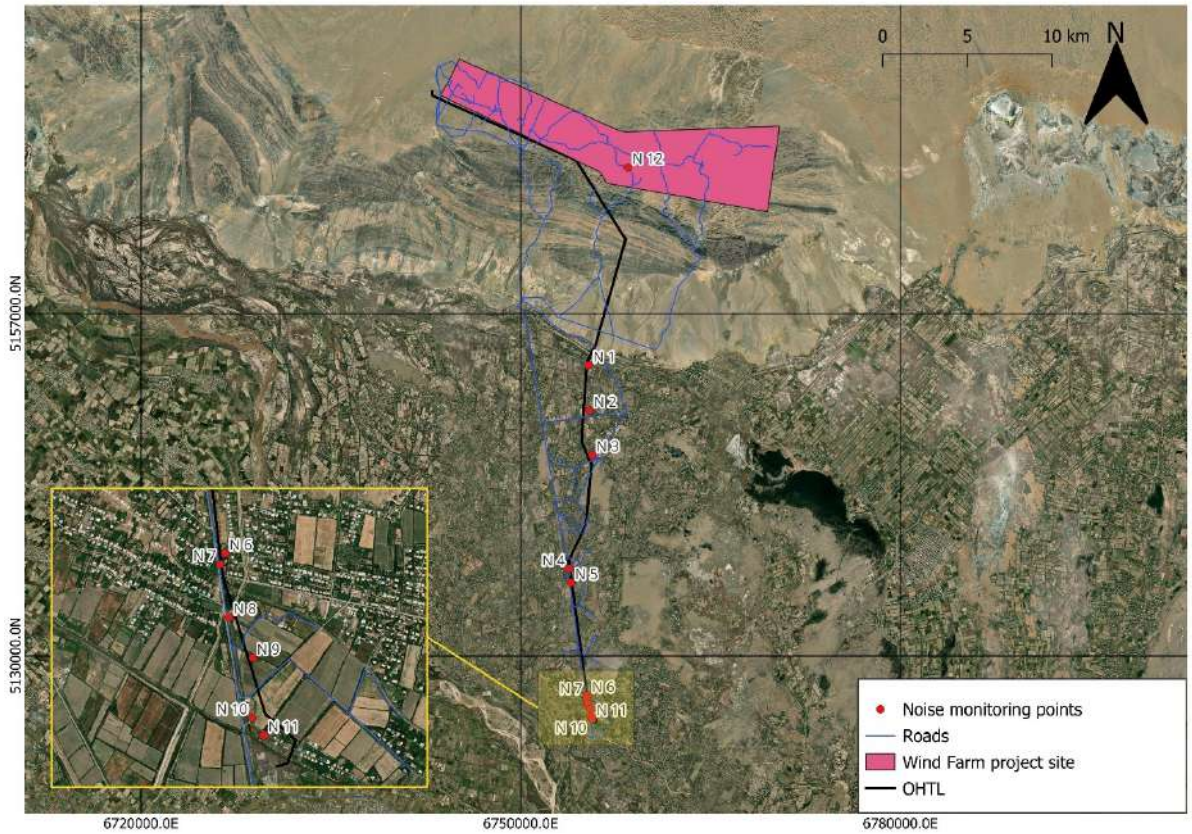


Figure 1: Noise monitoring locations

2. Measurement methodology

2.1. Noise

For the noise measurement an unattended noise meter Class 1 (Type 1) per IEC 61672-1. It was placed in the vicinity of NSR's, at 1.7 m above the ground level with no nearby reflective surfaces in minimum 5 m distance. The following parameters were recorded: LAeq, LAmax, LAmin, LA_{10}, LA_{90}. The LAeq level is the equivalent continuous sound pressure level over at the measurement period 10 minutes. LAmax is an indicator of the highest sound level during the measurement period; the LAmin is the lowest level during the measurement period; LA90 is used as a descriptor of background noise levels and LA10 is the noise level which is achieved for 10% of the monitoring period and is often used to describe road traffic noise.

Table 1:Location of nearest sensitive receptors

Location	Description	Coordinates Latitude	Coordinates Longitude
N 1	Farm technical building	41.946250°	60.684725°
N 2	Residential buildings	41.922411°	60.685111°
N 3	Residential building	41.898991°	60.687141°
N 4	Residential building near A380 asphalt road	41.838805°	60.670772°
N 5	Maintenance working field near A380 asphalt road	41.831438°	60.672055°
N 6	Residential building	41.771775°	60.683675°
N 7	Building near A380 asphalt road	41.771033°	60.683244°
N 8	A380 asphalt road	41.767497°	60.684038°
N 9	Field 150 m from A380 asphalt road	41.764775°	60.686169°
N 10	A380 asphalt road, gas station	41.760758°	60.686094°
N 11	Residential building	41.759588°	60.687175°
N 12	Plant site	42.050586°	60.712391°

2.2. Statistical analysis

For accuracy in describing the background noise level, a statistical analysis in R was conducted based on the obtained data set. The data were tested for normality using the Pearson Chi-square test. For normally distributed data, the mean, standard deviation, and 95% confidence interval were determined based on base arithmetic calculations and Student's t-distribution methods. For non-normally distributed data, distribution parameters were determined using the bootstrap method. Statistical processing was conducted for daytime and nighttime LAeq and LAmax indicators.

Table 2: Testing methods

Parameter	Test
Normal distribution	Pearson Chi-square test
Average, standard deviation for normal distribution	Arithmetic method
Confidence interval for normal distribution	Student's t-distribution method
Average, standard deviation and confidence interval for non-normal distribution	Bootstrap method

3. Measurement equipment

The following equipment was used for the monitoring exercise.

Table 3: The measurement equipment used for noise monitoring

Item	Meter Model	Serial Number
Sound Level Meter	Rion NL 52	00410152
Calibrator	Calibrator Rion NL 75	34313059
Microphone	All-weather windscreen WS-15	Does not have SN

All equipment used during the survey was field calibrated at the start and end of the measurement period with a negligible deviation of ≤0.5 dB. Sound meter fitted with a protective windshield for the entire measurements period. UKAS certificates are attached in Annex 1.

4. Monitoring results

4.1. Summary table noise

The data provided in 4 outlines the summary of noise measurements obtained from two locations during specific time periods. The measurements are categorized by two distinct time intervals: daytime (from 07:00 to 23:00) and nighttime (from 23:00 to 07:00).

Statistical analysis indicates that normal distribution appears more often char for the nighttime and points with the highest noise load. The reason for these results is the more uniform distribution of noise load over time during the study, while at a distance from roads and settlements, due to the periodic appearance of noise load caused by farming, periodic passing traffic, and other similar reasons, the distribution of data represents a non-normal distribution. For all data, calculations of averages, standard deviations, and confidence intervals were conducted. For data with non-normal distributions, in addition to arithmetic means, statistics will also be provided using the bootstrap method including average. Subsequently, obtained data from the research can be compared with national and international standards through the use of confidence intervals. Summary table for the main statistical parameters is provided in Annex 2. Raw data for Noise and wind direction is provided in Annex 3.

Considering the obtained results, all points can be divided into two groups based on noise loads and one single point: the “northern” group, closer to the project site, the “southern” group, located in rural areas and plant site point.

In the “northern” group, there are significantly fewer noise sources, which is noticeably reflected in the results. This group includes points N1 - N5, with studies conducted on (dates). The average levels of equivalent noise (LAeq, avg) during the day, calculated using either arithmetic mean or bootstrapping depending on the distribution type, for these points are 29.41, 43.27, 37.55, 42.24, and 44.51 dB respectively; standard deviations (SD) range from 0.255 to 4.104 dB; the maximum value of the confidence interval for unit in this group is 45.10 dB (point N5), which does not exceed the established National standards of Uzbekistan. The maximum average noise levels (LAmax) during the day for the five points are as follows: 46.27 dB for N 1, 59.75 for N 2, 50.24 for N 3, 58.86 for N 4, and 57.91 dB for the point fifth with standard deviations ranging from 0.550 to 10.127 dB. The highest noise level is recorded for the point N 2.

During nighttime, there is a significant reduction in noise load for all points in the group. The average equivalent noise level (LAeq, avg) values for points N1- N5 are 24.12, 35.06, 30.27, 39.36, and 41.30 dB respectively, with SD ranging from 0.704 to 5.462 dB, while the maximum confidence interval values do not exceed 42.47 dB for the most noisy point (N5). For points N1 to N3, extremely favorable levels of LAeq are observed, with 95% confidence intervals not exceeding 25.95 dB for the first, 37 dB for the second, and 31.85 dB for the third. The average values of maximum noise loads (Lamax) for points N1 - N5 are 35.07, 55.83, 45.10, 55.43, and 54.89 dB respectively, with values within the confidence interval not exceeding 58.30 dB for the loudest point in this parameter (N2).

The “southern” group of points is located closer to the starting point of the planned power line in a significantly more densely populated area. This includes points N6 - N11, with investigations conducted on (dates). During daytime, the average equivalent sound levels (LAeq) are 58.58, 61.25, 56.70, 53.86, 58.52 and 47.96 dB for points N6, N7, N8, N9, N10 and N11 respectively, with standard deviations ranging from 0.431 to 3.703 dB and a maximum value of the 95% confidence interval up to 61.84 dB. For point N9, the confidence interval value does not exceed 54.61 dB. For points N6 to N8 and N10, the indicator values exceed the National standard, although the excess is low. The average maximum noise levels (LAmax) during daytime have average values of 76.26, 81.35, 72.69, 67.98, 71.91 and 62.58 dB respectively for the points under consideration. Point N7 is the only one for which the 95% interval exceeds 80 dB in its maximum value, reaching 82.39 dB.

Also, for this group of points, there is not such a significant difference between nighttime and daytime as observed in the “northern” group. The average equivalent levels (LAeq) are 51.44, 54.90, 48.78, 48.52, 53.91 and 39.88 dB for points N6 - N11 respectively, with standard deviations ranging from 0.984 to 5.707 dB and a maximum value within the confidence interval of 56.50 dB. Similarly to daytime measurements, National noise standards for residential areas are slightly exceeded in points N6 - N9. The maximum average noise levels (LAmax) during nighttime are lower, ranging from 55.19 to 74.31 dB, with the maximum value within the confidence interval not exceeding 75.90 dB (for N7).

Point N 12, associated with the Project site, indicates minor fluctuations in noise levels between day and night. This could be attributed to the activities of mining companies. The average equivalent sound level (LAeq, average) throughout the day is 45.39 dB, with a standard deviation of 2.322 dB and a maximum value within the confidence interval of 45.86 dB. The average maximum sound level (LAmax, average) during the day does not exceed 62.45 dB within the

confidence interval. Nighttime readings differ from daytime by no more than 2 dB. LAeq average is 44.98 dB with a maximum value within the confidence interval of 45.71 dB and a maximum sound level (LAmax, average) of 59.43 dB and 61.01 dB within the confidence interval. Only for the nighttime noise level has the national standard for residential areas been slightly exceeded, however, there are no residential buildings in this area and no plans for them.

Arithmetical averages for all investigated parameters are indicated in detail in Table 4. The results of the statistical analysis are situated in Annex 2.

According to state SanPin RUz N 0267-09 standard acceptable equivalent noise level for territories directly adjacent to residential buildings, clinic buildings, outpatient clinics, dispensaries, rest homes, boarding houses, boarding houses for the elderly and disabled, preschool institutions, schools and other educational institutions, libraries should not exceed 55 dB during the daytime and 45 during the night. When comparing the maximum value of the 95% confidence interval with the given values, no exceedances are observed for N 1 – N 5 points. For the average maximum noise level (LAmax), there is no established state standard; however, a stricter standard SanPin RUz N 0325-16, can be used for assessing this parameter. Standard was developed to establish acceptable noise levels in the workplace during 8 hours per day. According to this standard, the equivalent noise level should not exceed 80 dB. The maximum values of the 95% confidence interval for the maximum noise levels of these points also do not exceed these values for both points. Consequently, the background noise condition for N 1 – N 5 at the time of the study appears to be satisfactory.

For points N 6 – N 11, according to SanPin RUz N 0267-09, daytime exceedances for the equivalent noise level within the maximum value in the confidence interval are observed at points N6 - N8, with values exceeding the standard by 2.50 to 6.84 dB. Nighttime exceedances are observed at points N 6 – N 10 . It is important to note that these points are more associated with roads than residential buildings. Meanwhile, point N11, located within residential development, shows a satisfactory noise level, meeting the standard requirements for residential areas. Maximum noise levels, both during the day and at night, are at the boundary of the conditionally established limit of 80 dB according to SanPin RUz N 0325-16. Exceedance is observed only at point N 7, but there is no residential or working premises there.

For the point N12, according to state SanPin RUz N 0267-09 standard acceptable equivalent noise level, at the point, there is no exceed of the established value during the daytime and a slight

exceed (less than 1 dB) at the night. There are no settlements on this territory, and it is more associated with working space. Compared to SanPin RUz N 0325-16 for workplaces the territory shows favorable noise level results significantly lower than 80 dB noise pollution. Thus, there is a huge reserve for the increasing economic activity on the territory.

Thus, we have determined that the highest noise levels are characteristic of the "southern" part of the area presented by N 6 – N 11 points. However, during the study period, noise levels were satisfactory for residential areas, while for the "northern" part, they were favorable.

Table 4: Summary of average noise values for 24 hr measurement per location, dB

Location	Date	daytime / night-time	Time Period / Interval	LAeq, avg	LAmax, average	Lamin, average	LA10, min	LA10, avg	LA10, max	LA90, min	LA90, avg	LA90, max
NA 1	24-25 March	07:00-23:00	10 min	29.72	46.27	20.86	20.1	31.68	52.9	17.1	23.18	32.9
		23:00-07:00		25.50	37.68	17.86	16.9	27.77	56.1	15.4	20.24	26.9
NA 2	25-26 March	07:00-23:00	10 min	43.96	61.53	33.05	32.6	45.39	75.2	26.2	36.16	61.9
		23:00-07:00		36.93	55.98	26.78	28.3	38.66	70.2	19.4	29.10	48.5
NA 3	25-26 March	07:00-23:00	10 min	37.55	51.93	28.66	27.2	39.71	48.4	22.5	31.39	41.8
		23:00-07:00		30.27	45.10	23.08	21.3	31.92	45.1	16.2	25.14	33.9
NA 4	23-24 March	07:00-23:00	10 min	42.61	58.86	28.13	38.4	45.67	65.2	25.6	32.82	38.4
		23:00-07:00		39.36	55.43	23.01	34.6	41.92	52	18.6	27.17	36.2
NA 5	23-24 March	07:00-23:00	10 min	45.30	60.95	31.15	42.3	48.16	66.5	27.8	35.33	40
		23:00-07:00		41.30	57.44	26.08	37.8	43.57	50.4	20.2	29.76	36.7
NA 6	28-29 March	07:00-23:00	10 min	58.58	76.26	39.22	54.3	61.37	67	35.4	45.14	51.4
		23:00-07:00		51.44	69.55	27.52	38.1	53.06	62.7	24.6	32.17	44.1
NA 7	28-29 March	07:00-23:00	10 min	61.25	81.35	37.92	56.4	63.23	69.3	34.4	43.48	48.7
		23:00-07:00		53.25	73.48	27.01	36.5	52.09	61.5	24.7	31.43	40.1
NA 8	29-30 March	07:00-23:00	10 min	56.06	72.69	39.69	50.7	59.05	65.3	32.3	45.40	53.1
		23:00-07:00		48.81	66.65	26.72	43.8	51.47	57.5	23.5	31.88	38.9

NA 9	29-30 March	07:00-23:00	10 min	53.86	68.42	40.30	49.9	56.76	63.9	36.2	45.52	55
		23:00-07:00		48.52	62.78	32.45	46.5	51.98	60.1	25.5	36.19	42.7
NA 10	6-7 April	07:00-23:00	10 min	58.62	72.26	36.38	58.7	62.77	66.2	36.2	43.06	50.5
		23:00-07:00		53.91	70.05	33.20	43.9	56.98	62.8	31.3	37.14	45.3
NA 11	30-31 March	07:00-23:00	10 min	47.96	63.96	32.44	43.1	51.15	56.8	31.3	37.05	48.4
		23:00-07:00		39.88	55.19	29.93	36.4	42.66	48.2	30.5	32.29	36.8
NA 12	6-7 April	07:00-23:00	10 min	45.10	61.09	30.59	40.1	47.82	66.5	25.9	34.78	39.8
		23:00-07:00		41.71	57.16	27.22	37.8	44.25	53.8	20.2	30.86	40

4.2. National standards

Table 5: Acceptable values of octave sound pressure levels by Purpose of premises or territories1

sp	Purpose of premises or territories	Time	Sound pressure levels, dB, in octave frequency bands with geometric mean frequencies, Hz									Sound levels, LA and eq. sound levels, LA eq., dB(A)
			31,5	63	125	250	500	1000	2000	4000	8000	
1	2	3	4	5	6	7	8	9	10	11	12	13
	Territories directly adjacent to residential buildings, clinic buildings, outpatient clinics, dispensaries, rest homes, boarding houses, boarding houses for the elderly and disabled, preschool institutions, schools and other educational institutions, libraries	From 7 to 23 h. From 23 to 7 h.	90 83	75 67	66 57	59 49	54 44	50 40	47 37	45 35	43 33	55 45

Table 6: Permissible sound pressure levels, sound levels and equivalent sound levels at workplaces in industrial premises and on the territory of enterprises2

№	Sound pressure levels, dB, in octave bands of geometric mean frequencies, Hz										Sound levels and equivalent sound levels in dB(A)
		31,5	63	125	250	500	1000	2000	4000	8000	
1	2	3	4	5	6	7	8	9	10	11	12
5	Performing all types of work (except for those listed in paragraphs 1-4 similar to	107	95	87	82	78	75	73	71	69	80

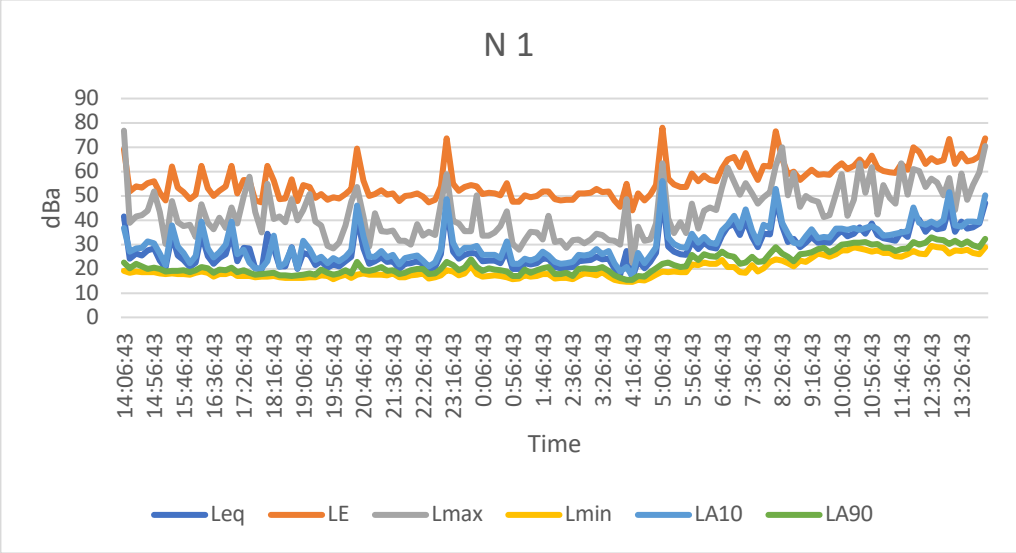
1 Source: SanPin RUz N 0267-09 “To ensure acceptable noise in the premises of residential, public buildings and in the territory of residential development”

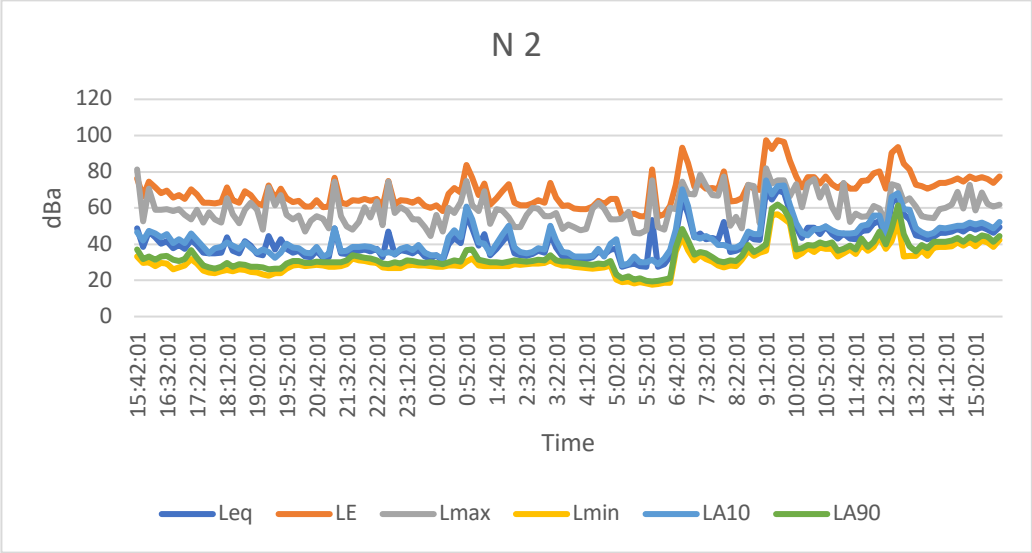
2 Source: SanPin RUz N 0325-16 “Sanitary standards for permissible noise levels at workplaces”

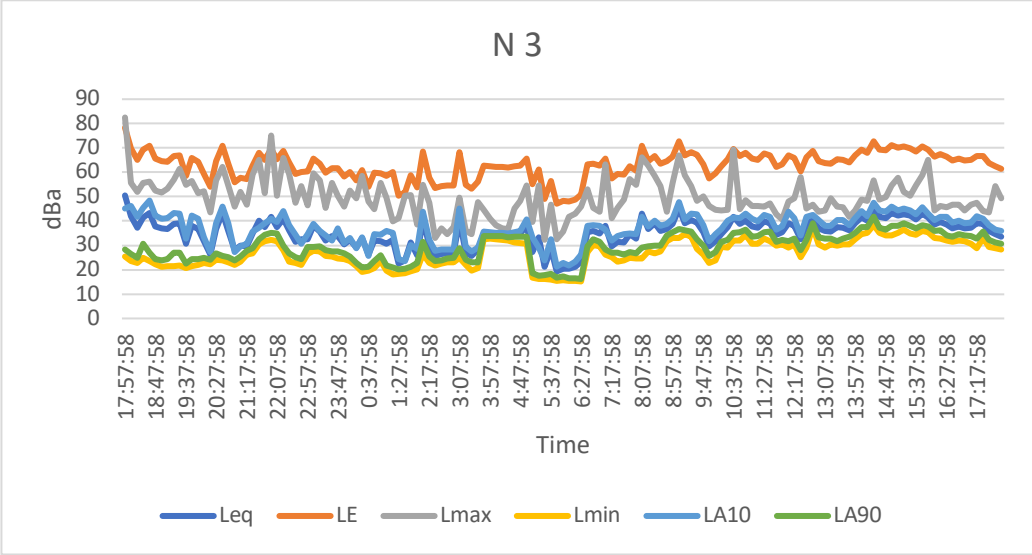
	them) at permanent workplaces in production premises and on the territory of enterprises.		

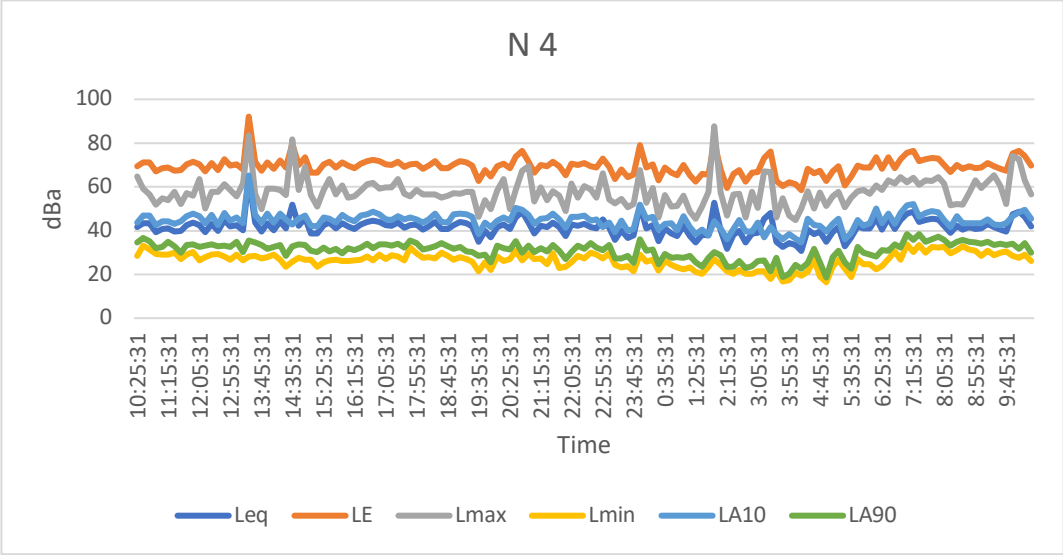
4.3. Summary graph results

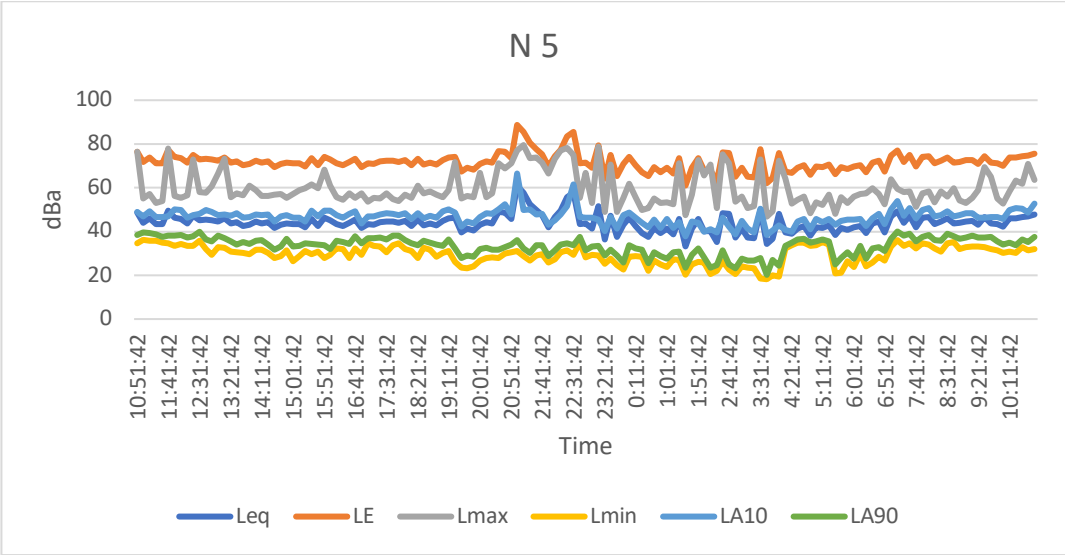
The Figure 2 provide a graphical representation of noise results over 24-hour period.

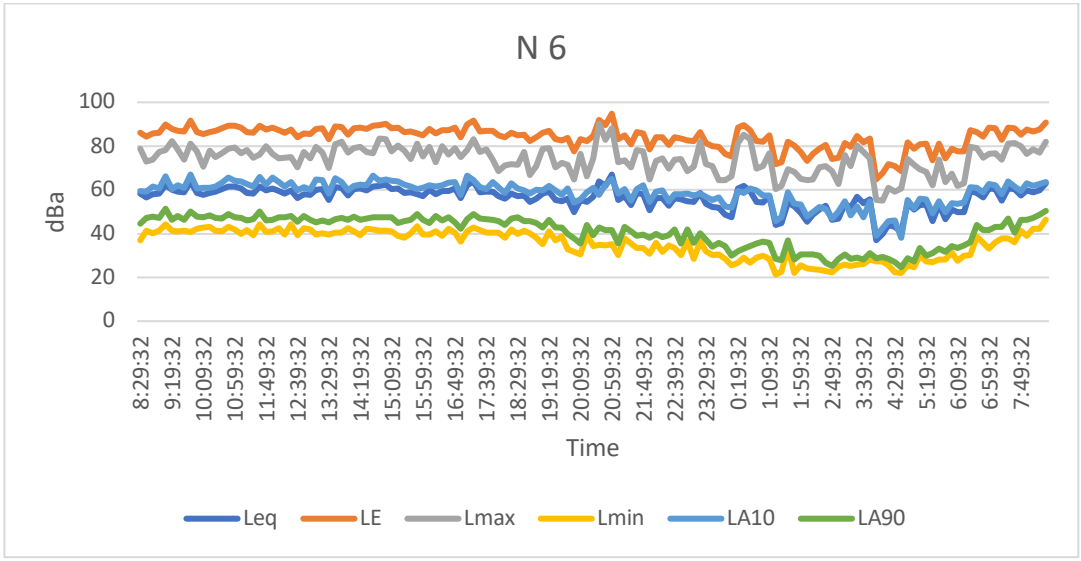


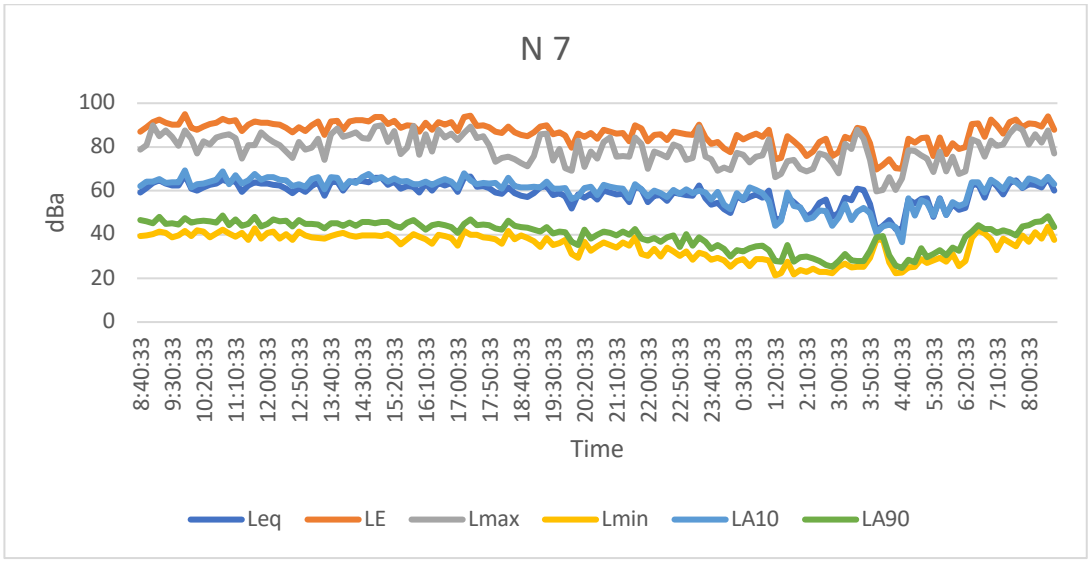

N 2
120
100
80
60
40
20
0
dBa
15:42:01
16:32:01
17:22:01
18:12:01
19:02:01
19:52:01
20:42:01
21:32:01
22:22:01
23:12:01
0:02:01
0:52:01
1:42:01
2:32:01
3:22:01
4:12:01
5:02:01
5:52:01
6:42:01
7:32:01
8:22:01
9:12:01
10:02:01
10:52:01
11:42:01
12:32:01
13:22:01
14:12:01
15:02:01
Time
Leq
LE
Lmax
Lmin
LA10
LA90

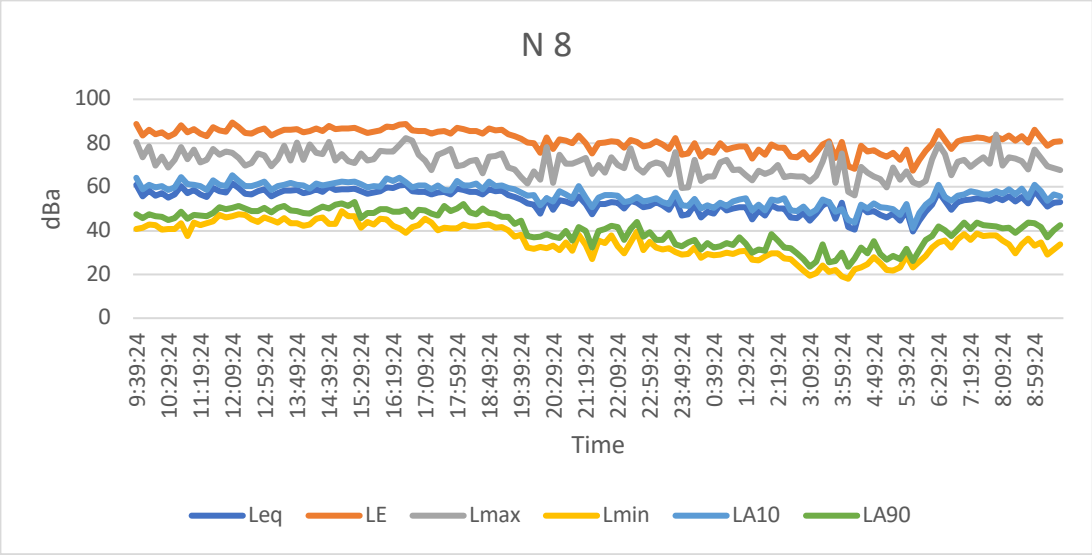

N 3
90
80
70
60
50
40
30
20
10
0
dBa
17:57:58
18:47:58
19:37:58
20:27:58
21:17:58
22:07:58
22:57:58
23:47:58
0:37:58
1:27:58
2:17:58
3:07:58
3:57:58
4:47:58
5:37:58
6:27:58
7:17:58
8:07:58
8:57:58
9:47:58
10:37:58
11:27:58
12:17:58
13:07:58
13:57:58
14:47:58
15:37:58
16:27:58
17:17:58
Time
Leq
LE
Lmax
Lmin
LA10
LA90

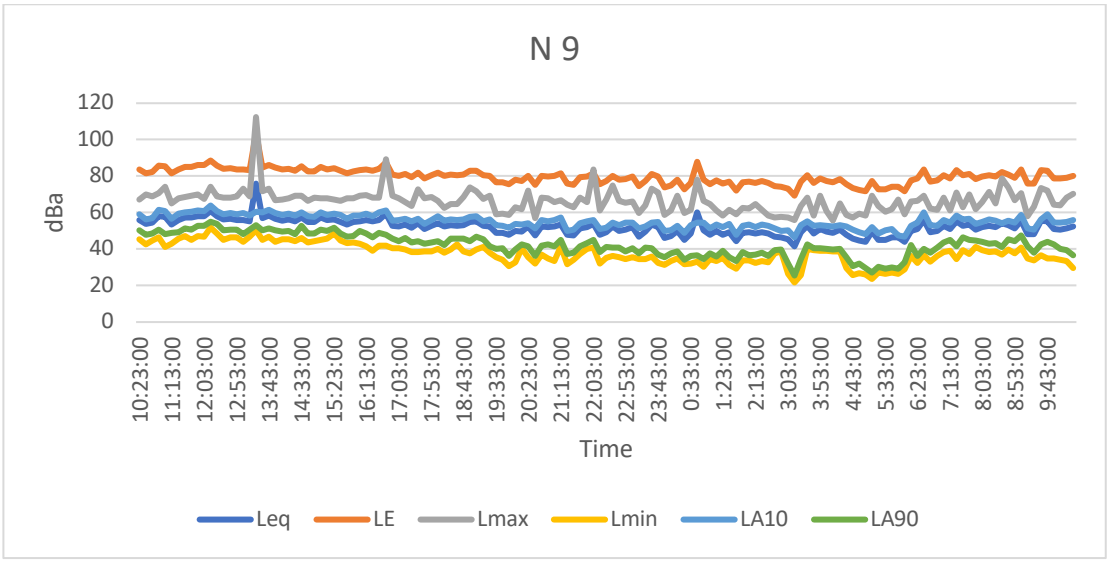

N 4
100
80
60
40
20
0
dBa
10:25:31
11:15:31
12:05:31
12:55:31
13:45:31
14:35:31
15:25:31
16:15:31
17:05:31
17:55:31
18:45:31
19:35:31
20:25:31
21:15:31
22:05:31
22:55:31
23:45:31
0:35:31
1:25:31
2:15:31
3:05:31
3:55:31
4:45:31
5:35:31
6:25:31
7:15:31
8:05:31
8:55:31
9:45:31
Time
Leq
LE
Lmax
Lmin
LA10
LA90

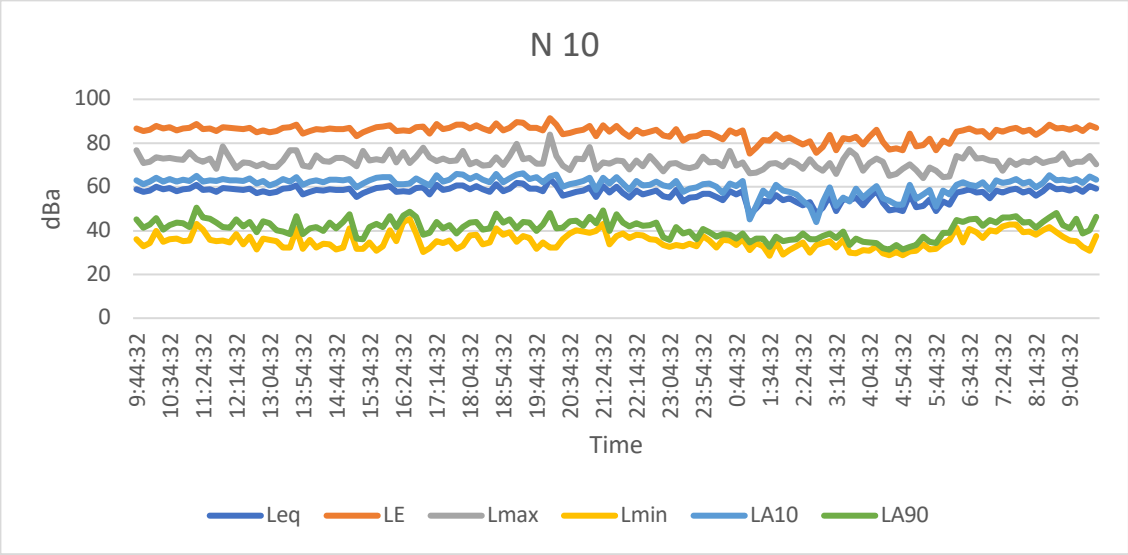

N 5
100
80
60
40
20
0
dBa
10:51:42
11:41:42
12:31:42
13:21:42
14:11:42
15:01:42
15:51:42
16:41:42
17:31:42
18:21:42
19:11:42
20:01:42
20:51:42
21:41:42
22:31:42
23:21:42
0:11:42
1:01:42
1:51:42
2:41:42
3:31:42
4:21:42
5:11:42
6:01:42
6:51:42
7:41:42
8:31:42
9:21:42
10:11:42
Time
Leq
LE
Lmax
Lmin
LA10
LA90

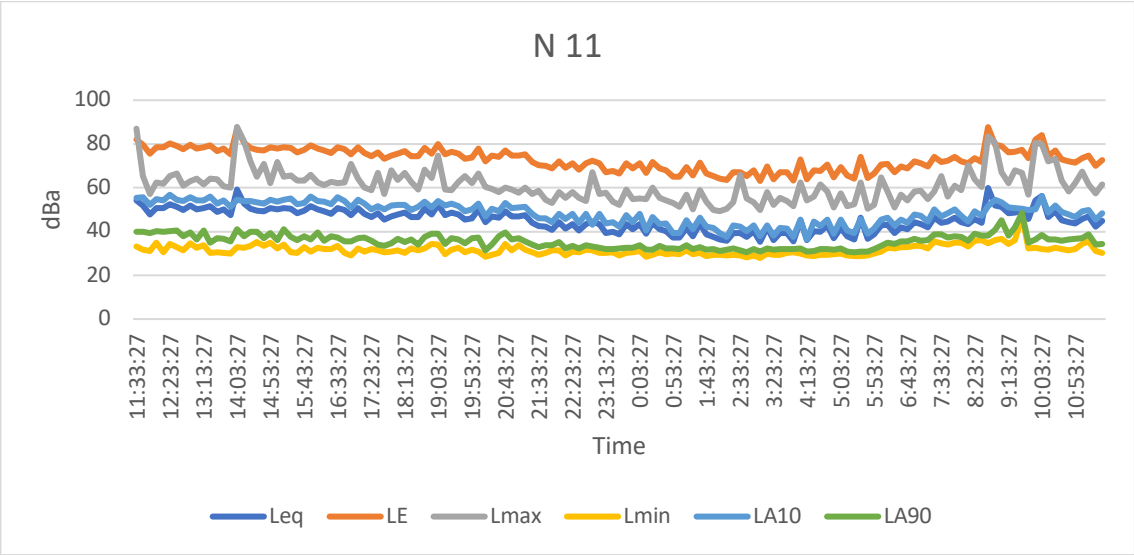

N 6
100
80
60
40
20
0
dBa
8:29:32
9:19:32
10:09:32
10:59:32
11:49:32
12:39:32
13:29:32
14:19:32
15:09:32
15:59:32
16:49:32
17:39:32
18:29:32
19:19:32
20:09:32
20:59:32
21:49:32
22:39:32
23:29:32
0:19:32
1:09:32
1:59:32
2:49:32
3:39:32
4:29:32
5:19:32
6:09:32
6:59:32
7:49:32
Time
Leq
LE
Lmax
Lmin
LA10
LA90


N 7
100
80
60
40
20
0
dBa
8:40:33
9:30:33
10:20:33
11:10:33
12:00:33
12:50:33
13:40:33
14:30:33
15:20:33
16:10:33
17:00:33
17:50:33
18:40:33
19:30:33
20:20:33
21:10:33
22:00:33
22:50:33
23:40:33
0:30:33
1:20:33
2:10:33
3:00:33
3:50:33
4:40:33
5:30:33
6:20:33
7:10:33
8:00:33
Time
Leq
LE
Lmax
Lmin
LA10
LA90


N 8
100
80
60
40
20
0
dBa
9:39:24
10:29:24
11:19:24
12:09:24
12:59:24
13:49:24
14:39:24
15:29:24
16:19:24
17:09:24
17:59:24
18:49:24
19:39:24
20:29:24
21:19:24
22:09:24
22:59:24
23:49:24
0:39:24
1:29:24
2:19:24
3:09:24
3:59:24
4:49:24
5:39:24
6:29:24
7:19:24
8:09:24
8:59:24
Time
Leq
LE
Lmax
Lmin
LA10
LA90


N 9
120
100
80
60
40
20
0
dBa
10:23:00
11:13:00
12:03:00
12:53:00
13:43:00
14:33:00
15:23:00
16:13:00
17:03:00
17:53:00
18:43:00
19:33:00
20:23:00
21:13:00
22:03:00
22:53:00
23:43:00
0:33:00
1:23:00
2:13:00
3:03:00
3:53:00
4:43:00
5:33:00
6:23:00
7:13:00
8:03:00
8:53:00
9:43:00
Time
Leq
LE
Lmax
Lmin
LA10
LA90


N 10
100
80
60
40
20
0
dBa
9:44:32
10:34:32
11:24:32
12:14:32
13:04:32
13:54:32
14:44:32
15:34:32
16:24:32
17:14:32
18:04:32
18:54:32
19:44:32
20:34:32
21:24:32
22:14:32
23:04:32
23:54:32
0:44:32
1:34:32
2:24:32
3:14:32
4:04:32
4:54:32
5:44:32
6:34:32
7:24:32
8:14:32
9:04:32
Time
Leq
LE
Lmax
Lmin
LA10
LA90


N 11
100
80
60
40
20
0
dBa
11:33:27
12:23:27
13:13:27
14:03:27
14:53:27
15:43:27
16:33:27
17:23:27
18:13:27
19:03:27
19:53:27
20:43:27
21:33:27
22:23:27
23:13:27
0:03:27
0:53:27
1:43:27
2:33:27
3:23:27
4:13:27
5:03:27
5:53:27
6:43:27
7:33:27
8:23:27
9:13:27
10:03:27
10:53:27
Time
Leq
LE
Lmax
Lmin
LA10
LA90

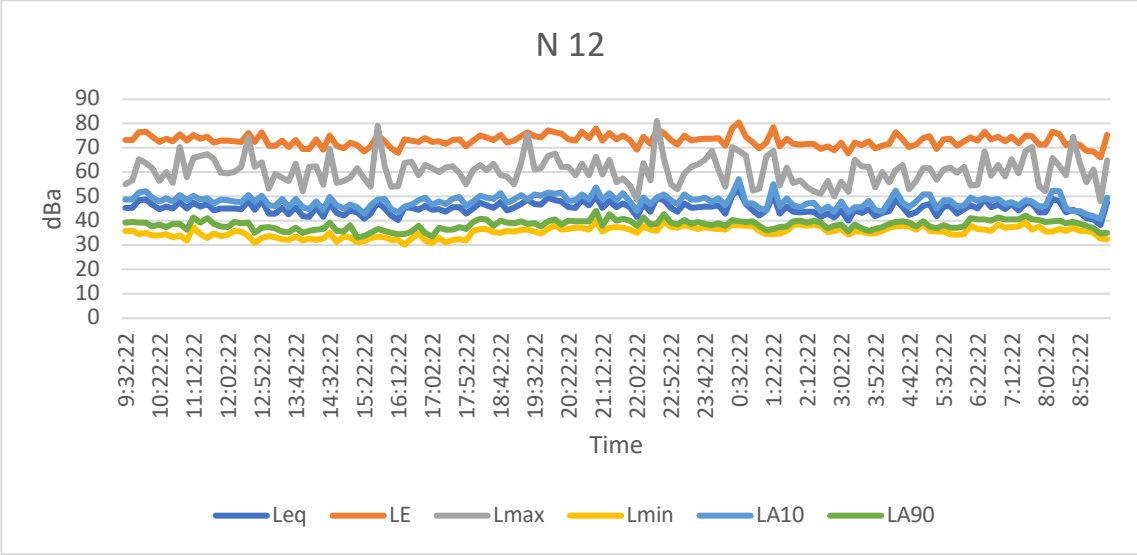


Figure 2: Variations of noise levels during daytime



Figure 3: Noise equipment at N 1



Figure 4: Noise equipment at N 2







Figure 5: Noise equipment at N 3






Figure 6: Noise equipment at N 4








Figure 7: Noise equipment at N 5









Figure 8 Noise equipment at N 6









Figure 9: Noise equipment at N 7








Figure 10: Noise equipment at N 8






Figure 11: Noise equipment at N 9







Figure 12: Noise equipment at N 10







Figure 13: Noise equipment at N 11







Figure 14: Noise equipment at N 12

5. Conclusion

5.1. Noise

The table provides a comprehensive summary of noise measurements conducted at twelve different locations over two different periods: daytime (07:00-23:00) and nighttime (23:00-07:00). The measurements are given in decibels (dB). The data was processed using modern statistical analysis methods prior to presentation.

The area can be divided into two parts – “northern” and “southern” - with different noise activities and population densities and a single point, associated with Plant site.

In the “northern” part (points N1 - N5), there are fewer residential houses, and there is no influence from asphalt roads. Therefore, during the day, equivalent noise levels (LAeq) within confidence intervals do not exceed 45.10 dB during daytime and 42.47 during nighttime, maximum levels do not exceed 61.90 dB, which complies with national regulations.

In the “southern” part (points N 6 - N 11), equivalent noise levels are higher: ranging from 48.69 to 61.84 dB during daytime and from 40.71 to 56.50 during nighttime, with a maximum of 82.39 dB, slightly exceeding strict national standards for areas adjacent to residential areas. However, for point N 11, the only one located in a residential area among N 6 - N 11, national standards are met.

For N 12, the Plant site, equivalent noise levels during daytime do not exceed 45.86 dB within confidence interval with maximum noise levels of 62.45. For the nighttime result stays the approximately the same – equivalent noise levels of 45.71 dB and 61.01 within the confidence interval, which suits states standards for settlements for the daytime and slightly exceeds standard values for night. Anyway, this territory is proposed to be used as factory one, and for this type of land use conditions are met with a huge reserve.

Overall, the data indicates fluctuations in noise levels across different locations and time periods, noise pollution differs significantly between day and night. This is due to the presence of a highway and residential buildings. These objects have peaks of noise activity associated with daytime. The noise pollution situation is quite favorable in this territory.

Annex 1 Certificates of equipment

ANV MEASUREMENT SYSTEMS

CERTIFICATE OF CALIBRATION

ilac-MRA UKAS CALIBRATION 0653

Date of Issue: 21 February 2023

Certificate Number: UCRT23/1245

Calibrated at & Certificate issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

Approved Signatory

K. Mistry

Customer	Juru Energy Ltd Suite 1 One George Yard London United Kingdom EC3V 9DF
Order No.	JE1
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Identification

Manufacturer	*Instrument*	*Type*	*Serial No. / Version*
Rion	Sound Level Meter	NL-52	00410151
Rion	Firmware		2.0
Rion	Pre Amplifier	NH-25	10591
Rion	Microphone	UC-59	19220
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1

Test Procedure TP 10. SLM 61672-3:2013

Procedures from IEC 61672-3:2013 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2013 Yes

If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2013

Date Received 20 February 2023 ANV Job No. UKAS23/02116

Date Calibrated 21 February 2023

The sound level meter submitted for testing has successfully completed the periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed. As evidence was publicly available, from an independent testing organisation responsible for approving the results of pattern-evaluation tests performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 specifications of IEC 61672-1:2013.

Previous Certificate	*Dated*	*Certificate No.*	*Laboratory*
	29 June 2021	UCRT21/1801	0653

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0653

Certificate Number
UCRT23/1245

Page 2 of 2 Pages

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	NL-52/NL-42 Description for IEC 61672-1		
SLM instruction manual ref / issue	No. 56034 21-03	Source	Rion
Date provided or internet download date	19 March 2021		

	Case Corrections	Wind Shield Corrections	Mic Pressure to Free Field Corrections
Uncertainties provided	Yes	Yes	Yes

Total expanded uncertainties within the requirements of IEC 61672-1:2013	YES		
Specified or equivalent Calibrator	Specified		
Customer or Lab Calibrator	Lab Calibrator		
Calibrator adaptor type if applicable	NC-74-002		
Calibrator cal. date	16 February 2023		
Calibrator cert. number	UCRT23/1227		
Calibrator cal cert issued by Lab	0653		
Calibrator SPL @ STP	94.04	dB	Calibration reference sound pressure level
Calibrator frequency	1001.97	Hz	Calibration check frequency
Reference level range	Single	dB	

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
Note - The Extension Cable was used between the SLM and the pre-amp for this calibration.

Environmental conditions during tests	Start	End	
Temperature	23.64	22.59	± 0.30 °C
Humidity	39.9	40.0	± 3.00 %RH
Ambient Pressure	100.84	100.84	± 0.03 kPa

Indication at the Calibration Check Frequency					
Initial indicated level	94.0	dB	Adjusted indicated level	94.0	dB
Uncertainty of calibrator used for Indication at the Calibration Check Frequency ±				0.10	dB

Self Generated Noise				
Microphone installed -	Less Than	16.9	dB	A Weighting
Microphone replaced with electrical input device -				UR = Under Range indicated

Weighting	A			C			Z		
	11.9	dB	UR	15.8	dB	UR	21.4	dB	UR

Self Generated Noise reported for information only and not used to assess conformance to a requirement

ANV MEASUREMENT SYSTEMS

CERTIFICATE OF CALIBRATION

ilac-MRA UKAS CALIBRATION 0653

Date of Issue: 18 December 2023

Certificate Number: UCRT23/2583

Calibrated at & Certificate issued by:
ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes MK5 8HL
Telephone 01908 642846 Fax 01908 642814
E-Mail: info@noise-and-vibration.co.uk
Web: www.noise-and-vibration.co.uk
Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Approved Signatory

K. Mistry

Customer	Juru Energy Limited Suite 1 One George Yard London EC3V 9DF			
Order No.	1			
Test Procedure	Procedure TP 14 Calibration of Sound Calibrators (60942:2017)			
Description	Acoustic Calibrator			
Identification	*Manufacturer*	*Instrument*	*Model*	*Serial No.*
	Rion	Calibrator	NC-75	34313059
Public evidence of Type Approval		Yes	Approved by PTB	

The calibrator has been tested as specified in Annex B of IEC 60942:2017. As public evidence was available, from a testing organisation responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2017, the sound calibrator tested is considered to conform to all the class 1 requirements of IEC 60942:2017.

ANV Job No.	UKAS23/12845	
Date Received	14 December 2023	
Date Calibrated	18 December 2023	
Previous Certificate	*Dated*	13 October 2022
	Certificate No.	UCRT22/2228
	Laboratory	0653

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATE OF CALIBRATION	Certificate Number UCRT23/2583
UKAS Accredited Calibration Laboratory No. 0653	Page 2 of 2 Pages

Measurements

The sound pressure level generated by the calibrator (averaged over a 20 to 25 second period) in its WS2 configuration was measured five times (rotating the calibrator on the microphone each time) by the Insert Voltage Method using a microphone as detailed below. The mean of the results obtained is shown below.

The frequency of the sound from the calibrator was measured five times over a 20 to 25 second period and the average frequency calculated.

The total distortion + noise of the sound from the calibrator was measured, using a rejection filter distortion factor meter, five times over a 20 to 25 second period and the average distortion + noise calculated.

Test Microphone — *Manufacturer*: Brüel & Kjær — *Type*: 4134

Nominal Setting dB / Hz	Mean Level dB rel 20 µPa	Frequency	Distortion + Noise
94 / 1000	94.03 ± 0.10	999.99 ± 0.12Hz	(0.12 ± 0.02) %

Environmental conditions during tests	Start	End		
Temperature	23.55	22.43	± 0.30	°C
Humidity	37.0	40.0	± 3.0	%RH
Ambient Pressure	101.737	101.742	± 0.030	kPa

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

The uncertainties refer to the measured values only with no account being taken of the ability of the instrument to maintain its calibration.

A small correction factor may need to be applied to the sound pressure level quoted above if the device is used to calibrate a sound level meter which is fitted with a free-field response microphone. See manufacturers handbook for details.

Note: Calibrator adjusted prior to calibration? NO

Additional Comments: The results on this certificate only relate to the items calibrated as identified above.
None

Calibrated by: K. Zablocki R 1

END

Annex 2 Table of statistical parameters

	Sample size	Normality3	p-value 0.05	Mean	SD4	CI5 left	CI right
N 1							
LAeq day	97	No	7.56E-06	29.41	1.563	26.20	32.50
Laeq night	48	No	0.017	24.12	0.749	23.25	25.95
LAmax day	97	Yes	0.787	46.27	10.127	44.23	48.31
LAmax night	48	No	0.002	35.07	1.024	33.30	37.60
N 2							
LAeq day	97	No	4.36E-06	43.27	0.704	42.50	45.00
Laeq night	48	No	0.017	35.06	0.930	33.60	37.00
LAmax day	97	No	0.014	59.75	0.839	58.30	61.90
LAmax night	48	No	0.020	55.83	1.422	53.65	58.30
N 3							
LAeq day	97	Yes	0.086	37.55	4.104	36.72	38.37
Laeq night	48	Yes	0.076	30.27	5.462	28.68	31.85
LAmax day	97	No	1.05E-05	50.24	1.275	48.20	52.60
LAmax night	48	Yes	0.429	45.10	7.489	42.92	47.27

3 For normally distributed samples, the mean, standard deviation, and confidence intervals were calculated using basic arithmetic calculations and Student's statistics. For non-normally distributed samples, the bootstrap method was used

4 Standard deviation

5 Confidence interval

N 4							
LAeq day	97	No	0.008	42.24	0.255	41.70	42.80
Laeq night	48	Yes	0.619	39.36	4.653	38.01	40.71
LAmax day	97	Yes	0.073	58.86	6.034	57.64	60.07
LAmax night	48	Yes	0.076	55.43	7.503	53.25	57.61
N 5							
LAeq day	97	No	7.33E-05	44.51	0.305	43.90	45.10
Laeq night	48	Yes	0.247	41.30	4.046	40.12	42.47
LAmax day	97	No	1.30E-09	57.91	0.550	57.10	59.00
LAmax night	48	No	4.85E-05	54.89	1.090	52.95	56.80
N 6							
LAeq day	97	Yes	0.609	58.58	2.777	58.02	59.14
Laeq night	48	Yes	0.193	51.44	5.707	49.78	53.10
LAmax day	97	Yes	0.763	76.26	4.541	75.35	77.18
LAmax night	48	Yes	0.278	69.55	7.335	67.42	71.68
N 7							
LAeq day	97	Yes	0.433	61.25	2.919	60.66	61.84
Laeq night	48	No	0.028	54.90	0.984	52.20	56.50
LAmax day	97	Yes	0.168	81.35	5.187	80.30	82.39

LAmax night	48	No	4.97E-02	74.31	1.144	70.50	75.90
N 8							
LAeq day	97	No	0.049	56.70	0.431	55.80	57.50
Laeq night	48	Yes	0.670	48.78	3.608	47.74	49.83
LAmax day	97	Yes	0.853	72.69	4.361	71.81	73.57
LAmax night	48	Yes	0.193	66.77	5.298	65.23	68.31
N 9							
LAeq day	97	Yes	0.062	53.86	3.703	53.11	54.61
Laeq night	48	Yes	0.171	48.52	3.239	47.58	49.46
LAmax day	97	No	6.73E-08	67.98	0.229	67.50	68.30
LAmax night	48	Yes	0.171	62.78	4.790	61.39	64.17
N 10							
LAeq day	97	Yes	0.531	58.62	1.526	58.31	58.93
Laeq night	48	Yes	0.520	53.91	3.144	53.00	54.83
LAmax day	97	No	0.029	71.91	0.186	71.60	72.40
LAmax night	48	Yes	0.861	70.05	3.184	69.13	70.98
N 11							
LAeq day	97	Yes	0.939	47.96	3.625	47.23	48.69
Laeq night	48	Yes	0.960	39.88	2.839	39.06	40.71

LAmax day	97	No	0.004	62.58	0.567	61.40	63.90
LAmax night	48	Yes	0.770	55.19	4.018	54.02	56.36
N 12							
LAeq day	97	Yes	0.157	45.39	2.322	44.92	45.86
Laeq night	48	Yes	0.247	44.98	2.511	44.25	45.71
LAmax day	97	Yes	0.531	61.26	5.879	60.08	62.45
LAmax night	48	Yes	0.057	59.43	5.461	57.84	61.01

Annex 3 Noise and wind raw data

Data for N 1 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/24/2024	14:06:43	41.4	69.2	76.8	19.1	36.8	22.6
3/24/2024	14:16:43	24.1	51.9	38.8	18.3	27	20.1
3/24/2024	14:26:43	26.2	54	41.6	18.9	28.4	22
3/24/2024	14:36:43	25.5	53.3	42.1	18.7	28.7	20.9
3/24/2024	14:46:43	27.5	55.3	44	18.5	31.3	20
3/24/2024	14:56:43	28.3	56.1	51.8	18.7	30.5	20.5
3/24/2024	15:06:43	23.4	51.2	43.3	18	26.2	19.8
3/24/2024	15:16:43	20.4	48.2	30.1	17.7	21.6	18.9
3/24/2024	15:26:43	34.2	62	47.8	18.2	37.7	19.2
3/24/2024	15:36:43	25.5	53.3	39.2	17.8	29.2	19
3/24/2024	15:46:43	23.7	51.5	37.6	17.8	26.5	19.5
3/24/2024	15:56:43	20.7	48.5	38.1	17.5	22.2	18.6
3/24/2024	16:06:43	22.6	50.4	33	18.3	25.3	19.4
3/24/2024	16:16:43	34.4	62.2	46.4	18.9	39.5	20.8
3/24/2024	16:26:43	25.3	53.1	38.8	18.4	28.4	20.2
3/24/2024	16:36:43	22.1	49.9	36.2	16.8	24.7	18.3
3/24/2024	16:46:43	24.3	52.1	41.1	17.9	26.8	19.7
3/24/2024	16:56:43	26.1	53.9	36.7	17.9	29.8	19.5
3/24/2024	17:06:43	34.5	62.3	45.2	18.5	39.5	20.5
3/24/2024	17:16:43	23.2	51	38.5	16.9	26	18.7
3/24/2024	17:26:43	28.6	56.4	49.6	17.1	27.9	19.4
3/24/2024	17:36:43	28.4	56.2	57.9	17	22.5	18.3
3/24/2024	17:46:43	20.2	48	43.3	16.6	20.2	17.6
3/24/2024	17:56:43	19.6	47.4	35	16.8	20.1	17.7
3/24/2024	18:06:43	34.5	62.3	55	16.8	23.2	18.2
3/24/2024	18:16:43	28.4	56.2	40.5	17	33.5	18.3
3/24/2024	18:26:43	20.9	48.7	41.5	16.6	20.7	17.4
3/24/2024	18:36:43	21	48.8	39.2	16.1	22.3	17.2
3/24/2024	18:46:43	28.9	56.7	48.6	16.3	28.6	17.1
3/24/2024	18:56:43	19.9	47.7	39.8	16.1	20.3	17.2
3/24/2024	19:06:43	26.5	54.3	44.1	16.2	31.5	17.6
3/24/2024	19:16:43	25.7	53.5	50.7	16.4	28	18
3/24/2024	19:26:43	21.4	49.2	39.4	16.6	23.7	17.6
3/24/2024	19:36:43	23	50.8	37.8	17.2	25	19.6
3/24/2024	19:46:43	20.5	48.3	29.3	17.1	22.4	18.4
3/24/2024	19:56:43	21.7	49.5	28.3	15.8	24.4	17.6
3/24/2024	20:06:43	21.1	48.9	30.8	16.7	23.2	18.2
3/24/2024	20:16:43	23	50.8	37.9	17.6	24.9	19.4
3/24/2024	20:26:43	25	52.8	47.6	16.3	27.6	18
3/24/2024	20:36:43	41.6	69.4	53.6	17.6	46	22.8

3/24/2024	20:46:43	28.4	56.2	41.6	18	33.4	19.3
3/24/2024	20:56:43	22.1	49.9	29.1	17.5	24.9	19
3/24/2024	21:06:43	23	50.8	42.8	17.6	25	19.6
3/24/2024	21:16:43	24.6	52.4	35.5	17.5	27.4	20.6
3/24/2024	21:26:43	22.7	50.5	35.3	17.2	24.7	19.1
3/24/2024	21:36:43	23.2	51	35.8	18.1	25.8	19.5
3/24/2024	21:46:43	19.9	47.7	31.5	16.5	21.8	17.7
3/24/2024	21:56:43	22.1	49.9	31.4	16.6	24.5	18.3
3/24/2024	22:06:43	22.4	50.2	29.8	17.3	24.8	19.5
3/24/2024	22:16:43	23.1	50.9	38.4	17.5	25.5	20
3/24/2024	22:26:43	22	49.8	33.5	18.1	23.4	19.8
3/24/2024	22:36:43	19.6	47.4	35.2	16	21.1	17.7
3/24/2024	22:46:43	20.6	48.4	33.9	16.5	22.5	18
3/24/2024	22:56:43	26.1	53.9	46.8	17.3	27.8	19.9
3/24/2024	23:06:43	45.9	73.7	59	19.3	48.7	22.7
3/24/2024	23:16:43	27.1	54.9	39.7	18.9	30.7	21.6
3/24/2024	23:26:43	24.2	52	38.6	17.3	26.2	19.4
3/24/2024	23:36:43	25.7	53.5	35.4	18.2	28.6	20.5
3/24/2024	23:46:43	26.5	54.3	35.5	21.3	28.5	23.9
3/24/2024	23:56:43	26.2	54	50.3	17.8	29.5	20.7
3/25/2024	0:06:43	23	50.8	33.7	16.8	25.7	19
3/25/2024	0:16:43	23.4	51.2	33.5	17.1	25.7	20.3
3/25/2024	0:26:43	23.3	51.1	34.9	17.2	25.7	19.6
3/25/2024	0:36:43	22.4	50.2	37.6	17.1	24.5	19.3
3/25/2024	0:46:43	27.5	55.3	43.6	16.5	31.2	18.8
3/25/2024	0:56:43	19.8	47.6	30.1	15.6	21.9	17.1
3/25/2024	1:06:43	19.8	47.6	27.8	16	21.9	17.1
3/25/2024	1:16:43	22.3	50.1	31.7	17.3	24.1	19.6
3/25/2024	1:26:43	21.7	49.5	35.2	16.8	23.4	18.4
3/25/2024	1:36:43	22.2	50	35	17	24.3	19.3
3/25/2024	1:46:43	24.1	51.9	32.1	17.9	27.1	20.2
3/25/2024	1:56:43	24.1	51.9	41.9	17.8	25.4	20.6
3/25/2024	2:06:43	20.7	48.5	31.1	15.9	22.8	17.9
3/25/2024	2:16:43	20.3	48.1	31.4	16.1	22.1	17.7
3/25/2024	2:26:43	20.5	48.3	28.5	16.2	22.2	18.4
3/25/2024	2:36:43	20.6	48.4	31.8	15.8	22.8	17
3/25/2024	2:46:43	23.2	51	31.9	17.1	25.6	19.8
3/25/2024	2:56:43	23.3	51.1	30.4	18.2	25.4	20.3
3/25/2024	3:06:43	23.5	51.3	31.9	17.7	26	20
3/25/2024	3:16:43	24.9	52.7	34.4	17.2	28	19.9
3/25/2024	3:26:43	23.8	51.6	34	18.5	26	20.6
3/25/2024	3:36:43	24	51.8	31.8	16.8	27.4	19.1
3/25/2024	3:46:43	20.2	48	31.5	15.4	22.2	17.3
3/25/2024	3:56:43	17.6	45.4	29.8	15	18.8	16.1
3/25/2024	4:06:43	27.2	55	48.7	14.7	20.8	15.5
3/25/2024	4:16:43	16.2	44	22.4	14.6	16.9	15.4

3/25/2024	4:26:43	23.3	51.1	37.3	15.4	26.4	17
3/25/2024	4:36:43	20.3	48.1	31.6	15.2	22.4	16.7
3/25/2024	4:46:43	22.7	50.5	32	16.2	25.4	18.5
3/25/2024	4:56:43	26.6	54.4	38.7	17.6	28.8	20.2
3/25/2024	5:06:43	50.2	78	63.4	18.8	56.1	21.9
3/25/2024	5:16:43	29.2	57	40.8	18.5	32.9	22.6
3/25/2024	5:26:43	26.9	54.7	34.7	18.8	30.1	21.6
3/25/2024	5:36:43	25.9	53.7	39.1	18.6	28.9	20.6
3/25/2024	5:46:43	25.7	53.5	34.6	18.6	28.7	21.1
3/25/2024	5:56:43	31.3	59.1	46.9	21.7	34.4	25.7
3/25/2024	6:06:43	28.1	55.9	36.5	21.6	30.8	23.7
3/25/2024	6:16:43	30.6	58.4	43.9	22.6	33.1	26.1
3/25/2024	6:26:43	28.8	56.6	45.1	22.1	30.8	25.1
3/25/2024	6:36:43	28.3	56.1	44.1	22	30.3	25
3/25/2024	6:46:43	33.5	61.3	53.4	23.7	35.8	26.9
3/25/2024	6:56:43	37.2	65	61.4	20.6	38	25.5
3/25/2024	7:06:43	38.3	66.1	55.7	20.8	41.9	24.8
3/25/2024	7:16:43	33.9	61.7	50.5	18.5	36.8	22.1
3/25/2024	7:26:43	39.8	67.6	55.2	18.3	44.5	22.6
3/25/2024	7:36:43	33.2	61	51.1	21.6	35.6	24.8
3/25/2024	7:46:43	28.8	56.6	46.9	18.8	30.6	22.9
3/25/2024	7:56:43	34.4	62.2	49.4	20.3	38.2	23
3/25/2024	8:06:43	34.2	62	51.6	22.8	36.8	26.3
3/25/2024	8:16:43	48.8	76.6	62.4	23.8	52.9	29
3/25/2024	8:26:43	37.5	65.3	70	23.3	39	26.3
3/25/2024	8:36:43	31.1	58.9	50.1	22.2	34.3	24.8
3/25/2024	8:46:43	32.2	60	59.5	20.9	30.6	23.2
3/25/2024	8:56:43	28.8	56.6	45.5	23.4	30.2	25.9
3/25/2024	9:06:43	30.7	58.5	49.9	22.9	33.4	26.2
3/25/2024	9:16:43	33	60.8	48.4	24.4	36.2	26.8
3/25/2024	9:26:43	30.7	58.5	47.6	26.3	32.5	28.2
3/25/2024	9:36:43	31.1	58.9	41.2	25.6	33.1	28.5
3/25/2024	9:46:43	30.7	58.5	42	24.8	32.8	26.8
3/25/2024	9:56:43	33.6	61.4	50.6	26	36.5	28.1
3/25/2024	10:06:43	35.6	63.4	58.8	27.5	36.4	30
3/25/2024	10:16:43	33.3	61.1	41.8	27.6	36	30.1
3/25/2024	10:26:43	34.5	62.3	48.4	28.9	36.8	30.8
3/25/2024	10:36:43	37.1	64.9	63.4	28.4	36	30.8
3/25/2024	10:46:43	34.5	62.3	51.3	27.9	36.8	31.1
3/25/2024	10:56:43	38.7	66.5	61.7	27.1	37.5	29.9
3/25/2024	11:06:43	33.8	61.6	42.2	27.5	36.3	30.2
3/25/2024	11:16:43	32.5	60.3	54.4	26.6	33.6	28.7
3/25/2024	11:26:43	32	59.8	49.2	26.6	33.9	28.7
3/25/2024	11:36:43	31.5	59.3	46.7	25.3	34.5	27.4
3/25/2024	11:46:43	35.2	63	63.3	24.8	34.9	28
3/25/2024	11:56:43	33	60.8	50.5	25.9	35.4	28.3

3/25/2024	12:06:43	42.2	70	60.9	27.3	45.3	31.1
3/25/2024	12:16:43	40.3	68.1	60.3	26.3	38.8	29.9
3/25/2024	12:26:43	35.3	63.1	53.6	26.1	38.1	30.7
3/25/2024	12:36:43	37.7	65.5	57.1	29.4	39.5	32.9
3/25/2024	12:46:43	36.2	64	55.4	28.9	38	32.1
3/25/2024	12:56:43	36.8	64.6	50.2	28.5	39.9	31.8
3/25/2024	13:06:43	45.5	73.3	57.3	26.3	51.6	30.2
3/25/2024	13:16:43	35.3	63.1	44.2	27.6	37.8	31.6
3/25/2024	13:26:43	39.4	67.2	59.2	27.2	37.2	29.8
3/25/2024	13:36:43	36.4	64.2	48.4	27.8	39.3	31.2
3/25/2024	13:46:43	37	64.8	54.5	26.4	39.3	29.6
3/25/2024	13:56:43	38.5	66.3	59.6	26.1	39.2	28.9
3/25/2024	14:06:43	47.1	73.5	70.4	28.8	50.2	32.3

Data for N 1 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
24/03/2024	14:06:00	1.8	2.9	24	46
24/03/2024	14:07:00	1.5	2.7	24	32
24/03/2024	14:08:00	2.6	3.7	24	24
24/03/2024	14:09:00	1.7	2.8	24	9
24/03/2024	14:10:00	1.3	2.3	24	42
24/03/2024	14:11:00	1.4	3.2	24	24
24/03/2024	14:12:00	2.2	3.6	24	6
24/03/2024	14:13:00	2.0	3.6	23	23
24/03/2024	14:14:00	2.1	2.9	23	10
24/03/2024	14:15:00	1.5	2.4	23	11
24/03/2024	14:16:00	1.4	2.0	23	3
24/03/2024	14:17:00	2.3	3.6	23	4
24/03/2024	14:18:00	1.7	2.4	23	13
24/03/2024	14:19:00	1.5	2.2	23	32
24/03/2024	14:20:00	2.1	3.5	23	63
24/03/2024	14:21:00	2.3	3.4	23	68
24/03/2024	14:22:00	1.8	2.5	23	50
24/03/2024	14:23:00	1.5	2.2	23	34
24/03/2024	14:24:00	1.4	2.1	23	52
24/03/2024	14:25:00	1.5	2.6	23	22
24/03/2024	14:26:00	1.3	2.0	23	7
24/03/2024	14:27:00	1.5	2.4	23	21
24/03/2024	14:28:00	2.1	3.2	23	12
24/03/2024	14:29:00	1.9	3.5	23	36
24/03/2024	14:30:00	2.4	4.8	23	34
24/03/2024	14:31:00	2.2	3.2	23	12
24/03/2024	14:32:00	1.7	2.9	23	4
24/03/2024	14:33:00	1.7	3.1	24	25

24/03/2024	14:34:00	2.9	4.2	24	7
24/03/2024	14:35:00	1.9	2.8	24	6
24/03/2024	14:36:00	2.1	3.3	24	14
24/03/2024	14:37:00	2.2	3.3	24	4
24/03/2024	14:38:00	1.5	3.3	24	4
24/03/2024	14:39:00	2.0	3.6	24	15
24/03/2024	14:40:00	1.5	1.8	24	9
24/03/2024	14:41:00	1.8	2.7	24	35
24/03/2024	14:42:00	2.1	3.4	24	44
24/03/2024	14:43:00	1.4	2.2	24	34
24/03/2024	14:44:00	1.5	2.8	24	10
24/03/2024	14:45:00	2.3	3.7	24	45
24/03/2024	14:46:00	2.4	4.0	24	50
24/03/2024	14:47:00	2.4	3.9	24	58
24/03/2024	14:48:00	2.6	3.6	24	74
24/03/2024	14:49:00	2.2	3.1	24	64
24/03/2024	14:50:00	2.2	3.1	24	72
24/03/2024	14:51:00	1.6	2.4	24	54
24/03/2024	14:52:00	1.5	1.9	24	70
24/03/2024	14:53:00	1.9	3.2	24	58
24/03/2024	14:54:00	1.4	2.2	24	38
24/03/2024	14:55:00	1.6	3.3	24	37
24/03/2024	14:56:00	1.8	2.8	24	2
24/03/2024	14:57:00	2.2	2.9	24	23
24/03/2024	14:58:00	2.7	3.9	24	76
24/03/2024	14:59:00	1.7	2.7	24	48
24/03/2024	15:00:00	2.2	3.1	24	69
24/03/2024	15:01:00	1.6	2.4	24	59
24/03/2024	15:02:00	1.7	2.7	24	46
24/03/2024	15:03:00	2.4	3.6	24	56
24/03/2024	15:04:00	2.3	3.5	24	33
24/03/2024	15:05:00	2.1	3.0	24	41
24/03/2024	15:06:00	2.3	3.6	24	63
24/03/2024	15:07:00	2.0	2.7	24	67
24/03/2024	15:08:00	2.0	2.7	24	72
24/03/2024	15:09:00	1.5	3.0	25	66
24/03/2024	15:10:00	2.4	3.6	25	95
24/03/2024	15:11:00	1.9	3.0	25	75
24/03/2024	15:12:00	2.2	5.0	25	84
24/03/2024	15:13:00	2.6	4.7	25	81
24/03/2024	15:14:00	1.5	2.3	25	55
24/03/2024	15:15:00	1.9	2.6	25	69
24/03/2024	15:16:00	1.5	2.8	25	46
24/03/2024	15:17:00	1.7	2.5	25	67
24/03/2024	15:18:00	1.7	2.6	25	63
24/03/2024	15:19:00	1.8	2.6	25	88

24/03/2024	15:20:00	1.6	2.5	25	72
24/03/2024	15:21:00	1.7	2.5	25	67
24/03/2024	15:22:00	2.0	2.6	25	82
24/03/2024	15:23:00	1.8	2.4	25	78
24/03/2024	15:24:00	1.6	2.1	25	66
24/03/2024	15:25:00	2.1	2.9	25	74
24/03/2024	15:26:00	2.5	4.2	25	76
24/03/2024	15:27:00	1.8	3.0	25	74
24/03/2024	15:28:00	1.7	2.3	25	115
24/03/2024	15:29:00	1.8	2.6	25	108
24/03/2024	15:30:00	2.2	3.4	25	80
24/03/2024	15:31:00	2.2	2.9	25	105
24/03/2024	15:32:00	1.8	2.8	25	116
24/03/2024	15:33:00	1.7	2.7	25	118
24/03/2024	15:34:00	1.9	2.8	25	76
24/03/2024	15:35:00	1.5	2.4	25	44
24/03/2024	15:36:00	1.7	2.4	26	61
24/03/2024	15:37:00	1.6	3.8	26	32
24/03/2024	15:38:00	2.9	4.5	26	98
24/03/2024	15:39:00	2.8	4.3	26	115
24/03/2024	15:40:00	2.8	4.2	26	116
24/03/2024	15:41:00	2.0	2.9	26	111
24/03/2024	15:42:00	2.0	2.7	26	101
24/03/2024	15:43:00	1.8	2.6	26	68
24/03/2024	15:44:00	2.0	3.9	26	84
24/03/2024	15:45:00	2.0	3.9	26	107
24/03/2024	15:46:00	1.8	2.8	26	55
24/03/2024	15:47:00	1.7	3.3	26	64
24/03/2024	15:48:00	2.3	3.7	26	7
24/03/2024	15:49:00	2.6	4.0	25	67
24/03/2024	15:50:00	2.5	3.5	25	93
24/03/2024	15:51:00	2.6	3.8	25	93
24/03/2024	15:52:00	2.3	3.5	25	79
24/03/2024	15:53:00	1.7	2.3	25	108
24/03/2024	15:54:00	2.4	3.2	25	109
24/03/2024	15:55:00	2.0	3.1	25	96
24/03/2024	15:56:00	2.0	3.0	25	87
24/03/2024	15:57:00	2.7	3.7	25	118
24/03/2024	15:58:00	2.2	2.8	25	98
24/03/2024	15:59:00	2.1	2.9	25	91
24/03/2024	16:00:00	2.3	3.6	25	77
24/03/2024	16:01:00	1.7	2.3	25	64
24/03/2024	16:02:00	1.8	3.0	25	63
24/03/2024	16:03:00	1.0	1.8	25	16
24/03/2024	16:04:00	1.1	1.8	25	40
24/03/2024	16:05:00	1.7	3.0	24	88

24/03/2024	16:06:00	2.0	2.9	24	105
24/03/2024	16:07:00	2.0	2.6	24	116
24/03/2024	16:08:00	2.4	3.1	24	130
24/03/2024	16:09:00	2.8	4.4	24	126
24/03/2024	16:10:00	3.0	4.0	24	123
24/03/2024	16:11:00	2.5	4.1	24	118
24/03/2024	16:12:00	3.2	4.8	24	126
24/03/2024	16:13:00	3.1	4.2	24	124
24/03/2024	16:14:00	2.4	3.2	24	114
24/03/2024	16:15:00	1.8	2.4	24	82
24/03/2024	16:16:00	2.3	3.1	24	91
24/03/2024	16:17:00	2.3	3.4	24	77
24/03/2024	16:18:00	1.9	2.9	24	74
24/03/2024	16:19:00	2.2	2.9	24	80
24/03/2024	16:20:00	2.1	2.6	24	94
24/03/2024	16:21:00	2.1	2.6	24	85
24/03/2024	16:22:00	2.0	2.9	24	67
24/03/2024	16:23:00	2.0	3.6	24	79
24/03/2024	16:24:00	1.9	2.5	24	89
24/03/2024	16:25:00	2.0	3.7	24	98
24/03/2024	16:26:00	2.6	3.5	24	95
24/03/2024	16:27:00	3.1	4.2	24	101
24/03/2024	16:28:00	3.4	4.7	24	108
24/03/2024	16:29:00	2.9	4.2	24	96
24/03/2024	16:30:00	2.9	3.8	24	96
24/03/2024	16:31:00	2.2	3.2	24	83
24/03/2024	16:32:00	2.0	3.0	24	80
24/03/2024	16:33:00	2.4	3.6	25	91
24/03/2024	16:34:00	2.5	3.9	25	105
24/03/2024	16:35:00	2.3	3.2	25	101
24/03/2024	16:36:00	2.2	3.1	25	84
24/03/2024	16:37:00	1.9	2.7	25	112
24/03/2024	16:38:00	1.9	2.7	25	104
24/03/2024	16:39:00	1.9	2.7	25	84
24/03/2024	16:40:00	2.3	3.9	25	99
24/03/2024	16:41:00	2.7	3.6	25	101
24/03/2024	16:42:00	2.6	3.5	25	84
24/03/2024	16:43:00	2.5	3.5	25	89
24/03/2024	16:44:00	2.7	3.8	25	91
24/03/2024	16:45:00	2.5	3.5	25	83
24/03/2024	16:46:00	2.2	2.9	25	98
24/03/2024	16:47:00	2.6	3.7	25	89
24/03/2024	16:48:00	3.1	4.2	25	80
24/03/2024	16:49:00	2.4	3.5	25	64
24/03/2024	16:50:00	2.0	2.9	25	75
24/03/2024	16:51:00	2.6	4.1	25	78

24/03/2024	16:52:00	2.2	3.0	25	91
24/03/2024	16:53:00	2.4	3.8	25	75
24/03/2024	16:54:00	2.5	3.5	25	68
24/03/2024	16:55:00	3.1	4.8	25	81
24/03/2024	16:56:00	3.2	4.3	25	92
24/03/2024	16:57:00	3.4	4.3	25	95
24/03/2024	16:58:00	2.6	3.5	25	87
24/03/2024	16:59:00	2.3	3.8	25	87
24/03/2024	17:00:00	2.0	2.6	25	96
24/03/2024	17:01:00	2.4	4.1	25	102
24/03/2024	17:02:00	2.0	3.2	25	82
24/03/2024	17:03:00	2.2	3.1	25	99
24/03/2024	17:04:00	2.3	3.2	25	105
24/03/2024	17:05:00	2.0	2.7	25	87
24/03/2024	17:06:00	2.5	3.9	25	82
24/03/2024	17:07:00	2.2	2.8	25	103
24/03/2024	17:08:00	2.5	3.9	24	104
24/03/2024	17:09:00	2.9	4.5	24	98
24/03/2024	17:10:00	2.4	3.5	24	104
24/03/2024	17:11:00	2.6	3.3	24	104
24/03/2024	17:12:00	2.5	3.4	24	107
24/03/2024	17:13:00	2.3	3.4	24	103
24/03/2024	17:14:00	2.1	3.4	24	114
24/03/2024	17:15:00	2.4	3.3	24	122
24/03/2024	17:16:00	2.4	3.3	24	116
24/03/2024	17:17:00	2.3	2.8	24	107
24/03/2024	17:18:00	2.8	4.5	24	108
24/03/2024	17:19:00	3.0	4.1	24	87
24/03/2024	17:20:00	2.3	2.9	24	78
24/03/2024	17:21:00	2.2	3.3	24	71
24/03/2024	17:22:00	2.2	3.0	24	75
24/03/2024	17:23:00	2.4	3.4	24	90
24/03/2024	17:24:00	2.4	3.9	24	78
24/03/2024	17:25:00	2.4	3.7	24	71
24/03/2024	17:26:00	2.3	3.3	24	70
24/03/2024	17:27:00	2.4	3.3	24	86
24/03/2024	17:28:00	2.6	4.0	24	80
24/03/2024	17:29:00	2.5	4.1	24	77
24/03/2024	17:30:00	2.6	3.7	24	80
24/03/2024	17:31:00	2.3	3.4	24	79
24/03/2024	17:32:00	2.4	3.1	24	86
24/03/2024	17:33:00	2.3	3.0	24	81
24/03/2024	17:34:00	2.2	3.6	24	87
24/03/2024	17:35:00	2.3	2.9	24	103
24/03/2024	17:36:00	1.9	3.0	24	97
24/03/2024	17:37:00	2.1	3.2	24	72

24/03/2024	17:38:00	2.0	2.6	24	74
24/03/2024	17:39:00	2.4	3.0	24	86
24/03/2024	17:40:00	2.0	2.8	24	94
24/03/2024	17:41:00	2.1	2.9	24	98
24/03/2024	17:42:00	2.1	2.8	24	100
24/03/2024	17:43:00	2.2	3.3	24	110
24/03/2024	17:44:00	2.5	3.3	24	102
24/03/2024	17:45:00	1.9	2.9	24	87
24/03/2024	17:46:00	2.0	2.9	24	89
24/03/2024	17:47:00	1.8	2.6	24	85
24/03/2024	17:48:00	2.2	3.0	24	89
24/03/2024	17:49:00	1.6	2.2	24	83
24/03/2024	17:50:00	1.9	2.8	24	87
24/03/2024	17:51:00	1.6	2.2	24	97
24/03/2024	17:52:00	1.9	2.5	24	114
24/03/2024	17:53:00	1.6	2.3	24	107
24/03/2024	17:54:00	1.8	2.4	24	117
24/03/2024	17:55:00	1.7	2.1	24	118
24/03/2024	17:56:00	1.6	2.1	24	108
24/03/2024	17:57:00	2.0	2.8	24	108
24/03/2024	17:58:00	1.6	2.2	24	104
24/03/2024	17:59:00	1.7	2.3	23	107
24/03/2024	18:00:00	1.6	2.3	23	109
24/03/2024	18:01:00	1.7	2.6	23	110
24/03/2024	18:02:00	1.4	2.0	23	119
24/03/2024	18:03:00	1.8	2.6	23	121
24/03/2024	18:04:00	1.6	2.0	23	121
24/03/2024	18:05:00	1.6	2.2	23	114
24/03/2024	18:06:00	1.8	2.4	23	118
24/03/2024	18:07:00	1.2	2.1	23	105
24/03/2024	18:08:00	1.0	1.6	23	108
24/03/2024	18:09:00	1.4	1.7	23	113
24/03/2024	18:10:00	1.3	1.7	23	120
24/03/2024	18:11:00	1.3	1.6	23	120
24/03/2024	18:12:00	1.2	1.6	23	120
24/03/2024	18:13:00	1.3	1.6	23	115
24/03/2024	18:14:00	1.2	1.6	23	110
24/03/2024	18:15:00	1.4	1.8	23	120
24/03/2024	18:16:00	1.4	1.8	23	121
24/03/2024	18:17:00	1.0	1.6	23	121
24/03/2024	18:18:00	1.3	1.8	23	121
24/03/2024	18:19:00	1.0	1.4	23	120
24/03/2024	18:20:00	0.9	1.1	23	120
24/03/2024	18:21:00	1.0	1.4	23	120
24/03/2024	18:22:00	1.0	1.2	23	120
24/03/2024	18:23:00	0.9	1.3	23	120

24/03/2024	18:24:00	1.1	1.4	23	120
24/03/2024	18:25:00	1.0	1.3	22	119
24/03/2024	18:26:00	1.0	1.3	22	119
24/03/2024	18:27:00	1.0	1.3	22	120
24/03/2024	18:28:00	0.9	1.5	22	120
24/03/2024	18:29:00	0.9	1.4	22	120
24/03/2024	18:30:00	1.0	1.1	22	119
24/03/2024	18:31:00	0.8	1.1	22	119
24/03/2024	18:32:00	0.7	1.0	22	119
24/03/2024	18:33:00	0.3	0.8	22	119
24/03/2024	18:34:00	0.7	0.8	22	119
24/03/2024	18:35:00	0.5	0.7	22	119
24/03/2024	18:36:00	0.1	0.7	22	119
24/03/2024	18:37:00	0.0	0.0	21	nW
24/03/2024	18:38:00	0.8	1.0	21	119
24/03/2024	18:39:00	0.7	1.0	21	119
24/03/2024	18:40:00	0.5	0.8	21	119
24/03/2024	18:41:00	0.0	0.0	21	nW
24/03/2024	18:42:00	0.0	0.0	21	nW
24/03/2024	18:43:00	0.0	0.0	21	nW
24/03/2024	18:44:00	0.0	0.0	21	nW
24/03/2024	18:45:00	0.0	0.0	21	nW
24/03/2024	18:46:00	0.0	0.0	21	nW
24/03/2024	18:47:00	0.0	0.0	21	nW
24/03/2024	18:48:00	0.4	0.8	21	119
24/03/2024	18:49:00	0.6	0.8	21	119
24/03/2024	18:50:00	0.7	0.8	21	119
24/03/2024	18:51:00	0.7	0.8	21	119
24/03/2024	18:52:00	0.7	0.9	21	119
24/03/2024	18:53:00	0.7	0.8	21	119
24/03/2024	18:54:00	0.7	0.9	20	119
24/03/2024	18:55:00	0.7	0.9	20	119
24/03/2024	18:56:00	0.7	1.0	20	119
24/03/2024	18:57:00	0.6	0.7	20	119
24/03/2024	18:58:00	0.6	0.8	20	119
24/03/2024	18:59:00	0.5	0.8	20	119
24/03/2024	19:00:00	0.2	0.7	20	119
24/03/2024	19:01:00	0.5	0.8	20	119
24/03/2024	19:02:00	0.7	0.9	20	119
24/03/2024	19:03:00	0.7	0.8	20	119
24/03/2024	19:04:00	0.6	0.9	20	119
24/03/2024	19:05:00	0.6	0.9	20	119
24/03/2024	19:06:00	0.6	1.0	20	119
24/03/2024	19:07:00	0.8	0.9	19	119
24/03/2024	19:08:00	0.8	1.0	19	119
24/03/2024	19:09:00	0.7	0.9	19	119

24/03/2024	19:10:00	0.7	0.8	19	119
24/03/2024	19:11:00	0.7	0.8	19	119
24/03/2024	19:12:00	0.8	0.9	19	119
24/03/2024	19:13:00	0.8	0.9	19	119
24/03/2024	19:14:00	0.8	0.9	19	119
24/03/2024	19:15:00	0.8	1.0	19	119
24/03/2024	19:16:00	0.8	0.9	19	119
24/03/2024	19:17:00	0.8	1.0	19	119
24/03/2024	19:18:00	0.7	0.9	19	119
24/03/2024	19:19:00	0.7	0.8	19	119
24/03/2024	19:20:00	0.7	0.8	18	119
24/03/2024	19:21:00	0.7	0.9	18	119
24/03/2024	19:22:00	0.8	0.9	18	119
24/03/2024	19:23:00	0.8	1.0	18	119
24/03/2024	19:24:00	0.7	0.9	18	119
24/03/2024	19:25:00	0.7	0.9	18	119
24/03/2024	19:26:00	0.7	0.9	18	119
24/03/2024	19:27:00	0.6	0.7	18	119
24/03/2024	19:28:00	0.6	0.7	18	119
24/03/2024	19:29:00	0.2	0.7	18	119
24/03/2024	19:30:00	0.0	0.6	18	nW
24/03/2024	19:31:00	0.7	0.8	18	119
24/03/2024	19:32:00	0.5	0.8	17	119
24/03/2024	19:33:00	0.0	0.6	17	nW
24/03/2024	19:34:00	0.5	0.8	17	119
24/03/2024	19:35:00	0.7	0.8	17	119
24/03/2024	19:36:00	0.8	1.0	17	119
24/03/2024	19:37:00	1.0	1.2	17	118
24/03/2024	19:38:00	1.1	1.3	17	85
24/03/2024	19:39:00	1.0	1.2	17	74
24/03/2024	19:40:00	0.9	1.0	17	74
24/03/2024	19:41:00	0.8	0.9	17	74
24/03/2024	19:42:00	0.9	1.1	17	74
24/03/2024	19:43:00	1.0	1.2	17	74
24/03/2024	19:44:00	1.0	1.2	17	74
24/03/2024	19:45:00	1.0	1.2	17	74
24/03/2024	19:46:00	0.9	1.0	16	74
24/03/2024	19:47:00	0.9	1.1	16	74
24/03/2024	19:48:00	1.0	1.0	16	74
24/03/2024	19:49:00	0.8	1.0	16	74
24/03/2024	19:50:00	1.0	1.1	16	74
24/03/2024	19:51:00	1.1	1.2	16	74
24/03/2024	19:52:00	1.1	1.1	16	74
24/03/2024	19:53:00	1.0	1.1	16	74
24/03/2024	19:54:00	1.0	1.1	16	74
24/03/2024	19:55:00	0.9	1.0	16	74

24/03/2024	19:56:00	0.9	1.0	16	74
24/03/2024	19:57:00	0.9	1.0	16	74
24/03/2024	19:58:00	0.9	1.0	16	74
24/03/2024	19:59:00	0.9	1.0	16	74
24/03/2024	20:00:00	0.9	0.9	15	74
24/03/2024	20:01:00	0.8	0.9	15	74
24/03/2024	20:02:00	0.8	0.8	15	74
24/03/2024	20:03:00	0.8	1.0	15	74
24/03/2024	20:04:00	0.8	1.0	15	74
24/03/2024	20:05:00	0.7	0.8	15	74
24/03/2024	20:06:00	0.7	0.9	15	74
24/03/2024	20:07:00	0.7	0.9	15	74
24/03/2024	20:08:00	0.8	1.0	15	74
24/03/2024	20:09:00	0.9	1.1	15	74
24/03/2024	20:10:00	1.1	1.3	15	74
24/03/2024	20:11:00	1.2	1.4	15	74
24/03/2024	20:12:00	1.1	1.3	15	74
24/03/2024	20:13:00	1.2	1.3	15	74
24/03/2024	20:14:00	1.2	1.4	15	74
24/03/2024	20:15:00	1.3	1.5	15	74
24/03/2024	20:16:00	1.2	1.5	14	74
24/03/2024	20:17:00	1.1	1.3	14	74
24/03/2024	20:18:00	1.1	1.2	14	74
24/03/2024	20:19:00	1.2	1.4	14	74
24/03/2024	20:20:00	1.1	1.4	14	74
24/03/2024	20:21:00	1.2	1.5	14	74
24/03/2024	20:22:00	1.1	1.3	14	74
24/03/2024	20:23:00	1.1	1.3	14	74
24/03/2024	20:24:00	1.0	1.2	14	74
24/03/2024	20:25:00	1.0	1.2	14	74
24/03/2024	20:26:00	0.9	1.1	14	74
24/03/2024	20:27:00	0.9	1.1	14	74
24/03/2024	20:28:00	0.9	1.1	14	74
24/03/2024	20:29:00	0.8	1.0	14	74
24/03/2024	20:30:00	0.9	1.0	14	74
24/03/2024	20:31:00	0.9	1.0	14	74
24/03/2024	20:32:00	0.8	1.0	14	74
24/03/2024	20:33:00	0.8	0.9	14	74
24/03/2024	20:34:00	0.8	0.9	14	74
24/03/2024	20:35:00	0.8	0.9	14	74
24/03/2024	20:36:00	0.8	0.9	14	74
24/03/2024	20:37:00	0.8	0.9	14	74
24/03/2024	20:38:00	0.7	0.8	14	74
24/03/2024	20:39:00	0.7	0.8	14	74
24/03/2024	20:40:00	0.8	0.9	14	74
24/03/2024	20:41:00	0.9	1.0	14	74

24/03/2024	20:42:00	1.0	1.2	14	74
24/03/2024	20:43:00	1.0	1.2	14	74
24/03/2024	20:44:00	1.0	1.3	14	74
24/03/2024	20:45:00	1.2	1.5	14	72
24/03/2024	20:46:00	1.3	1.8	14	65
24/03/2024	20:47:00	1.4	1.8	14	39
24/03/2024	20:48:00	1.2	1.5	14	360
24/03/2024	20:49:00	1.3	1.6	14	360
24/03/2024	20:50:00	1.3	1.6	14	359
24/03/2024	20:51:00	1.2	1.4	14	359
24/03/2024	20:52:00	1.4	1.6	14	359
24/03/2024	20:53:00	1.3	1.5	14	359
24/03/2024	20:54:00	1.3	1.7	14	358
24/03/2024	20:55:00	1.4	1.8	14	357
24/03/2024	20:56:00	1.5	1.8	14	356
24/03/2024	20:57:00	1.5	1.8	14	354
24/03/2024	20:58:00	1.5	1.9	14	354
24/03/2024	20:59:00	1.5	1.9	14	354
24/03/2024	21:00:00	1.4	1.7	14	355
24/03/2024	21:01:00	1.2	1.5	14	358
24/03/2024	21:02:00	1.2	1.4	14	359
24/03/2024	21:03:00	1.1	1.4	14	359
24/03/2024	21:04:00	1.2	1.5	14	358
24/03/2024	21:05:00	1.2	1.5	14	357
24/03/2024	21:06:00	1.2	1.5	14	358
24/03/2024	21:07:00	1.3	1.7	14	354
24/03/2024	21:08:00	1.3	1.6	14	355
24/03/2024	21:09:00	1.4	1.8	14	354
24/03/2024	21:10:00	1.5	1.8	14	352
24/03/2024	21:11:00	1.4	1.8	14	354
24/03/2024	21:12:00	1.4	1.7	14	353
24/03/2024	21:13:00	1.3	1.6	14	354
24/03/2024	21:14:00	1.3	1.6	14	355
24/03/2024	21:15:00	1.3	1.6	14	355
24/03/2024	21:16:00	1.3	1.7	14	354
24/03/2024	21:17:00	1.5	1.8	14	353
24/03/2024	21:18:00	1.4	1.8	14	355
24/03/2024	21:19:00	1.1	1.6	14	358
24/03/2024	21:20:00	1.1	1.5	14	357
24/03/2024	21:21:00	1.3	1.5	14	354
24/03/2024	21:22:00	1.3	1.5	14	357
24/03/2024	21:23:00	1.3	1.7	14	355
24/03/2024	21:24:00	1.3	1.6	14	355
24/03/2024	21:25:00	1.5	1.8	14	353
24/03/2024	21:26:00	1.4	1.7	14	354
24/03/2024	21:27:00	1.4	1.6	14	355

24/03/2024	21:28:00	1.3	1.6	14	358
24/03/2024	21:29:00	1.3	1.4	14	359
24/03/2024	21:30:00	1.3	1.5	14	358
24/03/2024	21:31:00	1.4	1.8	14	357
24/03/2024	21:32:00	1.6	1.9	14	353
24/03/2024	21:33:00	1.5	1.9	14	352
24/03/2024	21:34:00	1.5	1.7	14	353
24/03/2024	21:35:00	1.4	1.8	14	354
24/03/2024	21:36:00	1.4	1.7	14	356
24/03/2024	21:37:00	1.4	1.8	14	357
24/03/2024	21:38:00	1.3	1.7	14	356
24/03/2024	21:39:00	1.1	1.5	14	358
24/03/2024	21:40:00	1.2	1.4	14	356
24/03/2024	21:41:00	1.2	1.6	14	355
24/03/2024	21:42:00	1.3	1.6	14	354
24/03/2024	21:43:00	1.4	1.7	14	352
24/03/2024	21:44:00	1.4	1.7	15	353
24/03/2024	21:45:00	1.3	1.7	15	352
24/03/2024	21:46:00	1.3	1.6	14	355
24/03/2024	21:47:00	1.1	1.5	14	358
24/03/2024	21:48:00	0.9	1.1	14	359
24/03/2024	21:49:00	0.9	1.1	14	359
24/03/2024	21:50:00	0.9	1.2	14	359
24/03/2024	21:51:00	0.8	1.0	14	359
24/03/2024	21:52:00	0.9	1.0	14	359
24/03/2024	21:53:00	0.9	1.1	14	360
24/03/2024	21:54:00	0.9	1.0	14	360
24/03/2024	21:55:00	0.8	0.9	14	0
24/03/2024	21:56:00	1.1	1.5	14	357
24/03/2024	21:57:00	0.9	1.5	14	358
24/03/2024	21:58:00	0.9	1.1	14	360
24/03/2024	21:59:00	0.7	0.9	14	0
24/03/2024	22:00:00	0.6	0.8	14	0
24/03/2024	22:01:00	0.5	0.9	14	0
24/03/2024	22:02:00	0.3	0.8	14	0
24/03/2024	22:03:00	0.4	0.8	14	0
24/03/2024	22:04:00	0.7	1.0	14	0
24/03/2024	22:05:00	0.9	1.1	14	360
24/03/2024	22:06:00	0.9	1.2	14	359
24/03/2024	22:07:00	1.1	1.7	14	358
24/03/2024	22:08:00	1.1	1.4	14	359
24/03/2024	22:09:00	1.1	1.5	14	359
24/03/2024	22:10:00	1.1	1.3	14	358
24/03/2024	22:11:00	1.2	1.5	14	357
24/03/2024	22:12:00	1.4	1.9	14	355
24/03/2024	22:13:00	1.4	1.8	14	355

24/03/2024	22:14:00	1.5	2.1	14	352
24/03/2024	22:15:00	1.4	1.7	14	354
24/03/2024	22:16:00	1.3	1.8	14	354
24/03/2024	22:17:00	1.3	1.7	14	356
24/03/2024	22:18:00	1.1	1.4	14	358
24/03/2024	22:19:00	1.3	1.7	14	355
24/03/2024	22:20:00	1.3	1.7	14	357
24/03/2024	22:21:00	1.1	1.4	14	359
24/03/2024	22:22:00	1.0	1.4	14	359
24/03/2024	22:23:00	1.0	1.2	14	359
24/03/2024	22:24:00	1.0	1.2	14	360
24/03/2024	22:25:00	1.0	1.2	14	0
24/03/2024	22:26:00	1.0	1.4	14	0
24/03/2024	22:27:00	1.0	1.4	14	0
24/03/2024	22:28:00	1.0	1.3	14	0
24/03/2024	22:29:00	1.0	1.3	14	0
24/03/2024	22:30:00	1.1	1.3	14	360
24/03/2024	22:31:00	1.0	1.3	14	360
24/03/2024	22:32:00	1.0	1.3	14	0
24/03/2024	22:33:00	1.3	1.7	14	1
24/03/2024	22:34:00	1.4	1.7	14	1
24/03/2024	22:35:00	1.3	1.7	14	1
24/03/2024	22:36:00	1.3	1.5	14	1
24/03/2024	22:37:00	1.2	1.6	14	1
24/03/2024	22:38:00	1.4	1.7	14	1
24/03/2024	22:39:00	1.5	1.9	14	1
24/03/2024	22:40:00	1.4	1.8	14	1
24/03/2024	22:41:00	1.1	1.5	14	1
24/03/2024	22:42:00	1.1	1.4	14	1
24/03/2024	22:43:00	1.1	1.5	14	1
24/03/2024	22:44:00	1.1	1.5	14	1
24/03/2024	22:45:00	1.1	1.3	14	1
24/03/2024	22:46:00	1.1	1.3	14	0
24/03/2024	22:47:00	1.1	1.3	14	1
24/03/2024	22:48:00	1.1	1.4	14	1
24/03/2024	22:49:00	1.0	1.4	14	1
24/03/2024	22:50:00	1.2	1.6	14	1
24/03/2024	22:51:00	1.2	1.5	14	1
24/03/2024	22:52:00	1.1	1.4	13	1
24/03/2024	22:53:00	1.0	1.4	13	1
24/03/2024	22:54:00	1.0	1.3	13	1
24/03/2024	22:55:00	1.0	1.4	13	1
24/03/2024	22:56:00	0.9	1.1	13	1
24/03/2024	22:57:00	0.9	1.1	13	1
24/03/2024	22:58:00	0.7	1.0	13	1
24/03/2024	22:59:00	0.2	0.8	13	1

24/03/2024	23:00:00	0.7	0.9	13	1
24/03/2024	23:01:00	0.9	1.3	13	1
24/03/2024	23:02:00	0.9	1.1	13	1
24/03/2024	23:03:00	0.7	1.0	13	1
24/03/2024	23:04:00	0.2	0.7	13	1
24/03/2024	23:05:00	0.4	0.8	13	1
24/03/2024	23:06:00	0.1	0.7	13	1
24/03/2024	23:07:00	0.1	0.8	13	1
24/03/2024	23:08:00	0.5	0.9	13	1
24/03/2024	23:09:00	0.4	0.9	13	1
24/03/2024	23:10:00	0.7	0.9	13	1
24/03/2024	23:11:00	0.6	0.8	13	1
24/03/2024	23:12:00	0.5	1.0	13	1
24/03/2024	23:13:00	0.8	1.1	13	1
24/03/2024	23:14:00	0.9	1.1	13	1
24/03/2024	23:15:00	0.8	1.0	12	1
24/03/2024	23:16:00	0.9	1.1	12	1
24/03/2024	23:17:00	0.9	1.2	12	1
24/03/2024	23:18:00	0.9	1.2	12	1
24/03/2024	23:19:00	0.8	1.0	12	1
24/03/2024	23:20:00	1.0	1.5	12	0
24/03/2024	23:21:00	0.9	1.2	12	0
24/03/2024	23:22:00	0.9	1.0	12	0
24/03/2024	23:23:00	0.9	1.1	12	0
24/03/2024	23:24:00	0.8	1.0	12	0
24/03/2024	23:25:00	0.9	1.1	12	0
24/03/2024	23:26:00	0.8	1.0	12	0
24/03/2024	23:27:00	0.7	0.9	12	0
24/03/2024	23:28:00	0.7	1.1	12	0
24/03/2024	23:29:00	0.8	1.2	12	0
24/03/2024	23:30:00	1.0	1.2	12	0
24/03/2024	23:31:00	0.9	1.2	12	0
24/03/2024	23:32:00	0.8	1.0	12	0
24/03/2024	23:33:00	0.7	0.9	12	0
24/03/2024	23:34:00	0.2	0.7	12	0
24/03/2024	23:35:00	0.1	0.6	12	0
24/03/2024	23:36:00	0.0	0.0	12	nW
24/03/2024	23:37:00	0.0	0.0	12	nW
24/03/2024	23:38:00	0.0	0.0	12	nW
24/03/2024	23:39:00	0.0	0.0	12	nW
24/03/2024	23:40:00	0.0	0.0	12	nW
24/03/2024	23:41:00	0.0	0.0	12	nW
24/03/2024	23:42:00	0.0	0.0	12	nW
24/03/2024	23:43:00	0.0	0.0	12	nW
24/03/2024	23:44:00	0.0	0.0	12	nW
24/03/2024	23:45:00	0.0	0.6	12	nW

24/03/2024	23:46:00	0.0	0.0	12	nW
24/03/2024	23:47:00	0.0	0.0	12	nW
24/03/2024	23:48:00	0.0	0.0	12	nW
24/03/2024	23:49:00	0.0	0.0	11	nW
24/03/2024	23:50:00	0.0	0.0	11	nW
24/03/2024	23:51:00	0.0	0.0	11	nW
24/03/2024	23:52:00	0.0	0.0	11	nW
24/03/2024	23:53:00	0.2	0.7	11	1
24/03/2024	23:54:00	0.4	0.7	11	1
24/03/2024	23:55:00	0.5	0.8	11	1
24/03/2024	23:56:00	0.5	0.8	11	1
24/03/2024	23:57:00	0.8	1.0	11	1
24/03/2024	23:58:00	0.4	0.9	11	1
24/03/2024	23:59:00	0.3	0.7	11	1
25/03/2024	00:00:00	0.7	1.0	11	1
25/03/2024	00:01:00	0.6	1.2	11	1
25/03/2024	00:02:00	0.9	1.2	11	1
25/03/2024	00:03:00	0.7	1.0	11	1
25/03/2024	00:04:00	0.5	0.9	11	1
25/03/2024	00:05:00	0.7	1.0	11	1
25/03/2024	00:06:00	0.5	0.8	11	1
25/03/2024	00:07:00	0.6	0.8	11	1
25/03/2024	00:08:00	0.5	0.8	11	1
25/03/2024	00:09:00	0.3	0.7	11	1
25/03/2024	00:10:00	0.1	0.7	11	1
25/03/2024	00:11:00	0.0	0.0	11	nW
25/03/2024	00:12:00	0.0	0.0	11	nW
25/03/2024	00:13:00	0.0	0.0	11	nW
25/03/2024	00:14:00	0.0	0.0	11	nW
25/03/2024	00:15:00	0.0	0.7	11	nW
25/03/2024	00:16:00	0.6	0.8	11	1
25/03/2024	00:17:00	0.0	0.0	11	nW
25/03/2024	00:18:00	0.2	0.7	11	1
25/03/2024	00:19:00	0.4	0.7	11	1
25/03/2024	00:20:00	0.0	0.0	11	nW
25/03/2024	00:21:00	0.0	0.0	11	nW
25/03/2024	00:22:00	0.0	0.0	11	nW
25/03/2024	00:23:00	0.0	0.0	11	nW
25/03/2024	00:24:00	0.0	0.0	11	nW
25/03/2024	00:25:00	0.0	0.0	11	nW
25/03/2024	00:26:00	0.0	0.0	11	nW
25/03/2024	00:27:00	0.0	0.0	11	nW
25/03/2024	00:28:00	0.0	0.0	11	nW
25/03/2024	00:29:00	0.0	0.0	11	nW
25/03/2024	00:30:00	0.0	0.0	10	nW
25/03/2024	00:31:00	0.0	0.0	10	nW

25/03/2024	00:32:00	0.0	0.0	10	nW
25/03/2024	00:33:00	0.0	0.6	10	nW
25/03/2024	00:34:00	0.6	0.7	10	1
25/03/2024	00:35:00	0.7	0.8	10	1
25/03/2024	00:36:00	0.4	0.8	10	1
25/03/2024	00:37:00	0.9	1.2	10	356
25/03/2024	00:38:00	0.8	1.0	10	358
25/03/2024	00:39:00	0.7	0.8	10	359
25/03/2024	00:40:00	0.6	0.9	10	359
25/03/2024	00:41:00	0.7	0.9	10	359
25/03/2024	00:42:00	0.7	0.8	10	359
25/03/2024	00:43:00	0.8	0.9	10	359
25/03/2024	00:44:00	0.7	0.8	10	359
25/03/2024	00:45:00	0.6	0.8	10	359
25/03/2024	00:46:00	0.7	0.8	10	359
25/03/2024	00:47:00	0.7	0.8	10	359
25/03/2024	00:48:00	0.7	0.9	10	359
25/03/2024	00:49:00	0.7	0.8	9	359
25/03/2024	00:50:00	0.7	0.8	9	359
25/03/2024	00:51:00	0.7	0.7	9	359
25/03/2024	00:52:00	0.7	0.8	9	359
25/03/2024	00:53:00	0.7	0.8	9	359
25/03/2024	00:54:00	0.7	0.7	9	359
25/03/2024	00:55:00	0.7	0.9	9	359
25/03/2024	00:56:00	0.8	0.9	9	359
25/03/2024	00:57:00	0.8	0.9	9	359
25/03/2024	00:58:00	0.7	0.8	9	359
25/03/2024	00:59:00	0.7	0.8	9	359
25/03/2024	01:00:00	0.7	0.8	9	359
25/03/2024	01:01:00	0.6	0.7	9	359
25/03/2024	01:02:00	0.7	0.8	9	359
25/03/2024	01:03:00	0.0	0.7	9	nW
25/03/2024	01:04:00	0.4	0.7	9	359
25/03/2024	01:05:00	0.3	0.8	9	359
25/03/2024	01:06:00	0.9	1.2	9	355
25/03/2024	01:07:00	0.6	1.1	9	358
25/03/2024	01:08:00	0.7	1.1	10	359
25/03/2024	01:09:00	1.0	1.2	10	359
25/03/2024	01:10:00	0.9	1.1	10	360
25/03/2024	01:11:00	0.8	1.1	10	0
25/03/2024	01:12:00	0.8	1.2	10	360
25/03/2024	01:13:00	0.5	1.0	10	0
25/03/2024	01:14:00	0.2	1.0	10	0
25/03/2024	01:15:00	1.0	1.2	10	4
25/03/2024	01:16:00	0.8	1.0	10	18
25/03/2024	01:17:00	0.9	1.1	10	20

25/03/2024	01:18:00	0.4	0.9	10	20
25/03/2024	01:19:00	0.0	0.0	10	nW
25/03/2024	01:20:00	0.0	0.0	10	nW
25/03/2024	01:21:00	0.5	1.0	10	3
25/03/2024	01:22:00	0.6	1.1	10	1
25/03/2024	01:23:00	0.7	1.1	10	0
25/03/2024	01:24:00	0.4	0.7	10	1
25/03/2024	01:25:00	0.0	0.7	9	nW
25/03/2024	01:26:00	0.0	0.0	9	nW
25/03/2024	01:27:00	0.2	0.9	9	1
25/03/2024	01:28:00	0.8	1.0	9	2
25/03/2024	01:29:00	0.5	1.0	9	4
25/03/2024	01:30:00	0.0	0.0	9	nW
25/03/2024	01:31:00	0.0	0.0	9	nW
25/03/2024	01:32:00	0.0	0.0	9	nW
25/03/2024	01:33:00	0.0	0.0	8	nW
25/03/2024	01:34:00	0.0	0.0	8	nW
25/03/2024	01:35:00	0.0	0.0	8	nW
25/03/2024	01:36:00	0.0	0.0	8	nW
25/03/2024	01:37:00	0.0	0.0	8	nW
25/03/2024	01:38:00	0.0	0.0	8	nW
25/03/2024	01:39:00	0.0	0.0	8	nW
25/03/2024	01:40:00	0.0	0.0	8	nW
25/03/2024	01:41:00	0.0	0.0	8	nW
25/03/2024	01:42:00	0.0	0.0	8	nW
25/03/2024	01:43:00	0.0	0.0	8	nW
25/03/2024	01:44:00	0.0	0.0	8	nW
25/03/2024	01:45:00	0.0	0.0	8	nW
25/03/2024	01:46:00	0.0	0.0	8	nW
25/03/2024	01:47:00	0.0	0.0	8	nW
25/03/2024	01:48:00	0.0	0.0	8	nW
25/03/2024	01:49:00	0.0	0.0	8	nW
25/03/2024	01:50:00	0.0	0.0	8	nW
25/03/2024	01:51:00	0.0	0.0	8	nW
25/03/2024	01:52:00	0.0	0.0	8	nW
25/03/2024	01:53:00	0.0	0.0	8	nW
25/03/2024	01:54:00	0.0	0.0	8	nW
25/03/2024	01:55:00	0.0	0.0	8	nW
25/03/2024	01:56:00	0.0	0.0	8	nW
25/03/2024	01:57:00	0.0	0.0	8	nW
25/03/2024	01:58:00	0.0	0.0	8	nW
25/03/2024	01:59:00	0.0	0.0	8	nW
25/03/2024	02:00:00	0.0	0.0	8	nW
25/03/2024	02:01:00	0.0	0.0	8	nW
25/03/2024	02:02:00	0.0	0.0	8	nW
25/03/2024	02:03:00	0.0	0.0	8	nW

25/03/2024	02:04:00	0.0	0.0	8	nW
25/03/2024	02:05:00	0.0	0.0	8	nW
25/03/2024	02:06:00	0.0	0.0	8	nW
25/03/2024	02:07:00	0.0	0.0	8	nW
25/03/2024	02:08:00	0.0	0.0	8	nW
25/03/2024	02:09:00	0.0	0.0	8	nW
25/03/2024	02:10:00	0.0	0.0	8	nW
25/03/2024	02:11:00	0.0	0.0	8	nW
25/03/2024	02:12:00	0.2	0.8	8	1
25/03/2024	02:13:00	0.8	0.8	8	1
25/03/2024	02:14:00	0.5	0.9	8	1
25/03/2024	02:15:00	0.0	0.0	8	nW
25/03/2024	02:16:00	0.0	0.0	8	nW
25/03/2024	02:17:00	0.0	0.0	8	nW
25/03/2024	02:18:00	0.0	0.0	8	nW
25/03/2024	02:19:00	0.0	0.0	8	nW
25/03/2024	02:20:00	0.6	0.9	8	1
25/03/2024	02:21:00	0.9	1.0	7	9
25/03/2024	02:22:00	0.9	1.1	7	20
25/03/2024	02:23:00	0.8	1.0	7	20
25/03/2024	02:24:00	0.8	1.0	7	20
25/03/2024	02:25:00	0.7	0.8	7	19
25/03/2024	02:26:00	0.7	0.8	7	19
25/03/2024	02:27:00	0.7	0.8	7	19
25/03/2024	02:28:00	0.4	0.7	7	19
25/03/2024	02:29:00	0.0	0.0	7	nW
25/03/2024	02:30:00	0.0	0.0	7	nW
25/03/2024	02:31:00	0.0	0.0	7	nW
25/03/2024	02:32:00	0.1	0.8	7	10
25/03/2024	02:33:00	0.9	1.1	7	4
25/03/2024	02:34:00	0.9	1.0	7	0
25/03/2024	02:35:00	1.0	1.1	7	0
25/03/2024	02:36:00	0.7	0.9	7	0
25/03/2024	02:37:00	0.6	0.8	7	0
25/03/2024	02:38:00	0.3	0.8	7	0
25/03/2024	02:39:00	0.8	1.0	7	360
25/03/2024	02:40:00	0.9	1.1	7	359
25/03/2024	02:41:00	0.9	1.0	7	359
25/03/2024	02:42:00	0.9	1.0	7	359
25/03/2024	02:43:00	0.9	1.0	7	359
25/03/2024	02:44:00	0.9	1.0	7	359
25/03/2024	02:45:00	0.8	0.9	7	359
25/03/2024	02:46:00	0.9	1.1	7	359
25/03/2024	02:47:00	0.9	1.1	7	359
25/03/2024	02:48:00	1.1	1.3	7	359
25/03/2024	02:49:00	0.9	1.1	7	359

25/03/2024	02:50:00	0.7	0.8	7	359
25/03/2024	02:51:00	0.9	1.1	7	359
25/03/2024	02:52:00	0.8	0.9	7	359
25/03/2024	02:53:00	0.9	1.0	7	359
25/03/2024	02:54:00	1.0	1.1	7	1
25/03/2024	02:55:00	0.9	1.1	7	1
25/03/2024	02:56:00	0.9	1.0	7	1
25/03/2024	02:57:00	0.8	1.0	7	1
25/03/2024	02:58:00	0.7	0.8	7	1
25/03/2024	02:59:00	0.7	0.7	7	1
25/03/2024	03:00:00	0.7	0.8	7	1
25/03/2024	03:01:00	0.7	0.9	7	1
25/03/2024	03:02:00	1.0	1.2	7	1
25/03/2024	03:03:00	1.1	1.2	7	1
25/03/2024	03:04:00	0.9	1.1	7	0
25/03/2024	03:05:00	0.9	1.0	7	0
25/03/2024	03:06:00	0.8	0.9	7	1
25/03/2024	03:07:00	0.9	1.1	7	1
25/03/2024	03:08:00	1.0	1.1	7	1
25/03/2024	03:09:00	1.0	1.2	7	1
25/03/2024	03:10:00	1.1	1.2	7	1
25/03/2024	03:11:00	1.1	1.2	7	1
25/03/2024	03:12:00	1.1	1.2	7	0
25/03/2024	03:13:00	0.9	1.1	8	1
25/03/2024	03:14:00	0.9	1.0	8	1
25/03/2024	03:15:00	0.8	0.9	8	1
25/03/2024	03:16:00	0.3	0.8	8	1
25/03/2024	03:17:00	0.0	0.0	8	nW
25/03/2024	03:18:00	0.0	0.0	8	nW
25/03/2024	03:19:00	0.0	0.0	8	nW
25/03/2024	03:20:00	0.0	0.0	8	nW
25/03/2024	03:21:00	0.4	0.7	8	1
25/03/2024	03:22:00	0.7	0.8	8	1
25/03/2024	03:23:00	0.7	0.8	8	1
25/03/2024	03:24:00	0.7	0.8	8	1
25/03/2024	03:25:00	0.8	0.9	8	1
25/03/2024	03:26:00	0.8	0.9	8	1
25/03/2024	03:27:00	0.6	0.8	8	1
25/03/2024	03:28:00	0.1	0.6	8	1
25/03/2024	03:29:00	0.0	0.0	8	nW
25/03/2024	03:30:00	0.3	0.8	8	1
25/03/2024	03:31:00	0.8	0.9	8	1
25/03/2024	03:32:00	0.8	0.9	8	1
25/03/2024	03:33:00	0.6	0.9	7	1
25/03/2024	03:34:00	0.1	0.7	7	1
25/03/2024	03:35:00	0.0	0.0	7	nW

25/03/2024	03:36:00	0.0	0.0	7	nW
25/03/2024	03:37:00	0.0	0.0	7	nW
25/03/2024	03:38:00	0.0	0.0	7	nW
25/03/2024	03:39:00	0.4	0.8	7	1
25/03/2024	03:40:00	0.6	0.7	7	1
25/03/2024	03:41:00	0.8	1.0	7	1
25/03/2024	03:42:00	0.7	0.9	7	1
25/03/2024	03:43:00	0.6	0.7	7	1
25/03/2024	03:44:00	0.7	0.9	7	1
25/03/2024	03:45:00	0.8	1.1	7	1
25/03/2024	03:46:00	0.7	0.9	7	1
25/03/2024	03:47:00	0.4	0.8	7	1
25/03/2024	03:48:00	0.1	0.6	7	1
25/03/2024	03:49:00	0.4	0.8	7	1
25/03/2024	03:50:00	0.5	0.9	7	1
25/03/2024	03:51:00	0.3	0.7	7	1
25/03/2024	03:52:00	0.6	0.9	7	1
25/03/2024	03:53:00	0.8	0.9	7	1
25/03/2024	03:54:00	1.0	1.2	7	5
25/03/2024	03:55:00	0.8	0.9	7	13
25/03/2024	03:56:00	0.9	1.1	7	14
25/03/2024	03:57:00	1.0	1.2	7	15
25/03/2024	03:58:00	1.1	1.2	7	15
25/03/2024	03:59:00	0.9	1.0	7	15
25/03/2024	04:00:00	0.4	0.8	7	14
25/03/2024	04:01:00	0.5	0.7	7	14
25/03/2024	04:02:00	0.0	0.0	7	nW
25/03/2024	04:03:00	0.1	0.6	7	13
25/03/2024	04:04:00	0.0	0.0	7	nW
25/03/2024	04:05:00	0.7	0.9	7	10
25/03/2024	04:06:00	0.9	1.1	7	13
25/03/2024	04:07:00	1.0	1.2	7	15
25/03/2024	04:08:00	0.6	1.1	7	12
25/03/2024	04:09:00	0.3	0.8	7	11
25/03/2024	04:10:00	1.0	1.4	7	15
25/03/2024	04:11:00	1.2	1.7	7	20
25/03/2024	04:12:00	1.5	1.8	7	23
25/03/2024	04:13:00	1.0	1.5	7	14
25/03/2024	04:14:00	1.0	1.2	7	8
25/03/2024	04:15:00	1.1	1.4	7	4
25/03/2024	04:16:00	1.1	1.7	7	9
25/03/2024	04:17:00	1.4	1.7	7	6
25/03/2024	04:18:00	1.2	1.5	7	8
25/03/2024	04:19:00	1.1	1.3	7	11
25/03/2024	04:20:00	1.1	1.6	7	17
25/03/2024	04:21:00	1.1	1.4	7	16

25/03/2024	04:22:00	1.0	1.4	7	17
25/03/2024	04:23:00	0.8	1.3	7	17
25/03/2024	04:24:00	1.3	1.6	7	20
25/03/2024	04:25:00	1.2	1.5	7	20
25/03/2024	04:26:00	1.3	1.6	7	21
25/03/2024	04:27:00	1.4	1.6	7	22
25/03/2024	04:28:00	1.0	1.4	7	20
25/03/2024	04:29:00	1.0	1.2	8	18
25/03/2024	04:30:00	0.7	1.1	8	14
25/03/2024	04:31:00	0.9	1.2	8	17
25/03/2024	04:32:00	1.0	1.5	8	18
25/03/2024	04:33:00	1.2	1.4	8	20
25/03/2024	04:34:00	0.9	1.2	8	18
25/03/2024	04:35:00	0.1	0.8	8	13
25/03/2024	04:36:00	0.4	0.8	8	11
25/03/2024	04:37:00	0.3	0.7	8	11
25/03/2024	04:38:00	0.6	1.1	8	12
25/03/2024	04:39:00	1.2	1.4	8	20
25/03/2024	04:40:00	1.0	1.3	8	17
25/03/2024	04:41:00	1.0	1.2	8	17
25/03/2024	04:42:00	1.0	1.4	8	18
25/03/2024	04:43:00	1.2	1.4	8	20
25/03/2024	04:44:00	1.4	1.7	8	24
25/03/2024	04:45:00	0.9	1.5	8	16
25/03/2024	04:46:00	0.6	0.9	7	13
25/03/2024	04:47:00	0.4	0.9	7	13
25/03/2024	04:48:00	0.8	1.0	7	13
25/03/2024	04:49:00	0.7	0.9	7	2
25/03/2024	04:50:00	0.4	0.9	7	0
25/03/2024	04:51:00	1.0	1.4	7	8
25/03/2024	04:52:00	0.9	1.2	7	8
25/03/2024	04:53:00	0.9	1.3	7	10
25/03/2024	04:54:00	1.1	1.5	7	1
25/03/2024	04:55:00	1.2	1.9	7	1
25/03/2024	04:56:00	1.5	1.8	7	3
25/03/2024	04:57:00	1.7	2.3	7	5
25/03/2024	04:58:00	1.6	2.0	7	3
25/03/2024	04:59:00	1.7	2.0	7	4
25/03/2024	05:00:00	1.6	1.9	7	2
25/03/2024	05:01:00	1.3	1.8	7	1
25/03/2024	05:02:00	1.3	1.9	7	1
25/03/2024	05:03:00	1.5	1.7	7	1
25/03/2024	05:04:00	1.7	2.0	7	2
25/03/2024	05:05:00	1.5	2.0	7	2
25/03/2024	05:06:00	1.5	1.8	7	1
25/03/2024	05:07:00	1.4	1.8	7	2

25/03/2024	05:08:00	1.4	1.8	8	2
25/03/2024	05:09:00	1.5	1.8	8	1
25/03/2024	05:10:00	1.5	2.1	8	2
25/03/2024	05:11:00	1.3	1.9	8	2
25/03/2024	05:12:00	1.3	1.9	8	3
25/03/2024	05:13:00	1.3	1.7	8	4
25/03/2024	05:14:00	1.5	1.9	8	2
25/03/2024	05:15:00	1.5	1.9	8	5
25/03/2024	05:16:00	1.6	2.1	8	5
25/03/2024	05:17:00	1.5	2.0	8	3
25/03/2024	05:18:00	1.5	2.0	8	4
25/03/2024	05:19:00	1.1	1.8	8	2
25/03/2024	05:20:00	1.2	1.7	8	2
25/03/2024	05:21:00	1.3	1.9	8	4
25/03/2024	05:22:00	1.2	1.5	8	2
25/03/2024	05:23:00	0.9	1.2	8	2
25/03/2024	05:24:00	0.8	1.1	8	1
25/03/2024	05:25:00	1.2	1.6	8	2
25/03/2024	05:26:00	1.2	1.6	8	2
25/03/2024	05:27:00	1.2	1.7	8	6
25/03/2024	05:28:00	1.3	1.6	8	5
25/03/2024	05:29:00	1.2	1.7	8	6
25/03/2024	05:30:00	1.1	1.4	8	2
25/03/2024	05:31:00	1.0	1.4	8	3
25/03/2024	05:32:00	0.8	1.0	8	2
25/03/2024	05:33:00	0.7	1.0	8	2
25/03/2024	05:34:00	0.5	0.9	8	2
25/03/2024	05:35:00	1.0	1.2	8	5
25/03/2024	05:36:00	1.0	1.4	8	12
25/03/2024	05:37:00	0.8	1.7	8	18
25/03/2024	05:38:00	1.0	1.4	8	21
25/03/2024	05:39:00	0.9	1.4	8	14
25/03/2024	05:40:00	1.0	1.7	8	15
25/03/2024	05:41:00	0.9	1.4	8	18
25/03/2024	05:42:00	1.1	1.5	8	18
25/03/2024	05:43:00	1.3	1.7	8	22
25/03/2024	05:44:00	1.0	1.7	8	9
25/03/2024	05:45:00	1.0	1.8	8	8
25/03/2024	05:46:00	1.0	1.5	8	3
25/03/2024	05:47:00	1.3	1.6	8	4
25/03/2024	05:48:00	1.3	1.9	8	9
25/03/2024	05:49:00	1.3	1.9	8	7
25/03/2024	05:50:00	1.4	1.8	8	6
25/03/2024	05:51:00	1.3	1.6	8	3
25/03/2024	05:52:00	1.2	1.8	8	5
25/03/2024	05:53:00	1.5	2.2	8	9

25/03/2024	05:54:00	1.3	1.8	8	6
25/03/2024	05:55:00	1.3	1.7	8	8
25/03/2024	05:56:00	1.2	1.8	8	9
25/03/2024	05:57:00	1.1	1.5	8	5
25/03/2024	05:58:00	1.0	1.3	8	5
25/03/2024	05:59:00	1.0	1.4	8	9
25/03/2024	06:00:00	1.0	1.4	8	5
25/03/2024	06:01:00	1.1	1.8	9	5
25/03/2024	06:02:00	1.4	1.8	9	5
25/03/2024	06:03:00	1.8	2.2	9	7
25/03/2024	06:04:00	1.8	2.7	9	6
25/03/2024	06:05:00	1.7	2.3	9	7
25/03/2024	06:06:00	2.0	2.7	9	7
25/03/2024	06:07:00	2.1	2.9	9	6
25/03/2024	06:08:00	2.3	3.0	9	8
25/03/2024	06:09:00	2.0	2.6	10	3
25/03/2024	06:10:00	2.1	2.8	10	9
25/03/2024	06:11:00	2.1	2.9	10	6
25/03/2024	06:12:00	2.2	3.1	10	9
25/03/2024	06:13:00	2.3	3.2	10	9
25/03/2024	06:14:00	2.5	3.6	10	8
25/03/2024	06:15:00	2.2	3.2	10	8
25/03/2024	06:16:00	2.0	3.5	10	13
25/03/2024	06:17:00	1.7	2.3	10	11
25/03/2024	06:18:00	1.8	2.5	10	12
25/03/2024	06:19:00	1.7	2.2	10	14
25/03/2024	06:20:00	1.9	2.4	10	9
25/03/2024	06:21:00	1.8	2.4	10	10
25/03/2024	06:22:00	1.9	2.7	10	9
25/03/2024	06:23:00	1.7	2.2	10	10
25/03/2024	06:24:00	1.8	2.2	10	10
25/03/2024	06:25:00	1.9	2.4	10	9
25/03/2024	06:26:00	1.7	2.6	10	12
25/03/2024	06:27:00	1.7	2.2	10	9
25/03/2024	06:28:00	1.6	2.3	10	11
25/03/2024	06:29:00	1.7	2.4	10	11
25/03/2024	06:30:00	1.6	2.1	10	7
25/03/2024	06:31:00	1.8	2.3	10	9
25/03/2024	06:32:00	1.6	2.2	10	5
25/03/2024	06:33:00	1.6	2.6	10	5
25/03/2024	06:34:00	1.8	2.4	10	6
25/03/2024	06:35:00	1.7	2.4	10	1
25/03/2024	06:36:00	1.6	2.0	10	4
25/03/2024	06:37:00	2.0	2.4	10	4
25/03/2024	06:38:00	1.7	2.4	10	2
25/03/2024	06:39:00	1.8	2.3	10	0

25/03/2024	06:40:00	1.8	2.3	10	2
25/03/2024	06:41:00	1.9	2.9	10	360
25/03/2024	06:42:00	1.7	2.2	10	360
25/03/2024	06:43:00	1.5	1.9	10	359
25/03/2024	06:44:00	1.6	2.1	10	357
25/03/2024	06:45:00	1.7	2.1	10	356
25/03/2024	06:46:00	1.6	2.4	10	355
25/03/2024	06:47:00	1.9	2.5	10	352
25/03/2024	06:48:00	1.9	2.3	10	351
25/03/2024	06:49:00	1.7	2.5	10	356
25/03/2024	06:50:00	1.8	2.4	10	347
25/03/2024	06:51:00	1.7	2.2	10	349
25/03/2024	06:52:00	1.9	2.7	10	348
25/03/2024	06:53:00	1.8	2.5	10	348
25/03/2024	06:54:00	1.9	2.3	10	348
25/03/2024	06:55:00	1.7	2.1	10	347
25/03/2024	06:56:00	2.0	2.8	10	351
25/03/2024	06:57:00	2.0	2.8	10	352
25/03/2024	06:58:00	1.8	2.4	10	353
25/03/2024	06:59:00	1.8	2.4	10	356
25/03/2024	07:00:00	1.5	2.2	10	354
25/03/2024	07:01:00	1.8	2.2	10	355
25/03/2024	07:02:00	1.6	2.2	10	358
25/03/2024	07:03:00	1.8	2.4	10	359
25/03/2024	07:04:00	1.7	2.2	10	358
25/03/2024	07:05:00	1.9	2.3	10	359
25/03/2024	07:06:00	1.9	2.6	10	0
25/03/2024	07:07:00	1.6	2.0	10	359
25/03/2024	07:08:00	1.5	2.3	10	1
25/03/2024	07:09:00	1.5	2.0	10	2
25/03/2024	07:10:00	1.5	1.9	10	3
25/03/2024	07:11:00	1.5	2.1	10	0
25/03/2024	07:12:00	1.4	1.9	10	359
25/03/2024	07:13:00	1.3	1.7	10	360
25/03/2024	07:14:00	1.4	1.8	10	359
25/03/2024	07:15:00	1.3	1.5	10	358
25/03/2024	07:16:00	1.4	1.7	10	355
25/03/2024	07:17:00	1.3	1.6	10	347
25/03/2024	07:18:00	1.2	1.6	10	347
25/03/2024	07:19:00	1.3	1.7	10	347
25/03/2024	07:20:00	1.4	1.7	10	347
25/03/2024	07:21:00	1.4	1.7	10	347
25/03/2024	07:22:00	1.3	1.7	10	346
25/03/2024	07:23:00	1.6	1.9	10	346
25/03/2024	07:24:00	1.6	1.9	10	346
25/03/2024	07:25:00	1.5	1.8	10	346

25/03/2024	07:26:00	1.4	1.9	10	347
25/03/2024	07:27:00	1.4	1.9	10	347
25/03/2024	07:28:00	1.4	1.8	10	347
25/03/2024	07:29:00	1.4	1.8	10	347
25/03/2024	07:30:00	1.4	1.8	10	347
25/03/2024	07:31:00	1.4	1.8	10	346
25/03/2024	07:32:00	1.5	2.0	10	347
25/03/2024	07:33:00	1.3	1.8	10	347
25/03/2024	07:34:00	1.2	1.6	11	347
25/03/2024	07:35:00	1.1	1.4	11	347
25/03/2024	07:36:00	1.3	1.7	11	347
25/03/2024	07:37:00	1.1	1.4	11	354
25/03/2024	07:38:00	1.1	1.6	11	354
25/03/2024	07:39:00	1.3	1.8	11	353
25/03/2024	07:40:00	1.3	1.6	11	350
25/03/2024	07:41:00	1.4	1.8	11	354
25/03/2024	07:42:00	1.3	1.9	11	355
25/03/2024	07:43:00	1.4	1.9	11	355
25/03/2024	07:44:00	1.3	2.1	11	355
25/03/2024	07:45:00	1.2	1.4	11	359
25/03/2024	07:46:00	1.4	1.8	12	2
25/03/2024	07:47:00	1.4	1.8	12	1
25/03/2024	07:48:00	1.5	1.8	12	0
25/03/2024	07:49:00	1.2	1.7	12	359
25/03/2024	07:50:00	1.4	1.8	12	359
25/03/2024	07:51:00	1.4	1.7	12	2
25/03/2024	07:52:00	1.3	1.6	12	359
25/03/2024	07:53:00	1.1	2.0	12	358
25/03/2024	07:54:00	1.6	2.0	12	351
25/03/2024	07:55:00	1.4	1.8	12	353
25/03/2024	07:56:00	1.3	1.6	13	359
25/03/2024	07:57:00	1.3	1.7	13	359
25/03/2024	07:58:00	1.1	1.6	13	359
25/03/2024	07:59:00	0.9	1.4	13	1
25/03/2024	08:00:00	0.9	1.3	13	359
25/03/2024	08:01:00	1.1	1.4	13	5
25/03/2024	08:02:00	2.5	4.5	13	48
25/03/2024	08:03:00	3.8	6.3	13	68
25/03/2024	08:04:00	2.8	4.5	13	61
25/03/2024	08:05:00	1.3	1.9	13	30
25/03/2024	08:06:00	2.1	3.4	14	60
25/03/2024	08:07:00	1.4	2.4	14	14
25/03/2024	08:08:00	1.8	2.6	14	25
25/03/2024	08:09:00	2.0	2.9	14	40
25/03/2024	08:10:00	1.9	2.9	14	45
25/03/2024	08:11:00	1.4	2.6	14	18

25/03/2024	08:12:00	1.6	2.6	14	40
25/03/2024	08:13:00	1.5	2.2	14	18
25/03/2024	08:14:00	1.4	1.9	14	23
25/03/2024	08:15:00	1.6	2.1	14	31
25/03/2024	08:16:00	1.6	3.3	14	21
25/03/2024	08:17:00	1.4	2.6	14	21
25/03/2024	08:18:00	1.7	2.5	14	11
25/03/2024	08:19:00	1.8	2.4	14	18
25/03/2024	08:20:00	1.4	2.6	14	16
25/03/2024	08:21:00	1.5	2.2	14	9
25/03/2024	08:22:00	1.7	2.6	14	10
25/03/2024	08:23:00	2.0	2.6	14	7
25/03/2024	08:24:00	2.0	2.6	14	4
25/03/2024	08:25:00	1.8	2.6	14	4
25/03/2024	08:26:00	1.7	2.4	14	7
25/03/2024	08:27:00	1.8	3.0	14	357
25/03/2024	08:28:00	2.1	3.1	14	359
25/03/2024	08:29:00	2.1	2.7	14	2
25/03/2024	08:30:00	2.0	2.9	14	359
25/03/2024	08:31:00	2.0	3.0	14	354
25/03/2024	08:32:00	2.4	3.2	14	355
25/03/2024	08:33:00	2.2	2.9	14	357
25/03/2024	08:34:00	2.4	3.5	14	352
25/03/2024	08:35:00	2.7	3.7	14	354
25/03/2024	08:36:00	2.2	3.0	14	348
25/03/2024	08:37:00	2.1	2.9	14	356
25/03/2024	08:38:00	2.1	3.1	14	359
25/03/2024	08:39:00	1.9	2.9	14	346
25/03/2024	08:40:00	2.0	3.2	14	352
25/03/2024	08:41:00	2.2	3.0	14	354
25/03/2024	08:42:00	2.2	3.1	14	357
25/03/2024	08:43:00	2.6	3.2	14	359
25/03/2024	08:44:00	1.9	2.5	14	356
25/03/2024	08:45:00	2.3	3.2	14	352
25/03/2024	08:46:00	2.2	3.0	14	360
25/03/2024	08:47:00	2.0	2.6	15	0
25/03/2024	08:48:00	1.7	2.6	15	1
25/03/2024	08:49:00	1.2	1.9	15	10
25/03/2024	08:50:00	1.5	2.6	15	32
25/03/2024	08:51:00	1.3	1.8	15	16
25/03/2024	08:52:00	1.3	2.1	16	18
25/03/2024	08:53:00	1.2	1.9	16	35
25/03/2024	08:54:00	1.4	2.0	16	28
25/03/2024	08:55:00	1.4	2.2	16	20
25/03/2024	08:56:00	2.0	3.0	16	8
25/03/2024	08:57:00	2.0	2.5	16	6

25/03/2024	08:58:00	1.7	2.5	16	16
25/03/2024	08:59:00	2.1	2.7	16	10
25/03/2024	09:00:00	2.2	3.4	16	12
25/03/2024	09:01:00	1.8	2.4	16	18
25/03/2024	09:02:00	2.0	2.8	17	10
25/03/2024	09:03:00	2.0	2.8	17	11
25/03/2024	09:04:00	2.1	2.9	17	5
25/03/2024	09:05:00	2.0	2.6	17	8
25/03/2024	09:06:00	2.0	2.7	17	13
25/03/2024	09:07:00	1.8	2.3	17	15
25/03/2024	09:08:00	1.8	3.2	17	5
25/03/2024	09:09:00	2.4	3.5	17	9
25/03/2024	09:10:00	2.1	2.8	17	10
25/03/2024	09:11:00	2.2	2.9	17	11
25/03/2024	09:12:00	1.8	2.6	17	8
25/03/2024	09:13:00	1.9	2.6	17	10
25/03/2024	09:14:00	1.6	2.5	17	16
25/03/2024	09:15:00	1.9	2.7	17	12
25/03/2024	09:16:00	1.3	1.8	17	8
25/03/2024	09:17:00	1.7	2.5	17	7
25/03/2024	09:18:00	1.9	2.8	17	6
25/03/2024	09:19:00	2.1	3.0	17	11
25/03/2024	09:20:00	1.5	2.3	18	13
25/03/2024	09:21:00	1.9	3.0	18	15
25/03/2024	09:22:00	1.4	2.3	18	13
25/03/2024	09:23:00	1.6	2.3	18	6
25/03/2024	09:24:00	1.8	2.4	18	13
25/03/2024	09:25:00	1.6	2.8	18	14
25/03/2024	09:26:00	2.1	2.9	18	7
25/03/2024	09:27:00	2.0	2.7	18	5
25/03/2024	09:28:00	1.9	2.7	18	6
25/03/2024	09:29:00	1.3	2.4	18	14
25/03/2024	09:30:00	1.7	2.9	18	12
25/03/2024	09:31:00	2.3	3.1	18	3
25/03/2024	09:32:00	1.7	2.9	18	4
25/03/2024	09:33:00	1.5	2.6	18	9
25/03/2024	09:34:00	2.0	2.8	18	4
25/03/2024	09:35:00	2.2	2.9	18	7
25/03/2024	09:36:00	2.0	2.5	18	0
25/03/2024	09:37:00	1.9	2.4	18	1
25/03/2024	09:38:00	2.0	2.7	18	9
25/03/2024	09:39:00	1.8	2.7	18	11
25/03/2024	09:40:00	2.0	2.9	18	9
25/03/2024	09:41:00	2.4	3.4	18	358
25/03/2024	09:42:00	2.0	3.0	18	9
25/03/2024	09:43:00	2.1	3.1	18	11

25/03/2024	09:44:00	1.6	2.3	18	19
25/03/2024	09:45:00	2.0	2.8	18	5
25/03/2024	09:46:00	1.9	2.6	18	2
25/03/2024	09:47:00	2.0	2.9	18	3
25/03/2024	09:48:00	2.2	3.2	18	8
25/03/2024	09:49:00	2.2	2.8	18	9
25/03/2024	09:50:00	1.9	2.8	18	7
25/03/2024	09:51:00	2.4	3.3	19	3
25/03/2024	09:52:00	2.2	3.3	19	8
25/03/2024	09:53:00	2.1	3.1	19	7
25/03/2024	09:54:00	2.2	3.7	19	11
25/03/2024	09:55:00	2.3	3.1	19	12
25/03/2024	09:56:00	2.3	3.2	19	9
25/03/2024	09:57:00	2.7	3.5	19	3
25/03/2024	09:58:00	2.5	3.6	19	7
25/03/2024	09:59:00	2.7	3.7	19	6
25/03/2024	10:00:00	2.9	3.7	19	7
25/03/2024	10:01:00	2.4	3.4	19	9
25/03/2024	10:02:00	1.9	3.1	19	5
25/03/2024	10:03:00	1.7	2.6	19	19
25/03/2024	10:04:00	1.7	2.3	19	10
25/03/2024	10:05:00	1.7	2.8	19	13
25/03/2024	10:06:00	1.7	3.3	19	16
25/03/2024	10:07:00	2.1	3.3	19	8
25/03/2024	10:08:00	1.8	2.4	19	17
25/03/2024	10:09:00	2.3	3.7	19	9
25/03/2024	10:10:00	2.5	3.7	19	8
25/03/2024	10:11:00	2.3	3.4	19	9
25/03/2024	10:12:00	2.1	3.7	19	20
25/03/2024	10:13:00	2.2	3.4	19	7
25/03/2024	10:14:00	2.1	3.1	19	15
25/03/2024	10:15:00	2.2	3.0	19	15
25/03/2024	10:16:00	2.3	3.3	19	13
25/03/2024	10:17:00	1.7	2.4	19	12
25/03/2024	10:18:00	2.0	2.8	19	12
25/03/2024	10:19:00	1.8	2.4	19	20
25/03/2024	10:20:00	2.2	3.1	19	10
25/03/2024	10:21:00	2.7	3.9	19	11
25/03/2024	10:22:00	2.2	2.9	19	12
25/03/2024	10:23:00	2.6	3.4	19	9
25/03/2024	10:24:00	2.4	3.3	20	6
25/03/2024	10:25:00	2.2	3.2	20	11
25/03/2024	10:26:00	2.6	3.5	20	1
25/03/2024	10:27:00	2.1	3.3	20	7
25/03/2024	10:28:00	2.2	3.2	20	7
25/03/2024	10:29:00	2.9	4.3	20	6

25/03/2024	10:30:00	1.9	2.6	20	9
25/03/2024	10:31:00	1.9	2.8	20	12
25/03/2024	10:32:00	1.6	2.2	20	18
25/03/2024	10:33:00	1.7	2.7	20	13
25/03/2024	10:34:00	2.5	3.4	20	8
25/03/2024	10:35:00	2.1	3.4	20	8
25/03/2024	10:36:00	2.9	4.3	20	9
25/03/2024	10:37:00	2.1	3.3	20	11
25/03/2024	10:38:00	2.1	2.8	20	4
25/03/2024	10:39:00	2.6	3.6	20	11
25/03/2024	10:40:00	2.8	3.8	20	6
25/03/2024	10:41:00	2.2	3.1	20	8
25/03/2024	10:42:00	2.1	3.3	20	13
25/03/2024	10:43:00	2.3	3.5	20	11
25/03/2024	10:44:00	2.4	3.1	20	9
25/03/2024	10:45:00	2.3	3.9	20	14
25/03/2024	10:46:00	2.1	3.3	20	11
25/03/2024	10:47:00	2.6	4.2	20	9
25/03/2024	10:48:00	2.8	4.0	20	7
25/03/2024	10:49:00	1.8	2.9	20	4
25/03/2024	10:50:00	2.1	3.2	20	18
25/03/2024	10:51:00	2.6	4.1	21	9
25/03/2024	10:52:00	1.8	2.6	21	17
25/03/2024	10:53:00	1.9	2.9	21	11
25/03/2024	10:54:00	2.6	4.4	21	13
25/03/2024	10:55:00	2.8	4.0	21	8
25/03/2024	10:56:00	2.3	3.4	21	4
25/03/2024	10:57:00	2.1	3.5	21	10
25/03/2024	10:58:00	2.3	3.3	21	18
25/03/2024	10:59:00	2.0	3.5	21	15
25/03/2024	11:00:00	2.9	3.5	21	7
25/03/2024	11:01:00	2.8	4.3	21	1
25/03/2024	11:02:00	2.9	4.2	21	8
25/03/2024	11:03:00	2.5	4.1	21	5
25/03/2024	11:04:00	2.8	3.9	21	2
25/03/2024	11:05:00	3.1	4.1	21	5
25/03/2024	11:06:00	2.4	3.3	21	9
25/03/2024	11:07:00	2.8	4.2	21	6
25/03/2024	11:08:00	2.3	3.2	21	16
25/03/2024	11:09:00	2.4	3.4	21	11
25/03/2024	11:10:00	2.3	3.5	21	6
25/03/2024	11:11:00	3.0	4.4	21	6
25/03/2024	11:12:00	2.6	4.2	21	358
25/03/2024	11:13:00	2.9	4.5	21	8
25/03/2024	11:14:00	2.4	3.5	21	8
25/03/2024	11:15:00	2.6	3.8	21	3

25/03/2024	11:16:00	2.6	3.8	22	17
25/03/2024	11:17:00	2.5	3.8	22	11
25/03/2024	11:18:00	3.1	4.6	22	7
25/03/2024	11:19:00	2.7	3.8	22	6
25/03/2024	11:20:00	2.5	4.0	22	13
25/03/2024	11:21:00	2.3	3.9	22	6
25/03/2024	11:22:00	2.9	4.1	22	7
25/03/2024	11:23:00	2.6	4.0	22	6
25/03/2024	11:24:00	2.7	4.2	22	13
25/03/2024	11:25:00	2.6	3.7	22	11
25/03/2024	11:26:00	2.9	3.8	22	8
25/03/2024	11:27:00	2.8	4.0	22	10
25/03/2024	11:28:00	2.9	4.1	22	8
25/03/2024	11:29:00	2.8	3.7	22	14
25/03/2024	11:30:00	2.8	4.1	22	6
25/03/2024	11:31:00	2.2	3.1	22	9
25/03/2024	11:32:00	2.4	3.6	22	11
25/03/2024	11:33:00	2.8	4.5	22	16
25/03/2024	11:34:00	2.8	4.3	22	6
25/03/2024	11:35:00	2.4	3.3	22	8
25/03/2024	11:36:00	2.0	3.1	22	355
25/03/2024	11:37:00	2.2	3.1	22	13
25/03/2024	11:38:00	1.9	3.2	22	11
25/03/2024	11:39:00	2.9	4.7	22	3
25/03/2024	11:40:00	2.8	4.8	22	41
25/03/2024	11:41:00	2.6	4.2	22	16
25/03/2024	11:42:00	2.0	3.0	22	8
25/03/2024	11:43:00	2.3	3.1	23	16
25/03/2024	11:44:00	2.8	4.5	23	359
25/03/2024	11:45:00	2.6	4.1	23	9
25/03/2024	11:46:00	3.2	4.4	23	6
25/03/2024	11:47:00	2.9	4.1	23	1
25/03/2024	11:48:00	3.2	4.2	23	4
25/03/2024	11:49:00	3.1	4.6	23	7
25/03/2024	11:50:00	2.5	4.2	23	7
25/03/2024	11:51:00	3.0	4.1	23	3
25/03/2024	11:52:00	2.6	3.8	23	10
25/03/2024	11:53:00	2.2	3.4	23	5
25/03/2024	11:54:00	1.8	2.5	23	10
25/03/2024	11:55:00	2.4	3.1	23	8
25/03/2024	11:56:00	2.3	3.6	23	20
25/03/2024	11:57:00	2.9	4.4	23	12
25/03/2024	11:58:00	2.7	3.9	23	12
25/03/2024	11:59:00	2.4	3.5	23	15
25/03/2024	12:00:00	3.0	3.8	23	8
25/03/2024	12:01:00	2.9	4.5	23	6

25/03/2024	12:02:00	2.8	4.1	23	10
25/03/2024	12:03:00	3.2	5.0	24	6
25/03/2024	12:04:00	2.9	4.3	24	12
25/03/2024	12:05:00	2.7	4.1	24	1
25/03/2024	12:06:00	2.6	4.7	24	12
25/03/2024	12:07:00	3.0	4.2	24	10
25/03/2024	12:08:00	2.5	3.4	24	14
25/03/2024	12:09:00	2.9	4.8	24	4
25/03/2024	12:10:00	3.2	4.5	24	7
25/03/2024	12:11:00	2.5	3.3	24	11
25/03/2024	12:12:00	3.5	4.9	24	10
25/03/2024	12:13:00	3.2	4.5	24	9
25/03/2024	12:14:00	2.5	3.4	24	9
25/03/2024	12:15:00	2.9	4.1	24	10
25/03/2024	12:16:00	3.3	4.5	24	2
25/03/2024	12:17:00	3.6	5.9	24	359
25/03/2024	12:18:00	2.6	4.1	24	10
25/03/2024	12:19:00	2.6	3.8	24	9
25/03/2024	12:20:00	3.6	5.6	24	7
25/03/2024	12:21:00	3.3	5.4	24	5
25/03/2024	12:22:00	3.2	4.8	24	5
25/03/2024	12:23:00	2.3	3.7	24	7
25/03/2024	12:24:00	1.9	2.7	24	14
25/03/2024	12:25:00	2.5	4.0	24	8
25/03/2024	12:26:00	3.0	4.1	24	1
25/03/2024	12:27:00	3.5	5.2	24	4
25/03/2024	12:28:00	3.2	4.3	24	5
25/03/2024	12:29:00	3.0	4.8	24	357
25/03/2024	12:30:00	2.8	4.3	24	357
25/03/2024	12:31:00	2.9	4.1	24	5
25/03/2024	12:32:00	3.6	4.9	24	10
25/03/2024	12:33:00	3.3	4.6	24	7
25/03/2024	12:34:00	3.8	5.2	24	5
25/03/2024	12:35:00	3.5	5.1	25	7
25/03/2024	12:36:00	3.1	4.4	25	6
25/03/2024	12:37:00	3.2	4.4	25	8
25/03/2024	12:38:00	2.8	4.0	25	4
25/03/2024	12:39:00	2.5	3.5	25	4
25/03/2024	12:40:00	3.2	4.6	25	10
25/03/2024	12:41:00	2.5	4.4	25	8
25/03/2024	12:42:00	3.7	4.9	25	5
25/03/2024	12:43:00	3.5	4.8	25	2
25/03/2024	12:44:00	3.4	4.5	25	1
25/03/2024	12:45:00	3.9	5.1	25	5
25/03/2024	12:46:00	2.6	3.5	25	9
25/03/2024	12:47:00	2.8	4.4	25	7

25/03/2024	12:48:00	3.6	4.6	25	3
25/03/2024	12:49:00	3.6	4.5	25	5
25/03/2024	12:50:00	3.0	4.2	25	8
25/03/2024	12:51:00	3.0	3.9	25	350
25/03/2024	12:52:00	2.8	4.0	25	4
25/03/2024	12:53:00	2.7	4.2	25	11
25/03/2024	12:54:00	2.4	4.7	25	347
25/03/2024	12:55:00	2.9	3.7	25	13
25/03/2024	12:56:00	2.8	4.2	25	5
25/03/2024	12:57:00	2.6	4.1	25	357
25/03/2024	12:58:00	2.9	4.4	25	359
25/03/2024	12:59:00	3.0	4.5	25	13
25/03/2024	13:00:00	3.4	5.0	25	3
25/03/2024	13:01:00	2.5	3.4	25	11
25/03/2024	13:02:00	3.0	4.6	25	8
25/03/2024	13:03:00	2.8	4.1	25	7
25/03/2024	13:04:00	2.8	4.7	25	0
25/03/2024	13:05:00	3.7	5.3	25	1
25/03/2024	13:06:00	2.4	4.2	25	14
25/03/2024	13:07:00	2.8	3.8	25	345
25/03/2024	13:08:00	3.0	4.4	25	11
25/03/2024	13:09:00	3.1	4.8	25	5
25/03/2024	13:10:00	2.8	4.3	25	359
25/03/2024	13:11:00	2.7	3.8	25	356
25/03/2024	13:12:00	2.0	2.9	26	341
25/03/2024	13:13:00	2.1	3.4	26	10
25/03/2024	13:14:00	2.7	4.4	26	358
25/03/2024	13:15:00	3.3	5.6	26	14
25/03/2024	13:16:00	2.9	4.0	26	10
25/03/2024	13:17:00	2.7	4.4	26	347
25/03/2024	13:18:00	2.5	3.6	26	346
25/03/2024	13:19:00	3.2	4.7	26	10
25/03/2024	13:20:00	2.6	3.9	26	360
25/03/2024	13:21:00	2.7	3.6	26	353
25/03/2024	13:22:00	2.7	4.1	26	357
25/03/2024	13:23:00	2.6	4.8	26	344
25/03/2024	13:24:00	3.1	4.4	26	6
25/03/2024	13:25:00	2.3	3.1	26	13
25/03/2024	13:26:00	2.4	3.7	26	0
25/03/2024	13:27:00	2.0	3.0	26	351
25/03/2024	13:28:00	2.2	4.4	26	21
25/03/2024	13:29:00	2.6	4.1	26	7
25/03/2024	13:30:00	2.2	3.7	26	2
25/03/2024	13:31:00	2.8	4.4	26	360
25/03/2024	13:32:00	2.0	3.6	26	352
25/03/2024	13:33:00	2.6	3.9	26	346

25/03/2024	13:34:00	2.2	3.9	26	356
25/03/2024	13:35:00	2.4	3.5	26	60
25/03/2024	13:36:00	2.4	3.5	26	356
25/03/2024	13:37:00	3.0	4.4	26	336
25/03/2024	13:38:00	3.0	4.4	26	349
25/03/2024	13:39:00	3.0	4.1	26	339
25/03/2024	13:40:00	2.6	3.8	26	344
25/03/2024	13:41:00	2.2	3.0	26	2
25/03/2024	13:42:00	2.3	3.6	26	2
25/03/2024	13:43:00	2.3	3.1	26	352
25/03/2024	13:44:00	2.2	3.1	26	10
25/03/2024	13:45:00	2.3	3.3	26	349
25/03/2024	13:46:00	2.3	3.7	26	11
25/03/2024	13:47:00	2.0	3.3	26	327
25/03/2024	13:48:00	2.3	3.1	26	352
25/03/2024	13:49:00	2.8	4.7	26	28
25/03/2024	13:50:00	2.3	5.1	26	331
25/03/2024	13:51:00	2.7	4.5	26	329
25/03/2024	13:52:00	2.5	4.3	26	3
25/03/2024	13:53:00	2.5	4.3	26	10
25/03/2024	13:54:00	2.2	3.4	26	12
25/03/2024	13:55:00	2.4	3.5	26	9
25/03/2024	13:56:00	2.3	3.6	26	41
25/03/2024	13:57:00	2.5	4.3	26	4
25/03/2024	13:58:00	2.5	4.0	26	354
25/03/2024	13:59:00	2.3	4.3	26	350
25/03/2024	14:00:00	2.1	4.6	26	349
25/03/2024	14:01:00	2.1	4.9	26	11
25/03/2024	14:02:00	2.3	4.12	26	327
25/03/2024	14:03:00	2.5	4.15	26	352
25/03/2024	14:04:00	2.7	4.18	26	28
25/03/2024	14:05:00	2.9	4.21	26	331
25/03/2024	14:06:00	2.11	4.24	26	329

Data for N 2 noise level per 10 min, dB:

3/25/2024	15:42:01	48.6	76.4	81.3	33.2	46.5	37.2
3/25/2024	15:52:01	38.5	66.3	52.5	29.5	41.9	31.8
3/25/2024	16:02:01	46.9	74.7	70.8	30	47.4	33.1
3/25/2024	16:12:01	43.6	71.4	59	28	45.9	31.5
3/25/2024	16:22:01	40.4	68.2	58.9	29.8	43.7	33
3/25/2024	16:32:01	41.8	69.6	59.4	29.4	45.4	33.4
3/25/2024	16:42:01	37.8	65.6	58.3	26	40.6	31.4
3/25/2024	16:52:01	39.4	67.2	59.2	27	42.8	30.8
3/25/2024	17:02:01	37.3	65.1	56.1	28.1	40.5	31.9
3/25/2024	17:12:01	42.5	70.3	53.7	31.6	46	36.8

3/25/2024	17:22:01	39.6	67.4	59	29.4	42.3	32.5
3/25/2024	17:32:01	35.2	63	52	25.3	38.6	28.3
3/25/2024	17:42:01	35	62.8	57.5	24.3	35	27.2
3/25/2024	17:52:01	34.8	62.6	53.8	23.8	37.7	26.6
3/25/2024	18:02:01	35.4	63.2	51.8	25	38.5	27.5
3/25/2024	18:12:01	43.7	71.5	65.4	25.8	40.9	29.5
3/25/2024	18:22:01	36.5	64.3	56.6	25	39.3	27.5
3/25/2024	18:32:01	35	62.8	51.5	26.2	37.3	28.9
3/25/2024	18:42:01	41.5	69.3	59.1	25.8	40.8	28.4
3/25/2024	18:52:01	39.2	67	62.8	24.8	38.2	27.6
3/25/2024	19:02:01	34.7	62.5	58.9	24.2	35.4	27.5
3/25/2024	19:12:01	33.8	61.6	48.1	23.4	37	27.1
3/25/2024	19:22:01	44.5	72.3	71.5	22.6	35.5	26.2
3/25/2024	19:32:01	37.2	65	61.4	24	32.6	26.5
3/25/2024	19:42:01	42.7	70.5	67.1	23.9	35.4	26.4
3/25/2024	19:52:01	37.4	65.2	56.2	26.3	40.3	29.4
3/25/2024	20:02:01	35.4	63.2	53.5	28.3	38.1	30.6
3/25/2024	20:12:01	36.3	64.1	55.9	28.6	37.7	30.7
3/25/2024	20:22:01	33.1	60.9	47	27.8	35.2	29.8
3/25/2024	20:32:01	32.8	60.6	52.9	28.2	35	29.8
3/25/2024	20:42:01	36.5	64.3	55.6	28.6	38.3	30.3
3/25/2024	20:52:01	32.5	60.3	54.2	28.1	33.3	30.1
3/25/2024	21:02:01	32.8	60.6	48.6	27.5	34.4	29.9
3/25/2024	21:12:01	48.7	76.5	74.6	27.5	48.6	30
3/25/2024	21:22:01	35.1	62.9	55.4	27.9	36	29.9
3/25/2024	21:32:01	34.4	62.2	49.8	28.9	36.5	30.9
3/25/2024	21:42:01	36.5	64.3	48	32.2	38.4	33.8
3/25/2024	21:52:01	36.3	64.1	52.1	31.1	38.4	33
3/25/2024	22:02:01	37.2	65	60.5	30.6	38.7	32.3
3/25/2024	22:12:01	36.1	63.9	54.8	30	38.6	32.2
3/25/2024	22:22:01	37.3	65.1	63.7	29.5	36.9	31.1
3/25/2024	22:32:01	32.8	60.6	50.6	27.1	34.4	29.2
3/25/2024	22:42:01	47	74.8	74.6	26.9	35.7	28.9
3/25/2024	22:52:01	34.1	61.9	57.2	26.7	34.7	29.9
3/25/2024	23:02:01	36.6	64.4	60.5	26.7	37.5	29.1
3/25/2024	23:12:01	36.1	63.9	58.3	28.1	38.6	30.9
3/25/2024	23:22:01	35	62.8	53.5	28.5	36.8	30.6
3/25/2024	23:32:01	37	64.8	53.7	28.3	39.4	30.1
3/25/2024	23:42:01	33.3	61.1	49.5	28.1	35.4	29.8
3/25/2024	23:52:01	32.1	59.9	44.5	28	33.7	30
3/26/2024	0:02:01	33.8	61.6	56.1	27.6	33.8	29.5
3/26/2024	0:12:01	30.6	58.4	46.8	27.4	31.7	29
3/26/2024	0:22:01	40	67.8	60.1	28.1	43.6	29.9
3/26/2024	0:32:01	43.3	71.1	57.1	28.3	47.6	30.9
3/26/2024	0:42:01	40.7	68.5	63.1	27.9	43.8	30.3
3/26/2024	0:52:01	56.1	83.9	74.8	30.5	60.6	36.6

3/26/2024	1:02:01	48.8	76.6	61.5	32.1	53.5	36.9
3/26/2024	1:12:01	39.3	67.1	58.2	28.3	40.9	31.4
3/26/2024	1:22:01	45.6	73.4	69.3	27.8	40.3	30.7
3/26/2024	1:32:01	34	61.8	51.3	28	35.1	30
3/26/2024	1:42:01	37.4	65.2	59.4	27.8	40.2	29.9
3/26/2024	1:52:01	41.3	69.1	58.6	27.8	45.2	29.8
3/26/2024	2:02:01	45.4	73.2	54.8	27.9	50.2	30.5
3/26/2024	2:12:01	34.9	62.7	49.4	29	38.1	31
3/26/2024	2:22:01	33.7	61.5	49.5	28.4	35.8	30.6
3/26/2024	2:32:01	33.6	61.4	56.2	28.8	35	30.5
3/26/2024	2:42:01	34.7	62.5	60.2	29.2	35.5	30.8
3/26/2024	2:52:01	36.5	64.3	59.7	29.2	37.7	31.5
3/26/2024	3:02:01	35.2	63	55.5	29.5	36.9	31.2
3/26/2024	3:12:01	45.9	73.7	55.4	31.2	50.3	33.9
3/26/2024	3:22:01	38	65.8	57.3	29.2	41.9	31.2
3/26/2024	3:32:01	33.3	61.1	48.5	28.3	35.8	30.2
3/26/2024	3:42:01	33.5	61.3	50.7	28.3	35.3	30.2
3/26/2024	3:52:01	32	59.8	49.3	27.5	33.3	29.6
3/26/2024	4:02:01	31.7	59.5	47.5	27.1	33.2	29.3
3/26/2024	4:12:01	31.7	59.5	48.5	26.8	33.3	28.8
3/26/2024	4:22:01	32.8	60.6	59.7	26.3	33.6	28.5
3/26/2024	4:32:01	36	63.8	63	26.8	37.4	29.2
3/26/2024	4:42:01	34.3	62.1	59.7	27	33.3	28.8
3/26/2024	4:52:01	37.2	65	53.8	28.1	40.3	30.6
3/26/2024	5:02:01	37.3	65.1	53.8	20.5	42.7	23.1
3/26/2024	5:12:01	27.6	55.4	54	19.1	28.3	21.2
3/26/2024	5:22:01	28.7	56.5	57.9	19.2	29.2	22.2
3/26/2024	5:32:01	29.1	56.9	46.3	18.3	33.3	20.3
3/26/2024	5:42:01	27.8	55.6	45.9	19.1	30	21.3
3/26/2024	5:52:01	27.5	55.3	47.8	18.2	30	19.6
3/26/2024	6:02:01	53.4	81.2	75.1	17.6	31.5	19.4
3/26/2024	6:12:01	27.5	55.3	49.3	18	28.9	19.8
3/26/2024	6:22:01	28.8	56.6	47.9	18.8	32.2	20.5
3/26/2024	6:32:01	33.3	61.1	60	18.7	36.8	21
3/26/2024	6:42:01	44.9	72.7	59.2	35.9	47.9	38.2
3/26/2024	6:52:01	65.5	93.3	74.6	44.1	70.2	48.5
3/26/2024	7:02:01	57	84.8	67.7	36.8	61.2	41.9
3/26/2024	7:12:01	43.9	71.7	67.5	31.2	44	34.1
3/26/2024	7:22:01	45.8	73.6	78.5	33.7	43	35.8
3/26/2024	7:32:01	42.8	70.6	72.5	31.7	44.4	34.8
3/26/2024	7:42:01	43.3	71.1	67.1	30.2	42.8	32.9
3/26/2024	7:52:01	42.5	70.3	66.8	28.1	39.4	30.7
3/26/2024	8:02:01	52.3	80.1	77.3	27	39.4	29.9
3/26/2024	8:12:01	35.6	63.4	50.3	28.1	38	30.9
3/26/2024	8:22:01	36.2	64	55.1	28	38.1	30.8
3/26/2024	8:32:01	37.6	65.4	48.8	31.4	40	33.4

3/26/2024	8:42:01	44.8	72.6	72.9	36.2	46.9	39.7
3/26/2024	8:52:01	42.8	70.6	72.1	33.4	45.6	35.5
3/26/2024	9:02:01	42.3	70.1	51.7	35.4	45.4	37.5
3/26/2024	9:12:01	69.6	97.4	81.9	36.3	75.2	39.9
3/26/2024	9:22:01	64.7	92.5	73.6	56	67.3	59.7
3/26/2024	9:32:01	69.6	97.4	75.2	56.5	72	61.9
3/26/2024	9:42:01	68.7	96.5	75.3	53.9	72.4	59.4
3/26/2024	9:52:01	58.4	86.2	66.5	51.4	61.8	53.7
3/26/2024	10:02:01	49.4	77.2	73.3	33.3	51.6	36.9
3/26/2024	10:12:01	43.5	71.3	60.5	34.9	46.3	37.8
3/26/2024	10:22:01	49.1	76.9	73.5	37.6	44.8	39.4
3/26/2024	10:32:01	49.2	77	76.1	35.5	48.4	39
3/26/2024	10:42:01	45.7	73.5	65.6	38.1	48.3	41
3/26/2024	10:52:01	49.7	77.5	72.1	37.3	49.9	40
3/26/2024	11:02:01	45.4	73.2	60.3	37.4	47.6	40.9
3/26/2024	11:12:01	43.1	70.9	54.9	33.1	46.2	36.4
3/26/2024	11:22:01	45.8	73.6	74	34.8	46	37.5
3/26/2024	11:32:01	42.9	70.7	52.2	36.9	45.8	39.1
3/26/2024	11:42:01	42.7	70.5	56.7	34.5	46.4	37.2
3/26/2024	11:52:01	47.2	75	55.2	39.5	50	43
3/26/2024	12:02:01	47.5	75.3	55.5	36.4	50.9	38.6
3/26/2024	12:12:01	51.4	79.2	61.2	38.5	55.9	41.2
3/26/2024	12:22:01	52.5	80.3	59.6	44.2	55.7	46.9
3/26/2024	12:32:01	42.8	70.6	51.9	37.4	44.9	39.9
3/26/2024	12:42:01	62.7	90.5	73.2	41.5	65.9	48.3
3/26/2024	12:52:01	65.8	93.6	72	53.1	68.3	61.4
3/26/2024	13:02:01	56.5	84.3	63.6	33.2	59.5	45.7
3/26/2024	13:12:01	53.6	81.4	65.2	33.5	58.9	38.8
3/26/2024	13:22:01	45	72.8	60.8	33.4	48.7	36.1
3/26/2024	13:32:01	44.1	71.9	55.5	36.7	46.6	39.6
3/26/2024	13:42:01	42.8	70.6	54.7	33.5	45.3	37.9
3/26/2024	13:52:01	44.2	72	54.3	38.2	46.3	41.3
3/26/2024	14:02:01	46.2	74	59.5	38.3	49.2	41.3
3/26/2024	14:12:01	46.2	74	60.2	38.4	48.7	41.3
3/26/2024	14:22:01	47.1	74.9	61.9	38.7	49.6	41.9
3/26/2024	14:32:01	48.4	76.2	68.9	41	50.3	43.5
3/26/2024	14:42:01	46.9	74.7	59.7	39	50.2	41.4
3/26/2024	14:52:01	49.4	77.2	72.7	41.4	51.8	44.2
3/26/2024	15:02:01	48.1	75.9	58.7	38.9	50.9	42.5
3/26/2024	15:12:01	49.3	77.1	68.7	42.1	51.8	44.7
3/26/2024	15:22:01	48	75.8	62.3	41	50.4	44.2
3/26/2024	15:32:01	46.2	74	60.6	38.6	48.6	41.3
3/26/2024	15:42:01	49.5	77.3	61.9	42.3	52.2	44.5

Data for N 2 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
25/03/2024	15:42:00	6.2	8.3	26	106
25/03/2024	15:43:00	5.7	7.2	26	107
25/03/2024	15:44:00	5.3	7.3	26	106
25/03/2024	15:45:00	6.3	8.4	26	108
25/03/2024	15:46:00	4.2	6.0	26	109
25/03/2024	15:47:00	4.3	5.7	26	104
25/03/2024	15:48:00	5.6	8.0	26	101
25/03/2024	15:49:00	5.2	7.0	26	105
25/03/2024	15:50:00	5.2	6.5	26	107
25/03/2024	15:51:00	5.6	7.4	26	105
25/03/2024	15:52:00	5.0	7.2	26	102
25/03/2024	15:53:00	5.3	7.3	26	104
25/03/2024	15:54:00	5.4	6.7	26	95
25/03/2024	15:55:00	4.3	5.8	26	99
25/03/2024	15:56:00	3.9	4.6	26	101
25/03/2024	15:57:00	4.5	5.5	26	106
25/03/2024	15:58:00	4.6	6.2	26	97
25/03/2024	15:59:00	3.7	4.8	26	100
25/03/2024	16:00:00	4.1	5.2	26	99
25/03/2024	16:01:00	4.1	5.7	26	106
25/03/2024	16:02:00	5.5	8.9	27	104
25/03/2024	16:03:00	6.8	9.2	27	112
25/03/2024	16:04:00	6.3	8.9	27	112
25/03/2024	16:05:00	3.8	4.7	27	106
25/03/2024	16:06:00	5.7	7.9	27	99
25/03/2024	16:07:00	4.3	6.5	27	99
25/03/2024	16:08:00	4.7	5.7	27	100
25/03/2024	16:09:00	4.3	6.7	27	100
25/03/2024	16:10:00	4.7	6.5	27	99
25/03/2024	16:11:00	4.4	7.0	27	97
25/03/2024	16:12:00	3.7	5.2	27	99
25/03/2024	16:13:00	5.3	6.4	26	101
25/03/2024	16:14:00	5.2	6.3	26	98
25/03/2024	16:15:00	5.5	7.6	26	100
25/03/2024	16:16:00	4.7	6.4	26	102
25/03/2024	16:17:00	3.7	5.6	26	98
25/03/2024	16:18:00	3.3	4.7	26	104
25/03/2024	16:19:00	3.7	4.9	26	105
25/03/2024	16:20:00	4.6	8.1	26	102
25/03/2024	16:21:00	5.2	6.7	26	109
25/03/2024	16:22:00	5.2	7.4	26	110
25/03/2024	16:23:00	4.0	5.7	26	105
25/03/2024	16:24:00	4.3	5.9	26	97
25/03/2024	16:25:00	4.5	6.6	26	100

25/03/2024	16:26:00	5.4	7.7	26	103
25/03/2024	16:27:00	5.2	6.9	26	100
25/03/2024	16:28:00	4.9	6.9	26	104
25/03/2024	16:29:00	4.0	5.3	26	98
25/03/2024	16:30:00	5.1	7.3	26	104
25/03/2024	16:31:00	3.8	5.4	26	107
25/03/2024	16:32:00	4.6	5.9	26	100
25/03/2024	16:33:00	4.2	5.1	26	108
25/03/2024	16:34:00	3.3	4.4	26	96
25/03/2024	16:35:00	6.0	8.4	26	102
25/03/2024	16:36:00	5.9	8.0	26	112
25/03/2024	16:37:00	4.3	5.3	26	109
25/03/2024	16:38:00	4.7	6.0	26	106
25/03/2024	16:39:00	5.2	7.4	26	110
25/03/2024	16:40:00	5.5	7.9	26	106
25/03/2024	16:41:00	4.2	5.9	26	97
25/03/2024	16:42:00	3.9	5.3	26	104
25/03/2024	16:43:00	4.0	5.5	26	106
25/03/2024	16:44:00	3.9	5.6	26	101
25/03/2024	16:45:00	4.0	5.7	26	99
25/03/2024	16:46:00	4.0	5.4	26	96
25/03/2024	16:47:00	4.1	5.2	26	99
25/03/2024	16:48:00	4.4	6.3	26	99
25/03/2024	16:49:00	5.4	7.8	26	108
25/03/2024	16:50:00	4.3	5.9	26	102
25/03/2024	16:51:00	3.5	4.7	26	99
25/03/2024	16:52:00	3.6	4.8	26	89
25/03/2024	16:53:00	5.2	7.1	26	112
25/03/2024	16:54:00	5.0	7.4	26	103
25/03/2024	16:55:00	3.9	4.7	26	96
25/03/2024	16:56:00	4.6	6.6	26	98
25/03/2024	16:57:00	4.5	7.0	26	99
25/03/2024	16:58:00	3.8	5.0	26	98
25/03/2024	16:59:00	3.2	3.9	26	98
25/03/2024	17:00:00	4.4	6.5	26	95
25/03/2024	17:01:00	3.8	5.3	26	98
25/03/2024	17:02:00	3.5	4.7	26	103
25/03/2024	17:03:00	3.7	4.9	26	97
25/03/2024	17:04:00	3.8	6.2	26	92
25/03/2024	17:05:00	4.4	6.4	26	95
25/03/2024	17:06:00	4.4	5.5	26	98
25/03/2024	17:07:00	4.2	5.4	26	107
25/03/2024	17:08:00	4.8	6.2	26	103
25/03/2024	17:09:00	4.2	6.4	26	99
25/03/2024	17:10:00	4.7	6.8	26	94
25/03/2024	17:11:00	3.5	5.0	26	102

25/03/2024	17:12:00	5.3	7.2	26	107
25/03/2024	17:13:00	5.1	6.1	26	94
25/03/2024	17:14:00	5.3	7.1	26	96
25/03/2024	17:15:00	4.7	6.5	26	101
25/03/2024	17:16:00	3.9	5.5	26	100
25/03/2024	17:17:00	4.3	5.5	26	96
25/03/2024	17:18:00	3.7	5.2	26	102
25/03/2024	17:19:00	3.8	5.1	26	102
25/03/2024	17:20:00	4.8	6.4	26	102
25/03/2024	17:21:00	5.2	6.4	26	102
25/03/2024	17:22:00	4.9	7.2	26	99
25/03/2024	17:23:00	4.9	7.3	26	99
25/03/2024	17:24:00	6.0	8.7	26	102
25/03/2024	17:25:00	4.0	4.8	26	108
25/03/2024	17:26:00	4.5	6.5	26	103
25/03/2024	17:27:00	4.0	5.8	26	105
25/03/2024	17:28:00	4.0	5.5	26	105
25/03/2024	17:29:00	3.6	5.1	26	104
25/03/2024	17:30:00	3.5	5.4	26	108
25/03/2024	17:31:00	4.0	5.9	26	102
25/03/2024	17:32:00	3.7	5.4	26	102
25/03/2024	17:33:00	4.3	5.9	26	99
25/03/2024	17:34:00	5.0	6.3	26	102
25/03/2024	17:35:00	3.9	4.7	26	101
25/03/2024	17:36:00	3.8	4.9	26	99
25/03/2024	17:37:00	3.3	4.4	26	102
25/03/2024	17:38:00	3.2	4.9	26	93
25/03/2024	17:39:00	3.7	5.1	25	100
25/03/2024	17:40:00	3.2	4.2	25	98
25/03/2024	17:41:00	3.3	4.1	25	100
25/03/2024	17:42:00	3.5	5.6	25	96
25/03/2024	17:43:00	3.5	5.0	25	96
25/03/2024	17:44:00	3.0	4.1	25	99
25/03/2024	17:45:00	3.2	4.6	25	99
25/03/2024	17:46:00	2.8	4.2	25	102
25/03/2024	17:47:00	2.6	4.0	25	99
25/03/2024	17:48:00	3.2	4.0	25	97
25/03/2024	17:49:00	2.8	3.6	25	98
25/03/2024	17:50:00	2.4	4.0	25	100
25/03/2024	17:51:00	2.7	3.9	25	92
25/03/2024	17:52:00	2.3	3.3	25	92
25/03/2024	17:53:00	2.0	2.9	25	98
25/03/2024	17:54:00	2.1	3.1	25	98
25/03/2024	17:55:00	2.3	3.0	25	96
25/03/2024	17:56:00	2.6	3.7	25	96
25/03/2024	17:57:00	2.3	3.4	25	91

25/03/2024	17:58:00	2.4	3.4	24	98
25/03/2024	17:59:00	2.5	3.4	24	95
25/03/2024	18:00:00	3.4	4.7	24	93
25/03/2024	18:01:00	2.4	3.1	24	97
25/03/2024	18:02:00	2.5	3.1	24	95
25/03/2024	18:03:00	2.8	3.6	24	98
25/03/2024	18:04:00	2.4	3.3	24	99
25/03/2024	18:05:00	2.7	4.0	24	94
25/03/2024	18:06:00	2.6	4.2	24	94
25/03/2024	18:07:00	3.1	4.3	24	99
25/03/2024	18:08:00	2.7	3.6	24	96
25/03/2024	18:09:00	2.8	3.5	24	93
25/03/2024	18:10:00	2.4	3.8	24	91
25/03/2024	18:11:00	2.6	3.9	24	91
25/03/2024	18:12:00	2.3	3.3	24	97
25/03/2024	18:13:00	2.2	3.7	24	96
25/03/2024	18:14:00	2.4	3.9	24	95
25/03/2024	18:15:00	2.4	3.1	24	95
25/03/2024	18:16:00	2.2	3.5	24	91
25/03/2024	18:17:00	1.7	2.3	24	86
25/03/2024	18:18:00	1.9	2.8	24	94
25/03/2024	18:19:00	1.4	1.9	24	75
25/03/2024	18:20:00	1.9	2.7	24	88
25/03/2024	18:21:00	1.9	2.5	24	87
25/03/2024	18:22:00	1.7	2.2	24	88
25/03/2024	18:23:00	1.7	2.2	24	82
25/03/2024	18:24:00	1.7	2.1	24	91
25/03/2024	18:25:00	1.5	2.2	24	89
25/03/2024	18:26:00	1.5	2.1	24	77
25/03/2024	18:27:00	1.7	2.5	24	85
25/03/2024	18:28:00	1.4	2.0	24	82
25/03/2024	18:29:00	1.6	2.2	24	80
25/03/2024	18:30:00	1.6	2.5	24	79
25/03/2024	18:31:00	1.8	2.5	24	76
25/03/2024	18:32:00	1.8	2.3	24	84
25/03/2024	18:33:00	2.0	2.7	23	84
25/03/2024	18:34:00	1.5	1.9	23	83
25/03/2024	18:35:00	1.8	2.6	23	80
25/03/2024	18:36:00	2.3	3.4	23	85
25/03/2024	18:37:00	2.2	2.8	23	87
25/03/2024	18:38:00	2.0	3.2	23	94
25/03/2024	18:39:00	1.9	3.0	23	84
25/03/2024	18:40:00	2.2	3.1	23	84
25/03/2024	18:41:00	2.3	3.1	23	82
25/03/2024	18:42:00	2.0	2.6	23	77
25/03/2024	18:43:00	2.1	3.5	23	80

25/03/2024	18:44:00	1.5	2.1	23	77
25/03/2024	18:45:00	1.4	1.9	23	78
25/03/2024	18:46:00	1.4	2.1	23	74
25/03/2024	18:47:00	1.6	2.3	23	77
25/03/2024	18:48:00	1.3	1.8	23	89
25/03/2024	18:49:00	1.4	2.0	23	87
25/03/2024	18:50:00	1.3	2.0	23	85
25/03/2024	18:51:00	1.2	1.7	23	82
25/03/2024	18:52:00	1.2	1.6	23	91
25/03/2024	18:53:00	1.4	2.0	23	86
25/03/2024	18:54:00	1.3	1.6	23	87
25/03/2024	18:55:00	1.3	1.6	23	85
25/03/2024	18:56:00	1.3	1.6	23	89
25/03/2024	18:57:00	1.4	1.9	22	89
25/03/2024	18:58:00	1.3	1.7	22	92
25/03/2024	18:59:00	1.3	2.0	22	84
25/03/2024	19:00:00	1.1	1.3	22	99
25/03/2024	19:01:00	1.1	1.4	22	86
25/03/2024	19:02:00	1.2	1.7	22	90
25/03/2024	19:03:00	1.4	1.8	22	96
25/03/2024	19:04:00	1.3	1.8	22	96
25/03/2024	19:05:00	1.6	2.1	22	104
25/03/2024	19:06:00	1.4	1.9	22	96
25/03/2024	19:07:00	1.3	1.7	22	103
25/03/2024	19:08:00	1.2	1.5	22	114
25/03/2024	19:09:00	1.4	1.7	22	103
25/03/2024	19:10:00	1.3	1.7	22	104
25/03/2024	19:11:00	1.2	1.5	22	104
25/03/2024	19:12:00	1.1	1.4	22	101
25/03/2024	19:13:00	1.1	1.4	22	105
25/03/2024	19:14:00	1.2	1.4	22	99
25/03/2024	19:15:00	1.3	1.7	22	91
25/03/2024	19:16:00	1.2	1.9	22	89
25/03/2024	19:17:00	1.2	1.4	22	104
25/03/2024	19:18:00	1.2	1.5	21	97
25/03/2024	19:19:00	1.1	1.3	21	94
25/03/2024	19:20:00	0.9	1.2	21	91
25/03/2024	19:21:00	1.0	1.5	21	72
25/03/2024	19:22:00	0.9	1.1	21	71
25/03/2024	19:23:00	0.8	1.0	21	65
25/03/2024	19:24:00	0.7	0.9	21	60
25/03/2024	19:25:00	0.7	1.1	21	62
25/03/2024	19:26:00	0.9	1.1	21	81
25/03/2024	19:27:00	0.9	1.2	21	70
25/03/2024	19:28:00	0.8	1.1	21	67
25/03/2024	19:29:00	0.8	0.9	21	67

25/03/2024	19:30:00	1.1	1.5	21	76
25/03/2024	19:31:00	0.8	1.1	21	76
25/03/2024	19:32:00	1.1	1.5	21	72
25/03/2024	19:33:00	1.0	1.3	21	68
25/03/2024	19:34:00	1.1	1.7	21	72
25/03/2024	19:35:00	1.1	1.7	21	62
25/03/2024	19:36:00	1.2	1.7	21	72
25/03/2024	19:37:00	0.9	1.2	21	70
25/03/2024	19:38:00	0.9	1.1	21	62
25/03/2024	19:39:00	0.9	1.0	21	64
25/03/2024	19:40:00	1.0	1.2	21	65
25/03/2024	19:41:00	1.1	1.4	21	67
25/03/2024	19:42:00	1.1	1.3	21	70
25/03/2024	19:43:00	1.1	1.3	21	73
25/03/2024	19:44:00	1.1	1.4	21	69
25/03/2024	19:45:00	1.1	1.5	21	70
25/03/2024	19:46:00	1.3	2.0	21	75
25/03/2024	19:47:00	1.2	1.5	20	75
25/03/2024	19:48:00	1.3	1.7	20	76
25/03/2024	19:49:00	1.4	1.8	20	71
25/03/2024	19:50:00	1.3	2.0	20	69
25/03/2024	19:51:00	1.1	1.3	20	65
25/03/2024	19:52:00	1.1	1.5	20	71
25/03/2024	19:53:00	1.5	2.7	20	80
25/03/2024	19:54:00	1.5	2.1	20	83
25/03/2024	19:55:00	1.3	2.0	20	75
25/03/2024	19:56:00	1.3	1.9	20	79
25/03/2024	19:57:00	1.1	1.4	20	74
25/03/2024	19:58:00	1.3	2.2	20	75
25/03/2024	19:59:00	1.5	1.9	20	86
25/03/2024	20:00:00	1.0	1.3	20	62
25/03/2024	20:01:00	1.6	2.7	20	82
25/03/2024	20:02:00	1.5	2.1	20	81
25/03/2024	20:03:00	1.5	2.1	20	81
25/03/2024	20:04:00	1.3	2.1	20	72
25/03/2024	20:05:00	1.4	2.1	20	78
25/03/2024	20:06:00	1.6	2.1	20	78
25/03/2024	20:07:00	1.5	2.0	20	78
25/03/2024	20:08:00	1.6	2.2	20	84
25/03/2024	20:09:00	1.4	2.0	20	75
25/03/2024	20:10:00	1.3	1.8	20	74
25/03/2024	20:11:00	1.7	2.6	20	77
25/03/2024	20:12:00	1.7	2.4	20	80
25/03/2024	20:13:00	1.5	2.4	20	80
25/03/2024	20:14:00	1.6	2.6	20	81
25/03/2024	20:15:00	1.6	2.1	20	83

25/03/2024	20:16:00	1.7	2.4	20	85
25/03/2024	20:17:00	1.7	2.7	20	73
25/03/2024	20:18:00	1.7	2.5	20	80
25/03/2024	20:19:00	1.9	2.6	20	79
25/03/2024	20:20:00	1.9	2.9	20	78
25/03/2024	20:21:00	1.9	2.7	20	79
25/03/2024	20:22:00	1.9	2.8	20	76
25/03/2024	20:23:00	1.8	2.6	20	82
25/03/2024	20:24:00	2.1	3.3	20	82
25/03/2024	20:25:00	1.9	3.0	20	83
25/03/2024	20:26:00	2.2	4.0	20	84
25/03/2024	20:27:00	2.3	3.4	20	82
25/03/2024	20:28:00	2.6	3.8	20	83
25/03/2024	20:29:00	1.9	2.6	20	83
25/03/2024	20:30:00	2.1	3.0	20	83
25/03/2024	20:31:00	2.2	3.1	20	87
25/03/2024	20:32:00	2.3	3.4	20	80
25/03/2024	20:33:00	2.4	3.5	20	86
25/03/2024	20:34:00	2.3	3.1	20	79
25/03/2024	20:35:00	2.2	3.1	21	82
25/03/2024	20:36:00	2.5	3.7	21	81
25/03/2024	20:37:00	2.4	3.4	21	83
25/03/2024	20:38:00	2.5	3.5	21	85
25/03/2024	20:39:00	2.3	3.3	21	85
25/03/2024	20:40:00	2.5	3.4	21	87
25/03/2024	20:41:00	2.1	2.8	21	83
25/03/2024	20:42:00	2.1	3.5	21	82
25/03/2024	20:43:00	2.1	3.8	21	84
25/03/2024	20:44:00	2.3	3.6	21	79
25/03/2024	20:45:00	2.2	3.2	21	78
25/03/2024	20:46:00	2.0	2.6	21	86
25/03/2024	20:47:00	2.4	3.6	21	83
25/03/2024	20:48:00	2.1	2.9	21	79
25/03/2024	20:49:00	2.1	3.5	21	82
25/03/2024	20:50:00	2.3	3.6	21	84
25/03/2024	20:51:00	2.5	3.5	21	81
25/03/2024	20:52:00	2.0	3.1	21	81
25/03/2024	20:53:00	2.3	3.4	21	83
25/03/2024	20:54:00	2.3	3.6	21	79
25/03/2024	20:55:00	2.2	3.7	21	79
25/03/2024	20:56:00	2.3	3.9	21	79
25/03/2024	20:57:00	2.3	3.3	21	92
25/03/2024	20:58:00	2.3	4.3	21	82
25/03/2024	20:59:00	2.4	3.3	21	75
25/03/2024	21:00:00	2.2	2.8	21	84
25/03/2024	21:01:00	2.5	3.4	21	76

25/03/2024	21:02:00	2.1	2.6	21	83
25/03/2024	21:03:00	2.1	2.7	21	83
25/03/2024	21:04:00	1.9	3.0	21	79
25/03/2024	21:05:00	2.2	2.9	21	82
25/03/2024	21:06:00	2.0	3.0	21	80
25/03/2024	21:07:00	2.1	3.3	21	82
25/03/2024	21:08:00	1.4	2.2	21	76
25/03/2024	21:09:00	1.4	2.2	21	78
25/03/2024	21:10:00	1.2	1.8	21	69
25/03/2024	21:11:00	1.1	1.5	21	71
25/03/2024	21:12:00	1.1	1.3	21	74
25/03/2024	21:13:00	1.1	1.3	21	66
25/03/2024	21:14:00	1.2	1.7	21	71
25/03/2024	21:15:00	1.2	1.4	21	66
25/03/2024	21:16:00	1.4	2.5	21	70
25/03/2024	21:17:00	1.3	2.0	21	76
25/03/2024	21:18:00	1.1	1.4	21	71
25/03/2024	21:19:00	1.5	2.0	20	79
25/03/2024	21:20:00	1.7	2.6	20	76
25/03/2024	21:21:00	1.7	2.3	20	84
25/03/2024	21:22:00	2.1	3.6	20	78
25/03/2024	21:23:00	2.3	3.4	20	84
25/03/2024	21:24:00	2.0	2.7	20	84
25/03/2024	21:25:00	1.8	2.8	20	81
25/03/2024	21:26:00	2.2	3.2	20	92
25/03/2024	21:27:00	2.2	4.4	20	82
25/03/2024	21:28:00	2.2	2.9	19	83
25/03/2024	21:29:00	2.3	3.2	19	79
25/03/2024	21:30:00	2.4	4.0	19	76
25/03/2024	21:31:00	2.2	3.3	19	79
25/03/2024	21:32:00	2.3	3.8	19	79
25/03/2024	21:33:00	1.9	2.8	19	79
25/03/2024	21:34:00	2.6	5.1	19	82
25/03/2024	21:35:00	2.7	3.8	19	83
25/03/2024	21:36:00	3.0	4.8	19	91
25/03/2024	21:37:00	2.5	3.5	19	88
25/03/2024	21:38:00	3.7	4.8	19	92
25/03/2024	21:39:00	3.7	4.6	20	86
25/03/2024	21:40:00	3.8	5.1	20	89
25/03/2024	21:41:00	4.1	5.5	20	91
25/03/2024	21:42:00	4.4	5.9	20	92
25/03/2024	21:43:00	3.5	4.8	20	94
25/03/2024	21:44:00	4.3	5.4	20	87
25/03/2024	21:45:00	3.9	5.6	20	90
25/03/2024	21:46:00	4.8	6.8	21	97
25/03/2024	21:47:00	3.8	5.5	21	91

25/03/2024	21:48:00	4.2	6.7	21	88
25/03/2024	21:49:00	4.3	5.7	21	90
25/03/2024	21:50:00	4.5	5.7	21	83
25/03/2024	21:51:00	3.6	5.0	21	91
25/03/2024	21:52:00	4.1	5.6	21	96
25/03/2024	21:53:00	3.7	5.1	21	93
25/03/2024	21:54:00	3.5	4.4	21	91
25/03/2024	21:55:00	4.3	5.8	21	87
25/03/2024	21:56:00	4.6	6.1	22	95
25/03/2024	21:57:00	3.9	4.9	22	94
25/03/2024	21:58:00	4.0	7.2	22	93
25/03/2024	21:59:00	5.1	6.7	22	91
25/03/2024	22:00:00	3.6	4.1	22	96
25/03/2024	22:01:00	4.1	5.9	22	93
25/03/2024	22:02:00	3.9	5.7	22	94
25/03/2024	22:03:00	3.9	5.7	22	94
25/03/2024	22:04:00	3.9	5.3	22	97
25/03/2024	22:05:00	4.1	5.1	22	87
25/03/2024	22:06:00	4.0	5.5	22	96
25/03/2024	22:07:00	3.2	4.5	22	91
25/03/2024	22:08:00	2.9	4.1	22	88
25/03/2024	22:09:00	3.2	5.6	22	95
25/03/2024	22:10:00	4.7	6.3	22	96
25/03/2024	22:11:00	4.4	6.0	22	93
25/03/2024	22:12:00	4.0	6.3	22	92
25/03/2024	22:13:00	4.0	5.0	22	92
25/03/2024	22:14:00	3.4	4.0	22	91
25/03/2024	22:15:00	3.7	4.9	22	95
25/03/2024	22:16:00	3.5	4.5	22	88
25/03/2024	22:17:00	3.5	4.7	22	89
25/03/2024	22:18:00	3.8	5.3	22	79
25/03/2024	22:19:00	3.6	6.4	22	86
25/03/2024	22:20:00	2.8	4.3	22	81
25/03/2024	22:21:00	2.7	3.8	22	87
25/03/2024	22:22:00	2.4	3.7	22	85
25/03/2024	22:23:00	2.3	4.1	22	81
25/03/2024	22:24:00	2.8	3.3	22	90
25/03/2024	22:25:00	3.0	4.4	22	84
25/03/2024	22:26:00	2.9	3.9	22	83
25/03/2024	22:27:00	3.4	5.1	22	88
25/03/2024	22:28:00	3.4	4.2	22	83
25/03/2024	22:29:00	3.2	4.0	22	90
25/03/2024	22:30:00	3.9	5.1	22	88
25/03/2024	22:31:00	3.8	6.6	22	80
25/03/2024	22:32:00	3.2	4.1	22	88
25/03/2024	22:33:00	2.5	3.4	22	82

25/03/2024	22:34:00	3.0	4.2	22	86
25/03/2024	22:35:00	2.8	3.8	22	88
25/03/2024	22:36:00	2.3	3.3	22	81
25/03/2024	22:37:00	2.5	3.7	22	77
25/03/2024	22:38:00	2.6	3.9	22	89
25/03/2024	22:39:00	1.9	3.7	22	81
25/03/2024	22:40:00	2.0	3.1	22	86
25/03/2024	22:41:00	2.7	3.5	22	87
25/03/2024	22:42:00	2.9	4.5	21	83
25/03/2024	22:43:00	2.5	3.3	21	90
25/03/2024	22:44:00	2.5	3.7	21	79
25/03/2024	22:45:00	2.6	4.5	21	85
25/03/2024	22:46:00	3.1	4.0	21	81
25/03/2024	22:47:00	2.4	3.8	21	84
25/03/2024	22:48:00	2.6	3.3	21	77
25/03/2024	22:49:00	2.6	3.9	21	85
25/03/2024	22:50:00	2.7	4.1	21	92
25/03/2024	22:51:00	2.0	3.1	21	80
25/03/2024	22:52:00	2.2	3.4	21	81
25/03/2024	22:53:00	2.5	3.3	21	79
25/03/2024	22:54:00	2.5	3.6	21	86
25/03/2024	22:55:00	2.5	3.6	21	85
25/03/2024	22:56:00	3.0	4.3	21	85
25/03/2024	22:57:00	3.3	4.4	21	83
25/03/2024	22:58:00	2.9	4.6	21	82
25/03/2024	22:59:00	3.0	4.2	21	84
25/03/2024	23:00:00	3.3	4.3	21	88
25/03/2024	23:01:00	3.3	4.3	21	82
25/03/2024	23:02:00	2.7	4.4	21	85
25/03/2024	23:03:00	3.1	4.9	21	84
25/03/2024	23:04:00	3.7	4.8	21	88
25/03/2024	23:05:00	3.1	4.7	21	84
25/03/2024	23:06:00	3.0	4.3	21	87
25/03/2024	23:07:00	3.0	3.9	21	87
25/03/2024	23:08:00	3.1	4.5	21	89
25/03/2024	23:09:00	2.2	2.7	21	87
25/03/2024	23:10:00	2.4	3.3	21	87
25/03/2024	23:11:00	2.6	3.8	21	86
25/03/2024	23:12:00	3.0	4.3	21	83
25/03/2024	23:13:00	3.0	4.9	21	83
25/03/2024	23:14:00	3.3	4.5	21	81
25/03/2024	23:15:00	4.1	6.2	21	89
25/03/2024	23:16:00	3.6	4.7	21	87
25/03/2024	23:17:00	3.3	5.4	21	83
25/03/2024	23:18:00	3.4	4.6	21	83
25/03/2024	23:19:00	4.2	5.7	21	85

25/03/2024	23:20:00	3.9	4.9	21	84
25/03/2024	23:21:00	3.4	5.5	21	84
25/03/2024	23:22:00	3.1	5.2	21	85
25/03/2024	23:23:00	2.8	3.6	21	86
25/03/2024	23:24:00	3.2	4.5	21	86
25/03/2024	23:25:00	3.2	4.2	21	89
25/03/2024	23:26:00	3.2	4.5	21	87
25/03/2024	23:27:00	3.0	3.8	21	88
25/03/2024	23:28:00	3.4	5.6	21	73
25/03/2024	23:29:00	3.0	4.5	21	87
25/03/2024	23:30:00	2.9	4.7	21	86
25/03/2024	23:31:00	2.4	4.0	21	78
25/03/2024	23:32:00	3.1	4.8	21	81
25/03/2024	23:33:00	2.3	4.1	21	80
25/03/2024	23:34:00	2.9	4.5	21	90
25/03/2024	23:35:00	2.4	3.3	21	82
25/03/2024	23:36:00	2.0	3.0	21	81
25/03/2024	23:37:00	2.9	4.3	21	81
25/03/2024	23:38:00	2.7	3.7	21	82
25/03/2024	23:39:00	2.5	3.5	21	84
25/03/2024	23:40:00	3.1	3.9	21	88
25/03/2024	23:41:00	3.0	4.3	21	87
25/03/2024	23:42:00	3.2	4.7	21	90
25/03/2024	23:43:00	2.8	4.6	21	79
25/03/2024	23:44:00	3.1	4.2	21	85
25/03/2024	23:45:00	3.3	4.5	21	91
25/03/2024	23:46:00	3.2	5.0	21	82
25/03/2024	23:47:00	3.1	3.9	21	87
25/03/2024	23:48:00	2.8	3.6	21	90
25/03/2024	23:49:00	2.7	3.9	21	85
25/03/2024	23:50:00	3.2	4.3	21	89
25/03/2024	23:51:00	3.0	4.1	21	86
25/03/2024	23:52:00	2.5	3.2	21	89
25/03/2024	23:53:00	3.1	4.2	21	85
25/03/2024	23:54:00	3.1	5.0	21	81
25/03/2024	23:55:00	2.2	3.0	21	84
25/03/2024	23:56:00	2.4	3.0	21	86
25/03/2024	23:57:00	2.7	3.9	21	81
25/03/2024	23:58:00	2.8	3.5	21	82
25/03/2024	23:59:00	2.6	3.9	21	83
26/03/2024	00:00:00	3.2	4.2	21	97
26/03/2024	00:01:00	3.2	4.4	21	81
26/03/2024	00:02:00	3.1	4.2	21	89
26/03/2024	00:03:00	2.7	3.7	21	87
26/03/2024	00:04:00	3.1	4.9	21	81
26/03/2024	00:05:00	3.2	4.1	21	90

26/03/2024	00:06:00	2.9	4.1	21	90
26/03/2024	00:07:00	2.6	4.0	21	86
26/03/2024	00:08:00	3.2	4.8	21	85
26/03/2024	00:09:00	2.9	4.7	21	84
26/03/2024	00:10:00	2.7	4.0	21	86
26/03/2024	00:11:00	2.6	3.5	21	79
26/03/2024	00:12:00	2.7	4.0	21	85
26/03/2024	00:13:00	2.7	3.8	21	81
26/03/2024	00:14:00	3.1	4.4	21	80
26/03/2024	00:15:00	2.3	3.2	21	83
26/03/2024	00:16:00	2.7	3.6	21	86
26/03/2024	00:17:00	2.7	3.4	20	77
26/03/2024	00:18:00	2.6	3.2	20	85
26/03/2024	00:19:00	2.6	4.4	20	87
26/03/2024	00:20:00	2.9	4.0	20	84
26/03/2024	00:21:00	2.8	4.6	20	84
26/03/2024	00:22:00	3.1	5.1	20	86
26/03/2024	00:23:00	2.9	5.1	20	91
26/03/2024	00:24:00	2.4	3.2	20	89
26/03/2024	00:25:00	2.7	4.1	20	92
26/03/2024	00:26:00	2.4	3.3	20	87
26/03/2024	00:27:00	3.0	4.5	20	93
26/03/2024	00:28:00	2.3	2.9	20	86
26/03/2024	00:29:00	3.3	4.7	20	89
26/03/2024	00:30:00	2.9	3.8	20	92
26/03/2024	00:31:00	3.2	4.3	20	90
26/03/2024	00:32:00	2.7	3.8	20	80
26/03/2024	00:33:00	2.7	3.5	20	93
26/03/2024	00:34:00	3.6	5.2	20	92
26/03/2024	00:35:00	2.5	3.2	20	91
26/03/2024	00:36:00	3.0	4.3	20	90
26/03/2024	00:37:00	2.9	4.0	20	94
26/03/2024	00:38:00	2.9	4.5	20	83
26/03/2024	00:39:00	3.4	4.7	20	98
26/03/2024	00:40:00	2.5	3.3	20	87
26/03/2024	00:41:00	2.8	3.8	20	88
26/03/2024	00:42:00	3.7	5.7	20	86
26/03/2024	00:43:00	3.2	4.9	20	85
26/03/2024	00:44:00	2.9	3.5	20	88
26/03/2024	00:45:00	2.8	4.1	20	88
26/03/2024	00:46:00	2.7	3.9	20	93
26/03/2024	00:47:00	2.8	3.8	20	89
26/03/2024	00:48:00	2.5	4.2	21	86
26/03/2024	00:49:00	3.1	4.3	21	89
26/03/2024	00:50:00	3.0	3.7	21	93
26/03/2024	00:51:00	3.6	5.4	21	101

26/03/2024	00:52:00	3.0	3.8	21	103
26/03/2024	00:53:00	3.4	4.7	21	105
26/03/2024	00:54:00	3.4	4.2	21	119
26/03/2024	00:55:00	2.6	3.6	21	120
26/03/2024	00:56:00	2.3	3.5	21	120
26/03/2024	00:57:00	3.2	4.3	20	117
26/03/2024	00:58:00	3.6	4.8	20	142
26/03/2024	00:59:00	4.0	6.4	20	142
26/03/2024	01:00:00	2.8	5.0	20	147
26/03/2024	01:01:00	2.7	5.5	20	166
26/03/2024	01:02:00	4.7	7.1	20	145
26/03/2024	01:03:00	4.7	6.2	20	140
26/03/2024	01:04:00	6.2	8.5	20	122
26/03/2024	01:05:00	5.2	7.5	20	134
26/03/2024	01:06:00	5.5	6.8	20	135
26/03/2024	01:07:00	4.9	6.4	20	139
26/03/2024	01:08:00	4.8	5.9	20	140
26/03/2024	01:09:00	4.9	6.5	20	129
26/03/2024	01:10:00	4.7	6.0	20	119
26/03/2024	01:11:00	4.2	5.6	20	135
26/03/2024	01:12:00	3.9	5.6	20	135
26/03/2024	01:13:00	4.1	5.2	20	133
26/03/2024	01:14:00	3.7	4.7	20	122
26/03/2024	01:15:00	3.8	4.9	20	125
26/03/2024	01:16:00	3.8	4.7	20	130
26/03/2024	01:17:00	3.3	4.6	20	120
26/03/2024	01:18:00	3.2	4.1	20	132
26/03/2024	01:19:00	3.0	3.8	20	138
26/03/2024	01:20:00	2.9	3.9	20	130
26/03/2024	01:21:00	2.4	3.5	20	120
26/03/2024	01:22:00	2.7	3.4	20	132
26/03/2024	01:23:00	2.3	3.1	20	115
26/03/2024	01:24:00	2.1	2.7	20	120
26/03/2024	01:25:00	1.6	2.1	20	116
26/03/2024	01:26:00	1.8	2.7	20	116
26/03/2024	01:27:00	2.1	3.0	20	119
26/03/2024	01:28:00	1.3	1.9	20	109
26/03/2024	01:29:00	1.4	1.9	21	105
26/03/2024	01:30:00	1.6	2.5	20	106
26/03/2024	01:31:00	1.8	2.7	20	101
26/03/2024	01:32:00	1.7	2.8	20	108
26/03/2024	01:33:00	1.8	2.3	20	111
26/03/2024	01:34:00	1.7	2.2	20	106
26/03/2024	01:35:00	1.5	1.8	20	96
26/03/2024	01:36:00	1.5	1.9	20	110
26/03/2024	01:37:00	1.5	2.0	20	106

26/03/2024	01:38:00	1.0	1.6	20	106
26/03/2024	01:39:00	1.3	1.7	20	117
26/03/2024	01:40:00	1.7	2.5	20	106
26/03/2024	01:41:00	1.7	2.3	20	97
26/03/2024	01:42:00	1.9	3.2	20	105
26/03/2024	01:43:00	1.6	2.5	20	106
26/03/2024	01:44:00	1.7	2.3	20	102
26/03/2024	01:45:00	1.5	2.4	20	109
26/03/2024	01:46:00	1.6	2.1	20	99
26/03/2024	01:47:00	1.4	2.2	20	98
26/03/2024	01:48:00	1.2	2.3	20	104
26/03/2024	01:49:00	1.3	1.8	19	108
26/03/2024	01:50:00	1.1	1.5	19	109
26/03/2024	01:51:00	1.0	1.3	19	113
26/03/2024	01:52:00	1.2	1.6	19	97
26/03/2024	01:53:00	1.2	1.8	19	94
26/03/2024	01:54:00	1.1	2.0	19	99
26/03/2024	01:55:00	1.4	2.2	19	112
26/03/2024	01:56:00	1.2	1.7	19	99
26/03/2024	01:57:00	1.6	2.1	19	108
26/03/2024	01:58:00	1.4	1.8	19	104
26/03/2024	01:59:00	1.3	2.1	19	102
26/03/2024	02:00:00	1.3	1.9	19	98
26/03/2024	02:01:00	1.5	2.7	19	106
26/03/2024	02:02:00	1.3	2.6	19	109
26/03/2024	02:03:00	1.5	2.3	19	99
26/03/2024	02:04:00	1.3	1.9	19	86
26/03/2024	02:05:00	1.7	2.7	19	100
26/03/2024	02:06:00	1.9	3.0	19	117
26/03/2024	02:07:00	1.7	2.5	19	101
26/03/2024	02:08:00	1.9	2.8	19	108
26/03/2024	02:09:00	1.9	2.9	19	104
26/03/2024	02:10:00	1.9	2.8	19	105
26/03/2024	02:11:00	1.6	2.2	19	102
26/03/2024	02:12:00	1.7	2.5	19	99
26/03/2024	02:13:00	2.2	3.5	19	113
26/03/2024	02:14:00	2.0	2.8	19	107
26/03/2024	02:15:00	2.1	3.1	19	105
26/03/2024	02:16:00	2.1	3.1	19	109
26/03/2024	02:17:00	2.3	3.2	19	111
26/03/2024	02:18:00	1.9	3.1	19	102
26/03/2024	02:19:00	2.5	3.5	19	110
26/03/2024	02:20:00	2.1	3.1	19	107
26/03/2024	02:21:00	2.2	3.9	19	103
26/03/2024	02:22:00	1.9	3.2	19	109
26/03/2024	02:23:00	1.9	2.9	19	100

26/03/2024	02:24:00	2.2	3.2	19	105
26/03/2024	02:25:00	2.4	4.1	19	112
26/03/2024	02:26:00	2.2	3.0	19	111
26/03/2024	02:27:00	1.9	3.6	19	109
26/03/2024	02:28:00	2.4	3.8	19	112
26/03/2024	02:29:00	2.8	3.7	19	108
26/03/2024	02:30:00	2.2	3.0	19	104
26/03/2024	02:31:00	2.0	3.2	19	107
26/03/2024	02:32:00	2.6	3.6	19	106
26/03/2024	02:33:00	2.4	3.5	19	112
26/03/2024	02:34:00	2.3	3.2	19	100
26/03/2024	02:35:00	2.1	3.8	19	108
26/03/2024	02:36:00	2.3	3.5	19	107
26/03/2024	02:37:00	2.6	3.7	19	108
26/03/2024	02:38:00	2.4	3.9	19	105
26/03/2024	02:39:00	2.4	4.0	19	107
26/03/2024	02:40:00	2.5	3.4	19	106
26/03/2024	02:41:00	2.7	4.3	19	105
26/03/2024	02:42:00	1.9	2.5	19	112
26/03/2024	02:43:00	2.4	4.2	19	111
26/03/2024	02:44:00	2.5	4.9	19	114
26/03/2024	02:45:00	2.6	4.2	19	110
26/03/2024	02:46:00	2.5	3.4	19	107
26/03/2024	02:47:00	2.3	3.6	19	109
26/03/2024	02:48:00	2.3	3.3	19	108
26/03/2024	02:49:00	2.5	3.6	19	106
26/03/2024	02:50:00	3.0	4.3	19	107
26/03/2024	02:51:00	2.8	4.6	19	106
26/03/2024	02:52:00	2.9	4.3	19	105
26/03/2024	02:53:00	2.8	4.4	19	109
26/03/2024	02:54:00	2.1	3.8	19	103
26/03/2024	02:55:00	2.6	4.3	19	108
26/03/2024	02:56:00	2.6	3.4	19	104
26/03/2024	02:57:00	2.8	4.4	19	99
26/03/2024	02:58:00	2.5	4.2	19	118
26/03/2024	02:59:00	2.8	4.6	19	106
26/03/2024	03:00:00	2.5	3.7	19	108
26/03/2024	03:01:00	2.2	3.2	19	109
26/03/2024	03:02:00	2.6	3.8	19	106
26/03/2024	03:03:00	2.3	3.8	19	99
26/03/2024	03:04:00	2.6	3.9	19	110
26/03/2024	03:05:00	2.5	3.4	19	110
26/03/2024	03:06:00	2.9	3.8	19	107
26/03/2024	03:07:00	2.4	4.4	19	108
26/03/2024	03:08:00	2.8	4.1	19	108
26/03/2024	03:09:00	2.8	4.2	19	104

26/03/2024	03:10:00	2.4	3.8	19	102
26/03/2024	03:11:00	2.6	4.5	19	103
26/03/2024	03:12:00	2.6	4.1	19	113
26/03/2024	03:13:00	3.0	4.0	19	107
26/03/2024	03:14:00	2.7	4.2	19	113
26/03/2024	03:15:00	2.8	4.5	19	113
26/03/2024	03:16:00	2.1	3.4	19	104
26/03/2024	03:17:00	2.6	3.9	19	114
26/03/2024	03:18:00	2.1	3.9	19	99
26/03/2024	03:19:00	2.7	4.0	19	103
26/03/2024	03:20:00	2.7	4.0	19	122
26/03/2024	03:21:00	2.7	3.7	19	104
26/03/2024	03:22:00	2.3	4.5	19	101
26/03/2024	03:23:00	2.6	3.8	19	106
26/03/2024	03:24:00	2.6	3.5	19	106
26/03/2024	03:25:00	2.2	3.3	19	108
26/03/2024	03:26:00	2.6	4.0	19	109
26/03/2024	03:27:00	2.9	4.3	19	108
26/03/2024	03:28:00	2.7	3.9	19	110
26/03/2024	03:29:00	2.2	3.7	19	117
26/03/2024	03:30:00	2.5	3.3	19	113
26/03/2024	03:31:00	2.7	3.9	19	104
26/03/2024	03:32:00	2.6	3.6	19	111
26/03/2024	03:33:00	2.5	3.6	19	104
26/03/2024	03:34:00	2.6	4.4	19	110
26/03/2024	03:35:00	2.3	3.7	19	111
26/03/2024	03:36:00	2.3	4.0	19	105
26/03/2024	03:37:00	2.1	3.0	19	112
26/03/2024	03:38:00	2.6	3.7	19	110
26/03/2024	03:39:00	2.2	3.1	19	109
26/03/2024	03:40:00	2.7	4.5	19	110
26/03/2024	03:41:00	2.1	3.3	19	107
26/03/2024	03:42:00	2.3	3.3	19	113
26/03/2024	03:43:00	2.4	3.5	19	105
26/03/2024	03:44:00	2.7	3.8	19	102
26/03/2024	03:45:00	2.3	3.8	19	108
26/03/2024	03:46:00	2.4	3.6	19	108
26/03/2024	03:47:00	2.4	3.4	19	108
26/03/2024	03:48:00	2.6	4.3	19	100
26/03/2024	03:49:00	2.4	4.3	19	110
26/03/2024	03:50:00	2.3	3.3	19	108
26/03/2024	03:51:00	2.5	4.1	19	106
26/03/2024	03:52:00	1.9	2.9	19	112
26/03/2024	03:53:00	2.4	3.8	19	112
26/03/2024	03:54:00	2.0	3.7	19	110
26/03/2024	03:55:00	2.4	3.9	19	109

26/03/2024	03:56:00	2.4	3.7	19	107
26/03/2024	03:57:00	1.7	3.2	19	122
26/03/2024	03:58:00	2.2	3.8	19	99
26/03/2024	03:59:00	2.1	3.2	19	110
26/03/2024	04:00:00	2.4	4.0	19	110
26/03/2024	04:01:00	2.1	3.3	19	105
26/03/2024	04:02:00	2.6	3.7	19	110
26/03/2024	04:03:00	2.4	3.6	19	107
26/03/2024	04:04:00	2.5	3.6	19	110
26/03/2024	04:05:00	2.3	3.4	19	97
26/03/2024	04:06:00	2.4	4.1	19	107
26/03/2024	04:07:00	2.6	3.7	19	109
26/03/2024	04:08:00	2.1	3.1	19	103
26/03/2024	04:09:00	2.1	3.3	19	102
26/03/2024	04:10:00	2.6	3.7	19	109
26/03/2024	04:11:00	2.2	3.6	19	108
26/03/2024	04:12:00	2.4	3.2	19	107
26/03/2024	04:13:00	2.2	3.4	19	117
26/03/2024	04:14:00	2.3	3.3	19	102
26/03/2024	04:15:00	1.5	2.4	19	117
26/03/2024	04:16:00	2.3	3.4	19	99
26/03/2024	04:17:00	1.9	3.3	19	109
26/03/2024	04:18:00	2.4	3.2	19	110
26/03/2024	04:19:00	2.1	3.3	19	106
26/03/2024	04:20:00	2.7	4.0	19	115
26/03/2024	04:21:00	3.0	4.2	19	109
26/03/2024	04:22:00	2.7	3.9	19	113
26/03/2024	04:23:00	2.5	3.8	19	115
26/03/2024	04:24:00	2.7	3.6	19	117
26/03/2024	04:25:00	2.1	3.1	19	112
26/03/2024	04:26:00	2.7	3.4	19	114
26/03/2024	04:27:00	2.3	3.1	19	127
26/03/2024	04:28:00	2.4	3.3	18	103
26/03/2024	04:29:00	1.9	2.7	18	110
26/03/2024	04:30:00	2.7	3.6	18	110
26/03/2024	04:31:00	1.9	3.2	18	105
26/03/2024	04:32:00	2.3	3.3	18	108
26/03/2024	04:33:00	2.8	4.6	18	111
26/03/2024	04:34:00	2.3	3.2	18	111
26/03/2024	04:35:00	2.3	3.7	18	102
26/03/2024	04:36:00	2.3	3.4	18	107
26/03/2024	04:37:00	2.1	3.3	18	110
26/03/2024	04:38:00	2.4	3.7	18	108
26/03/2024	04:39:00	2.3	4.1	18	114
26/03/2024	04:40:00	2.2	3.2	18	111
26/03/2024	04:41:00	2.5	3.8	18	114

26/03/2024	04:42:00	2.6	4.0	18	110
26/03/2024	04:43:00	2.1	3.4	18	107
26/03/2024	04:44:00	2.1	2.7	18	114
26/03/2024	04:45:00	2.4	4.2	18	104
26/03/2024	04:46:00	2.6	3.8	18	105
26/03/2024	04:47:00	2.3	4.3	18	110
26/03/2024	04:48:00	2.4	3.7	18	110
26/03/2024	04:49:00	2.3	4.2	18	103
26/03/2024	04:50:00	2.4	4.0	18	119
26/03/2024	04:51:00	3.1	5.1	19	112
26/03/2024	04:52:00	3.2	3.9	19	107
26/03/2024	04:53:00	3.0	4.2	19	110
26/03/2024	04:54:00	3.0	4.1	19	116
26/03/2024	04:55:00	2.4	4.3	19	111
26/03/2024	04:56:00	2.5	3.7	19	108
26/03/2024	04:57:00	3.3	4.7	19	109
26/03/2024	04:58:00	2.5	3.7	19	104
26/03/2024	04:59:00	2.6	3.3	19	107
26/03/2024	05:00:00	2.7	3.9	19	103
26/03/2024	05:01:00	2.5	4.1	19	105
26/03/2024	05:02:00	2.2	3.4	19	108
26/03/2024	05:03:00	2.8	3.8	19	113
26/03/2024	05:04:00	2.7	4.0	19	119
26/03/2024	05:05:00	3.0	4.5	19	118
26/03/2024	05:06:00	2.5	3.5	19	112
26/03/2024	05:07:00	2.5	3.8	19	112
26/03/2024	05:08:00	2.0	3.2	19	111
26/03/2024	05:09:00	2.7	4.0	19	115
26/03/2024	05:10:00	2.4	3.5	19	113
26/03/2024	05:11:00	2.4	3.5	19	112
26/03/2024	05:12:00	2.2	3.2	19	116
26/03/2024	05:13:00	2.2	4.0	18	102
26/03/2024	05:14:00	2.1	3.3	18	103
26/03/2024	05:15:00	1.7	2.7	18	129
26/03/2024	05:16:00	1.9	2.7	18	111
26/03/2024	05:17:00	2.0	2.7	18	116
26/03/2024	05:18:00	2.1	3.0	18	114
26/03/2024	05:19:00	1.8	3.0	18	105
26/03/2024	05:20:00	2.5	3.3	18	117
26/03/2024	05:21:00	2.3	3.4	18	114
26/03/2024	05:22:00	2.2	3.8	18	108
26/03/2024	05:23:00	2.1	2.7	18	104
26/03/2024	05:24:00	2.3	3.9	18	110
26/03/2024	05:25:00	2.5	4.1	18	108
26/03/2024	05:26:00	2.3	3.3	18	108
26/03/2024	05:27:00	2.0	3.2	18	116

26/03/2024	05:28:00	2.2	2.8	18	115
26/03/2024	05:29:00	2.1	2.9	18	113
26/03/2024	05:30:00	2.3	2.9	18	116
26/03/2024	05:31:00	1.9	3.4	18	121
26/03/2024	05:32:00	2.0	3.1	18	117
26/03/2024	05:33:00	2.3	2.9	18	108
26/03/2024	05:34:00	2.5	3.1	18	122
26/03/2024	05:35:00	2.1	2.8	18	117
26/03/2024	05:36:00	2.4	3.6	18	121
26/03/2024	05:37:00	2.0	2.8	18	111
26/03/2024	05:38:00	2.1	2.9	18	115
26/03/2024	05:39:00	2.1	2.9	18	115
26/03/2024	05:40:00	2.2	2.9	18	120
26/03/2024	05:41:00	1.8	2.8	18	115
26/03/2024	05:42:00	1.6	2.6	18	112
26/03/2024	05:43:00	1.8	2.9	18	113
26/03/2024	05:44:00	1.9	2.6	18	110
26/03/2024	05:45:00	2.4	3.5	18	114
26/03/2024	05:46:00	2.6	3.5	18	114
26/03/2024	05:47:00	2.7	3.5	18	119
26/03/2024	05:48:00	2.5	3.6	18	114
26/03/2024	05:49:00	2.1	3.0	18	107
26/03/2024	05:50:00	1.8	2.6	18	110
26/03/2024	05:51:00	2.1	3.1	18	110
26/03/2024	05:52:00	2.2	3.4	18	114
26/03/2024	05:53:00	2.5	3.6	18	121
26/03/2024	05:54:00	1.9	3.4	18	118
26/03/2024	05:55:00	1.6	2.3	18	116
26/03/2024	05:56:00	1.6	2.4	18	118
26/03/2024	05:57:00	1.9	2.5	18	124
26/03/2024	05:58:00	1.4	2.1	18	135
26/03/2024	05:59:00	1.5	1.9	18	122
26/03/2024	06:00:00	1.5	2.1	18	127
26/03/2024	06:01:00	1.5	2.1	18	131
26/03/2024	06:02:00	1.1	1.8	18	141
26/03/2024	06:03:00	1.3	1.9	18	136
26/03/2024	06:04:00	0.5	1.0	18	175
26/03/2024	06:05:00	0.4	1.0	18	229
26/03/2024	06:06:00	0.0	0.7	18	nW
26/03/2024	06:07:00	0.0	0.6	18	nW
26/03/2024	06:08:00	0.7	1.0	18	321
26/03/2024	06:09:00	0.5	0.9	18	354
26/03/2024	06:10:00	0.5	0.8	18	3
26/03/2024	06:11:00	0.0	0.0	18	nW
26/03/2024	06:12:00	0.0	0.0	18	nW
26/03/2024	06:13:00	0.0	0.0	18	nW

26/03/2024	06:14:00	0.0	0.0	18	nW
26/03/2024	06:15:00	0.4	1.2	17	353
26/03/2024	06:16:00	1.0	1.6	17	11
26/03/2024	06:17:00	0.9	1.4	17	19
26/03/2024	06:18:00	0.9	1.4	17	29
26/03/2024	06:19:00	0.7	0.9	17	33
26/03/2024	06:20:00	0.1	0.7	17	0
26/03/2024	06:21:00	0.1	0.7	17	167
26/03/2024	06:22:00	0.8	1.1	17	344
26/03/2024	06:23:00	0.9	1.5	17	331
26/03/2024	06:24:00	0.8	1.0	17	339
26/03/2024	06:25:00	0.6	1.2	17	356
26/03/2024	06:26:00	0.4	0.8	17	51
26/03/2024	06:27:00	0.5	1.0	17	54
26/03/2024	06:28:00	0.6	0.9	17	46
26/03/2024	06:29:00	0.8	1.1	17	5
26/03/2024	06:30:00	0.7	0.9	17	358
26/03/2024	06:31:00	0.5	0.9	17	18
26/03/2024	06:32:00	1.0	1.3	17	329
26/03/2024	06:33:00	0.8	1.2	17	358
26/03/2024	06:34:00	1.0	1.5	17	339
26/03/2024	06:35:00	0.9	1.2	17	333
26/03/2024	06:36:00	0.9	1.5	17	348
26/03/2024	06:37:00	1.1	1.8	17	323
26/03/2024	06:38:00	1.3	2.0	17	19
26/03/2024	06:39:00	1.4	2.1	17	144
26/03/2024	06:40:00	1.5	2.2	17	34
26/03/2024	06:41:00	1.6	2.5	17	312
26/03/2024	06:42:00	1.7	2.8	17	311
26/03/2024	06:43:00	1.8	3.1	17	310
26/03/2024	06:44:00	1.9	3.5	17	335
26/03/2024	06:45:00	2.0	3.4	17	295
26/03/2024	06:46:00	2.0	3.7	17	311
26/03/2024	06:47:00	1.9	2.4	17	252
26/03/2024	06:48:00	2.6	4.1	17	275
26/03/2024	06:49:00	1.9	2.7	17	271
26/03/2024	06:50:00	2.0	2.9	17	288
26/03/2024	06:51:00	2.7	4.3	17	305
26/03/2024	06:52:00	2.5	4.4	17	279
26/03/2024	06:53:00	3.0	4.9	17	279
26/03/2024	06:54:00	2.3	3.6	17	288
26/03/2024	06:55:00	2.8	4.5	17	282
26/03/2024	06:56:00	2.7	4.0	17	276
26/03/2024	06:57:00	2.6	4.4	17	274
26/03/2024	06:58:00	3.4	4.8	17	282
26/03/2024	06:59:00	4.1	6.6	17	282

26/03/2024	07:00:00	4.1	5.6	17	278
26/03/2024	07:01:00	4.1	5.1	17	279
26/03/2024	07:02:00	4.1	6.1	17	278
26/03/2024	07:03:00	4.5	6.9	17	283
26/03/2024	07:04:00	5.2	8.4	17	277
26/03/2024	07:05:00	4.6	6.2	16	280
26/03/2024	07:06:00	4.2	6.9	16	279
26/03/2024	07:07:00	4.1	5.4	16	283
26/03/2024	07:08:00	4.2	5.3	16	279
26/03/2024	07:09:00	4.3	6.1	16	282
26/03/2024	07:10:00	4.3	6.2	16	282
26/03/2024	07:11:00	4.2	5.1	16	279
26/03/2024	07:12:00	3.7	5.4	16	280
26/03/2024	07:13:00	3.7	5.5	16	277
26/03/2024	07:14:00	2.1	4.0	16	278
26/03/2024	07:15:00	3.3	4.8	16	280
26/03/2024	07:16:00	3.3	4.9	16	281
26/03/2024	07:17:00	3.4	4.6	16	281
26/03/2024	07:18:00	3.3	5.5	15	278
26/03/2024	07:19:00	3.4	5.0	15	279
26/03/2024	07:20:00	3.1	4.8	15	278
26/03/2024	07:21:00	4.3	6.3	15	283
26/03/2024	07:22:00	3.8	5.4	15	278
26/03/2024	07:23:00	4.4	5.8	15	280
26/03/2024	07:24:00	3.6	4.8	15	283
26/03/2024	07:25:00	3.7	5.2	15	279
26/03/2024	07:26:00	3.1	5.1	15	282
26/03/2024	07:27:00	3.2	4.2	15	276
26/03/2024	07:28:00	3.5	5.1	15	275
26/03/2024	07:29:00	3.6	5.4	15	282
26/03/2024	07:30:00	4.2	5.5	15	280
26/03/2024	07:31:00	4.0	5.1	15	281
26/03/2024	07:32:00	3.3	4.6	14	282
26/03/2024	07:33:00	3.1	4.2	14	280
26/03/2024	07:34:00	3.9	5.1	14	278
26/03/2024	07:35:00	4.2	5.4	14	279
26/03/2024	07:36:00	3.9	5.3	14	278
26/03/2024	07:37:00	3.1	5.5	14	277
26/03/2024	07:38:00	2.9	3.9	14	281
26/03/2024	07:39:00	3.2	5.5	14	281
26/03/2024	07:40:00	3.4	4.5	14	279
26/03/2024	07:41:00	2.8	4.2	14	277
26/03/2024	07:42:00	2.6	3.7	14	279
26/03/2024	07:43:00	3.4	5.1	14	277
26/03/2024	07:44:00	3.1	4.1	14	281
26/03/2024	07:45:00	3.0	4.9	14	283

26/03/2024	07:46:00	2.8	4.1	14	285
26/03/2024	07:47:00	3.1	3.8	14	280
26/03/2024	07:48:00	2.7	3.5	14	284
26/03/2024	07:49:00	3.1	4.2	14	282
26/03/2024	07:50:00	3.4	4.0	14	280
26/03/2024	07:51:00	3.7	5.3	14	287
26/03/2024	07:52:00	3.2	3.9	14	280
26/03/2024	07:53:00	2.7	3.7	14	282
26/03/2024	07:54:00	2.9	3.8	14	278
26/03/2024	07:55:00	3.8	5.3	14	279
26/03/2024	07:56:00	2.8	4.2	14	280
26/03/2024	07:57:00	2.8	4.3	14	278
26/03/2024	07:58:00	2.4	3.3	14	282
26/03/2024	07:59:00	3.1	3.8	14	283
26/03/2024	08:00:00	3.1	3.8	14	280
26/03/2024	08:01:00	2.9	3.8	14	282
26/03/2024	08:02:00	2.7	3.5	14	275
26/03/2024	08:03:00	2.3	3.0	14	278
26/03/2024	08:04:00	2.6	3.7	14	281
26/03/2024	08:05:00	2.6	4.3	14	279
26/03/2024	08:06:00	3.3	4.5	14	282
26/03/2024	08:07:00	3.5	4.5	14	276
26/03/2024	08:08:00	3.0	5.0	14	278
26/03/2024	08:09:00	2.2	3.0	14	276
26/03/2024	08:10:00	1.9	2.7	14	284
26/03/2024	08:11:00	2.2	3.5	14	282
26/03/2024	08:12:00	2.4	4.0	14	280
26/03/2024	08:13:00	2.4	3.3	14	287
26/03/2024	08:14:00	2.7	3.9	14	279
26/03/2024	08:15:00	3.4	4.8	14	280
26/03/2024	08:16:00	3.5	4.6	14	279
26/03/2024	08:17:00	3.2	4.2	14	282
26/03/2024	08:18:00	3.7	5.3	14	280
26/03/2024	08:19:00	3.3	4.3	14	278
26/03/2024	08:20:00	2.9	3.5	14	284
26/03/2024	08:21:00	2.0	3.2	14	284
26/03/2024	08:22:00	2.8	3.3	14	282
26/03/2024	08:23:00	2.5	4.1	14	279
26/03/2024	08:24:00	3.1	4.4	14	282
26/03/2024	08:25:00	3.3	4.4	14	277
26/03/2024	08:26:00	3.6	4.5	14	276
26/03/2024	08:27:00	2.2	3.6	14	276
26/03/2024	08:28:00	1.8	2.5	14	290
26/03/2024	08:29:00	2.1	2.7	14	290
26/03/2024	08:30:00	2.4	3.8	14	277
26/03/2024	08:31:00	3.0	4.0	14	276

26/03/2024	08:32:00	2.9	4.1	14	280
26/03/2024	08:33:00	2.7	4.4	14	279
26/03/2024	08:34:00	2.1	3.5	14	277
26/03/2024	08:35:00	1.7	3.4	14	276
26/03/2024	08:36:00	2.0	3.8	14	292
26/03/2024	08:37:00	1.9	3.1	14	283
26/03/2024	08:38:00	1.7	2.8	14	285
26/03/2024	08:39:00	2.5	3.9	14	283
26/03/2024	08:40:00	2.3	3.4	14	278
26/03/2024	08:41:00	2.0	3.0	14	277
26/03/2024	08:42:00	2.5	4.9	14	275
26/03/2024	08:43:00	2.6	4.3	14	285
26/03/2024	08:44:00	2.4	3.7	14	275
26/03/2024	08:45:00	1.8	3.0	14	278
26/03/2024	08:46:00	1.9	3.2	14	275
26/03/2024	08:47:00	2.2	3.6	14	300
26/03/2024	08:48:00	2.1	3.4	14	284
26/03/2024	08:49:00	2.4	3.8	14	288
26/03/2024	08:50:00	3.4	4.8	14	282
26/03/2024	08:51:00	4.4	6.6	14	262
26/03/2024	08:52:00	4.8	7.1	14	247
26/03/2024	08:53:00	4.2	5.2	14	241
26/03/2024	08:54:00	4.5	6.5	14	240
26/03/2024	08:55:00	3.4	5.1	14	246
26/03/2024	08:56:00	3.3	4.3	14	253
26/03/2024	08:57:00	3.1	4.3	14	241
26/03/2024	08:58:00	3.6	4.6	14	239
26/03/2024	08:59:00	3.7	5.3	14	232
26/03/2024	09:00:00	4.5	6.0	14	235
26/03/2024	09:01:00	4.8	6.6	14	225
26/03/2024	09:02:00	5.0	6.4	14	233
26/03/2024	09:03:00	4.3	5.3	14	233
26/03/2024	09:04:00	4.5	5.9	14	234
26/03/2024	09:05:00	4.8	6.0	14	222
26/03/2024	09:06:00	4.5	6.0	14	230
26/03/2024	09:07:00	4.2	6.2	14	236
26/03/2024	09:08:00	4.3	5.8	13	234
26/03/2024	09:09:00	4.2	6.0	13	237
26/03/2024	09:10:00	3.7	5.9	13	232
26/03/2024	09:11:00	3.9	5.2	13	225
26/03/2024	09:12:00	4.1	5.9	13	228
26/03/2024	09:13:00	4.7	7.2	13	225
26/03/2024	09:14:00	5.0	6.2	13	228
26/03/2024	09:15:00	4.2	5.2	13	241
26/03/2024	09:16:00	4.2	5.4	13	237
26/03/2024	09:17:00	5.1	7.0	13	232

26/03/2024	09:18:00	4.1	6.0	13	239
26/03/2024	09:19:00	2.2	3.4	13	331
26/03/2024	09:20:00	2.0	2.9	13	272
26/03/2024	09:21:00	2.5	4.0	13	314
26/03/2024	09:22:00	2.2	3.3	13	311
26/03/2024	09:23:00	2.1	4.1	13	298
26/03/2024	09:24:00	1.8	2.9	13	303
26/03/2024	09:25:00	1.4	2.5	13	293
26/03/2024	09:26:00	2.1	3.5	13	304
26/03/2024	09:27:00	2.6	4.1	13	288
26/03/2024	09:28:00	3.2	4.5	13	284
26/03/2024	09:29:00	3.3	4.9	13	283
26/03/2024	09:30:00	3.3	4.7	13	286
26/03/2024	09:31:00	3.5	5.2	13	285
26/03/2024	09:32:00	3.2	4.3	12	287
26/03/2024	09:33:00	3.1	4.7	12	288
26/03/2024	09:34:00	3.0	3.9	12	288
26/03/2024	09:35:00	3.8	5.3	12	285
26/03/2024	09:36:00	3.2	4.8	12	285
26/03/2024	09:37:00	2.9	4.8	12	287
26/03/2024	09:38:00	3.4	4.3	12	286
26/03/2024	09:39:00	3.2	4.5	12	286
26/03/2024	09:40:00	3.8	4.9	12	287
26/03/2024	09:41:00	3.5	5.6	12	288
26/03/2024	09:42:00	2.7	3.8	12	291
26/03/2024	09:43:00	3.0	4.3	12	290
26/03/2024	09:44:00	2.8	4.1	12	284
26/03/2024	09:45:00	3.1	4.3	12	288
26/03/2024	09:46:00	3.2	4.9	12	286
26/03/2024	09:47:00	3.2	4.2	12	289
26/03/2024	09:48:00	3.8	5.0	12	292
26/03/2024	09:49:00	3.2	4.7	12	290
26/03/2024	09:50:00	3.4	4.7	12	292
26/03/2024	09:51:00	2.5	3.2	12	286
26/03/2024	09:52:00	2.3	4.0	12	288
26/03/2024	09:53:00	3.2	4.2	12	288
26/03/2024	09:54:00	3.6	5.0	12	288
26/03/2024	09:55:00	3.6	4.3	12	288
26/03/2024	09:56:00	3.4	4.2	12	285
26/03/2024	09:57:00	3.2	5.1	12	283
26/03/2024	09:58:00	2.4	3.1	12	281
26/03/2024	09:59:00	3.2	4.9	12	289
26/03/2024	10:00:00	2.9	3.5	12	288
26/03/2024	10:01:00	3.2	4.5	12	292
26/03/2024	10:02:00	2.6	3.5	12	286
26/03/2024	10:03:00	2.8	4.3	12	286

26/03/2024	10:04:00	2.4	3.6	12	283
26/03/2024	10:05:00	2.4	4.0	12	286
26/03/2024	10:06:00	2.4	3.8	12	292
26/03/2024	10:07:00	1.9	3.8	12	284
26/03/2024	10:08:00	1.8	2.6	12	284
26/03/2024	10:09:00	2.4	4.0	12	289
26/03/2024	10:10:00	2.1	3.5	13	297
26/03/2024	10:11:00	1.9	3.1	13	295
26/03/2024	10:12:00	1.3	2.3	13	296
26/03/2024	10:13:00	1.8	2.9	13	287
26/03/2024	10:14:00	2.0	3.3	13	302
26/03/2024	10:15:00	1.9	3.2	13	294
26/03/2024	10:16:00	1.9	2.9	13	301
26/03/2024	10:17:00	1.8	3.7	13	304
26/03/2024	10:18:00	2.8	4.0	13	308
26/03/2024	10:19:00	2.1	2.9	13	298
26/03/2024	10:20:00	2.4	3.9	13	311
26/03/2024	10:21:00	2.0	3.3	13	280
26/03/2024	10:22:00	1.4	2.1	13	246
26/03/2024	10:23:00	1.8	3.5	13	292
26/03/2024	10:24:00	1.8	2.8	13	282
26/03/2024	10:25:00	2.7	4.7	13	285
26/03/2024	10:26:00	2.9	4.1	13	287
26/03/2024	10:27:00	2.0	3.3	13	282
26/03/2024	10:28:00	2.3	3.4	13	296
26/03/2024	10:29:00	2.4	3.8	13	290
26/03/2024	10:30:00	2.3	3.9	13	278
26/03/2024	10:31:00	2.3	3.7	13	289
26/03/2024	10:32:00	2.8	4.8	13	284
26/03/2024	10:33:00	2.7	4.4	13	273
26/03/2024	10:34:00	2.8	4.6	13	295
26/03/2024	10:35:00	2.2	3.8	13	255
26/03/2024	10:36:00	1.7	3.6	13	263
26/03/2024	10:37:00	2.3	4.3	13	290
26/03/2024	10:38:00	2.3	3.6	13	300
26/03/2024	10:39:00	3.1	5.9	12	278
26/03/2024	10:40:00	2.4	3.8	12	289
26/03/2024	10:41:00	2.3	4.1	12	275
26/03/2024	10:42:00	1.7	3.2	12	294
26/03/2024	10:43:00	2.0	3.9	12	291
26/03/2024	10:44:00	2.0	3.7	12	283
26/03/2024	10:45:00	2.1	3.7	12	288
26/03/2024	10:46:00	2.2	3.6	12	294
26/03/2024	10:47:00	2.4	4.2	12	281
26/03/2024	10:48:00	1.9	3.0	12	289
26/03/2024	10:49:00	2.2	3.1	12	273

26/03/2024	10:50:00	2.2	4.1	12	270
26/03/2024	10:51:00	2.2	4.2	12	282
26/03/2024	10:52:00	2.6	5.2	12	277
26/03/2024	10:53:00	2.2	3.9	12	280
26/03/2024	10:54:00	2.4	3.5	12	298
26/03/2024	10:55:00	3.3	5.4	12	292
26/03/2024	10:56:00	3.7	5.8	12	288
26/03/2024	10:57:00	3.7	5.6	12	285
26/03/2024	10:58:00	2.9	4.6	12	289
26/03/2024	10:59:00	3.0	4.7	12	286
26/03/2024	11:00:00	2.8	4.7	12	283
26/03/2024	11:01:00	2.9	4.7	12	285
26/03/2024	11:02:00	3.8	6.0	12	285
26/03/2024	11:03:00	3.1	5.5	12	288
26/03/2024	11:04:00	3.0	4.5	12	287
26/03/2024	11:05:00	3.3	5.0	12	289
26/03/2024	11:06:00	2.8	4.5	12	292
26/03/2024	11:07:00	3.2	4.9	12	285
26/03/2024	11:08:00	4.0	5.7	12	284
26/03/2024	11:09:00	3.1	4.9	12	286
26/03/2024	11:10:00	3.2	5.2	12	282
26/03/2024	11:11:00	3.2	4.4	12	289
26/03/2024	11:12:00	3.4	5.6	12	284
26/03/2024	11:13:00	3.0	3.9	12	284
26/03/2024	11:14:00	3.6	5.6	12	284
26/03/2024	11:15:00	3.2	4.8	12	278
26/03/2024	11:16:00	4.6	6.3	12	288
26/03/2024	11:17:00	3.0	4.2	12	292
26/03/2024	11:18:00	3.2	4.5	12	288
26/03/2024	11:19:00	2.3	3.9	12	286
26/03/2024	11:20:00	4.2	5.8	12	288
26/03/2024	11:21:00	2.7	3.8	12	286
26/03/2024	11:22:00	2.4	4.4	12	285
26/03/2024	11:23:00	3.4	5.3	12	289
26/03/2024	11:24:00	3.6	4.9	12	287
26/03/2024	11:25:00	2.8	4.4	12	286
26/03/2024	11:26:00	2.1	4.3	12	284
26/03/2024	11:27:00	3.2	4.3	12	285
26/03/2024	11:28:00	2.0	4.3	12	288
26/03/2024	11:29:00	2.5	3.7	12	295
26/03/2024	11:30:00	2.0	4.2	12	263
26/03/2024	11:31:00	2.4	5.3	12	296
26/03/2024	11:32:00	2.6	5.7	12	280
26/03/2024	11:33:00	2.0	3.5	12	292
26/03/2024	11:34:00	1.7	2.6	12	282
26/03/2024	11:35:00	2.3	4.9	12	304

26/03/2024	11:36:00	2.4	4.0	12	297
26/03/2024	11:37:00	1.9	3.3	12	282
26/03/2024	11:38:00	2.4	3.4	12	305
26/03/2024	11:39:00	2.8	5.3	12	297
26/03/2024	11:40:00	3.1	4.9	12	281
26/03/2024	11:41:00	2.2	3.7	12	299
26/03/2024	11:42:00	2.2	4.3	12	287
26/03/2024	11:43:00	2.5	4.0	12	271
26/03/2024	11:44:00	2.1	3.4	12	293
26/03/2024	11:45:00	1.6	2.7	12	238
26/03/2024	11:46:00	1.8	2.9	12	298
26/03/2024	11:47:00	2.4	3.7	12	291
26/03/2024	11:48:00	2.0	3.4	12	299
26/03/2024	11:49:00	2.7	5.9	12	293
26/03/2024	11:50:00	2.1	3.5	12	286
26/03/2024	11:51:00	2.5	4.0	12	292
26/03/2024	11:52:00	2.1	4.2	12	269
26/03/2024	11:53:00	2.8	4.4	12	293
26/03/2024	11:54:00	2.7	3.5	12	284
26/03/2024	11:55:00	2.3	4.9	12	292
26/03/2024	11:56:00	2.5	5.5	12	285
26/03/2024	11:57:00	2.5	4.2	12	289
26/03/2024	11:58:00	2.3	3.5	12	289
26/03/2024	11:59:00	2.6	3.9	12	292
26/03/2024	12:00:00	3.2	4.7	12	285
26/03/2024	12:01:00	2.2	4.5	12	280
26/03/2024	12:02:00	1.6	2.9	12	297
26/03/2024	12:03:00	1.9	3.0	12	295
26/03/2024	12:04:00	1.9	2.8	12	296
26/03/2024	12:05:00	1.7	3.0	12	287
26/03/2024	12:06:00	1.9	2.9	12	290
26/03/2024	12:07:00	2.8	5.2	12	299
26/03/2024	12:08:00	1.3	2.0	12	285
26/03/2024	12:09:00	1.4	2.6	12	288
26/03/2024	12:10:00	1.9	3.1	12	281
26/03/2024	12:11:00	2.7	5.1	12	282
26/03/2024	12:12:00	2.0	3.2	12	270
26/03/2024	12:13:00	1.6	3.0	12	283
26/03/2024	12:14:00	2.1	3.5	12	289
26/03/2024	12:15:00	2.5	5.3	12	297
26/03/2024	12:16:00	2.1	3.8	12	293
26/03/2024	12:17:00	1.9	2.9	12	288
26/03/2024	12:18:00	3.0	5.1	12	288
26/03/2024	12:19:00	1.9	3.3	12	283
26/03/2024	12:20:00	2.0	3.9	12	297
26/03/2024	12:21:00	2.0	3.2	12	286

26/03/2024	12:22:00	2.2	3.2	12	308
26/03/2024	12:23:00	2.7	4.1	12	307
26/03/2024	12:24:00	3.2	5.2	12	286
26/03/2024	12:25:00	4.3	6.6	12	286
26/03/2024	12:26:00	1.6	3.4	12	295
26/03/2024	12:27:00	3.1	6.0	12	279
26/03/2024	12:28:00	4.1	6.2	12	291
26/03/2024	12:29:00	3.6	5.9	12	290
26/03/2024	12:30:00	3.0	4.5	12	283
26/03/2024	12:31:00	2.7	4.2	12	286
26/03/2024	12:32:00	2.0	3.5	11	287
26/03/2024	12:33:00	2.1	3.5	11	286
26/03/2024	12:34:00	2.0	2.9	11	294
26/03/2024	12:35:00	2.3	3.9	11	276
26/03/2024	12:36:00	2.7	5.1	11	298
26/03/2024	12:37:00	3.8	5.3	11	292
26/03/2024	12:38:00	2.5	4.2	11	284
26/03/2024	12:39:00	2.0	3.0	11	289
26/03/2024	12:40:00	2.4	3.8	11	299
26/03/2024	12:41:00	1.7	2.3	11	287
26/03/2024	12:42:00	2.2	4.6	11	292
26/03/2024	12:43:00	1.8	3.6	11	284
26/03/2024	12:44:00	2.3	3.6	11	291
26/03/2024	12:45:00	2.0	4.0	11	284
26/03/2024	12:46:00	2.8	4.2	11	289
26/03/2024	12:47:00	2.1	3.5	11	277
26/03/2024	12:48:00	1.4	3.1	11	241
26/03/2024	12:49:00	1.5	2.3	11	252
26/03/2024	12:50:00	1.2	2.3	11	240
26/03/2024	12:51:00	1.7	3.3	11	293
26/03/2024	12:52:00	1.8	3.3	11	269
26/03/2024	12:53:00	1.8	2.5	11	290
26/03/2024	12:54:00	2.0	3.7	11	310
26/03/2024	12:55:00	2.6	3.9	11	294
26/03/2024	12:56:00	2.3	3.5	11	315
26/03/2024	12:57:00	2.2	3.4	11	300
26/03/2024	12:58:00	2.0	3.0	11	277
26/03/2024	12:59:00	1.9	3.3	11	292
26/03/2024	13:00:00	1.9	2.8	11	270
26/03/2024	13:01:00	1.4	2.3	11	264
26/03/2024	13:02:00	1.6	2.6	11	292
26/03/2024	13:03:00	1.8	2.6	11	282
26/03/2024	13:04:00	1.7	2.6	11	296
26/03/2024	13:05:00	1.6	2.2	11	270
26/03/2024	13:06:00	1.7	2.9	11	275
26/03/2024	13:07:00	1.4	3.1	11	233

26/03/2024	13:08:00	2.0	3.3	11	258
26/03/2024	13:09:00	1.9	2.8	11	271
26/03/2024	13:10:00	1.8	3.9	11	269
26/03/2024	13:11:00	2.0	2.7	11	284
26/03/2024	13:12:00	2.0	3.0	11	278
26/03/2024	13:13:00	2.0	2.7	11	289
26/03/2024	13:14:00	2.3	3.4	11	306
26/03/2024	13:15:00	1.4	2.4	11	280
26/03/2024	13:16:00	1.9	3.8	11	280
26/03/2024	13:17:00	2.2	3.8	11	291
26/03/2024	13:18:00	1.9	3.4	11	280
26/03/2024	13:19:00	1.5	2.3	11	261
26/03/2024	13:20:00	1.9	3.8	11	263
26/03/2024	13:21:00	1.6	2.5	12	272
26/03/2024	13:22:00	1.8	3.0	12	273
26/03/2024	13:23:00	2.0	3.5	12	284
26/03/2024	13:24:00	1.9	3.8	12	301
26/03/2024	13:25:00	2.4	4.1	12	280
26/03/2024	13:26:00	2.0	3.8	12	283
26/03/2024	13:27:00	3.1	4.8	12	284
26/03/2024	13:28:00	2.2	3.7	12	269
26/03/2024	13:29:00	4.4	6.9	12	270
26/03/2024	13:30:00	3.1	5.9	12	265
26/03/2024	13:31:00	2.3	3.3	12	276
26/03/2024	13:32:00	2.1	4.1	12	262
26/03/2024	13:33:00	2.4	3.6	12	280
26/03/2024	13:34:00	2.4	4.1	12	268
26/03/2024	13:35:00	2.0	3.4	12	265
26/03/2024	13:36:00	2.2	2.9	12	277
26/03/2024	13:37:00	2.4	5.0	12	270
26/03/2024	13:38:00	2.4	3.7	12	280
26/03/2024	13:39:00	1.7	2.9	12	270
26/03/2024	13:40:00	2.4	4.0	12	279
26/03/2024	13:41:00	2.3	4.0	12	272
26/03/2024	13:42:00	2.7	4.4	12	264
26/03/2024	13:43:00	2.3	3.6	12	264
26/03/2024	13:44:00	1.6	2.8	12	267
26/03/2024	13:45:00	3.0	4.2	12	273
26/03/2024	13:46:00	2.6	3.9	12	279
26/03/2024	13:47:00	2.5	4.2	12	275
26/03/2024	13:48:00	2.4	4.5	12	276
26/03/2024	13:49:00	3.4	4.6	12	273
26/03/2024	13:50:00	2.6	4.3	12	269
26/03/2024	13:51:00	1.7	2.8	12	269
26/03/2024	13:52:00	3.0	5.7	12	262
26/03/2024	13:53:00	2.6	3.9	12	306

26/03/2024	13:54:00	2.2	3.3	12	317
26/03/2024	13:55:00	2.1	3.0	12	289
26/03/2024	13:56:00	2.2	3.2	12	309
26/03/2024	13:57:00	2.1	3.8	12	267
26/03/2024	13:58:00	2.5	4.7	12	273
26/03/2024	13:59:00	2.6	4.1	12	290
26/03/2024	14:00:00	1.9	3.0	12	276
26/03/2024	14:01:00	1.9	3.5	12	281
26/03/2024	14:02:00	2.4	4.1	12	297
26/03/2024	14:03:00	2.3	3.6	12	276
26/03/2024	14:04:00	2.5	4.4	12	269
26/03/2024	14:05:00	2.7	4.3	12	263
26/03/2024	14:06:00	2.4	4.5	12	285
26/03/2024	14:07:00	1.9	4.2	12	279
26/03/2024	14:08:00	2.8	4.2	13	297
26/03/2024	14:09:00	2.6	4.3	13	285
26/03/2024	14:10:00	2.6	4.5	13	280
26/03/2024	14:11:00	2.3	3.4	13	272
26/03/2024	14:12:00	2.3	4.0	13	303
26/03/2024	14:13:00	2.9	4.0	13	305
26/03/2024	14:14:00	2.4	4.2	13	291
26/03/2024	14:15:00	2.6	3.7	13	290
26/03/2024	14:16:00	2.2	3.3	13	300
26/03/2024	14:17:00	2.3	3.4	13	288
26/03/2024	14:18:00	2.4	3.4	13	282
26/03/2024	14:19:00	2.7	4.5	13	281
26/03/2024	14:20:00	3.4	5.9	13	272
26/03/2024	14:21:00	2.2	3.2	13	271
26/03/2024	14:22:00	2.0	3.1	13	267
26/03/2024	14:23:00	1.6	3.4	13	227
26/03/2024	14:24:00	2.4	4.0	13	295
26/03/2024	14:25:00	1.8	2.9	13	260
26/03/2024	14:26:00	2.8	4.5	13	291
26/03/2024	14:27:00	2.8	4.7	13	289
26/03/2024	14:28:00	2.8	5.3	13	285
26/03/2024	14:29:00	2.5	3.4	13	292
26/03/2024	14:30:00	2.5	3.7	13	275
26/03/2024	14:31:00	1.8	2.9	13	269
26/03/2024	14:32:00	2.3	3.7	13	302
26/03/2024	14:33:00	2.2	3.4	13	299
26/03/2024	14:34:00	2.0	3.3	13	299
26/03/2024	14:35:00	2.0	3.6	13	244
26/03/2024	14:36:00	3.0	4.8	13	275
26/03/2024	14:37:00	2.5	4.3	13	275
26/03/2024	14:38:00	2.5	4.0	13	291
26/03/2024	14:39:00	3.0	4.7	13	305

26/03/2024	14:40:00	2.4	3.4	13	283
26/03/2024	14:41:00	2.2	3.5	13	302
26/03/2024	14:42:00	2.3	4.4	13	290
26/03/2024	14:43:00	2.7	4.3	13	285
26/03/2024	14:44:00	2.1	3.8	13	262
26/03/2024	14:45:00	1.9	2.6	13	290
26/03/2024	14:46:00	2.9	4.2	13	281
26/03/2024	14:47:00	2.4	4.9	13	293
26/03/2024	14:48:00	1.7	2.9	13	269
26/03/2024	14:49:00	2.4	3.5	13	287
26/03/2024	14:50:00	2.4	5.0	13	266
26/03/2024	14:51:00	2.7	4.4	13	269
26/03/2024	14:52:00	2.2	3.2	12	266
26/03/2024	14:53:00	3.2	4.5	12	281
26/03/2024	14:54:00	3.2	5.0	12	270
26/03/2024	14:55:00	2.9	4.8	12	270
26/03/2024	14:56:00	3.0	4.6	12	278
26/03/2024	14:57:00	1.7	3.0	12	274
26/03/2024	14:58:00	3.2	5.4	12	288
26/03/2024	14:59:00	3.0	4.6	12	282
26/03/2024	15:00:00	3.3	4.2	12	277
26/03/2024	15:01:00	2.1	3.5	12	258
26/03/2024	15:02:00	2.7	4.3	12	281
26/03/2024	15:03:00	1.9	3.2	12	258
26/03/2024	15:04:00	2.3	4.0	12	286
26/03/2024	15:05:00	2.5	4.6	12	288
26/03/2024	15:06:00	2.2	3.2	12	281
26/03/2024	15:07:00	2.2	3.3	12	289
26/03/2024	15:08:00	1.5	2.8	12	255
26/03/2024	15:09:00	3.2	6.1	12	272
26/03/2024	15:10:00	2.9	4.5	12	273
26/03/2024	15:11:00	3.1	4.5	12	279
26/03/2024	15:12:00	3.4	5.6	12	277
26/03/2024	15:13:00	2.9	4.4	12	280
26/03/2024	15:14:00	2.6	4.1	12	265
26/03/2024	15:15:00	1.9	2.8	12	270
26/03/2024	15:16:00	2.0	3.6	12	283
26/03/2024	15:17:00	2.2	3.7	12	287
26/03/2024	15:18:00	1.7	2.9	12	257
26/03/2024	15:19:00	2.0	5.2	12	281
26/03/2024	15:20:00	2.3	3.5	12	278
26/03/2024	15:21:00	2.2	3.3	12	308
26/03/2024	15:22:00	2.4	3.5	12	283
26/03/2024	15:23:00	2.3	3.9	12	303
26/03/2024	15:24:00	2.1	3.4	12	286
26/03/2024	15:25:00	2.5	5.7	12	276

26/03/2024	15:26:00	2.2	5.9	12	265
26/03/2024	15:27:00	2.2	3.6	12	290
26/03/2024	15:28:00	2.1	3.1	12	271
26/03/2024	15:29:00	1.8	3.2	12	254
26/03/2024	15:30:00	2.7	4.5	12	288
26/03/2024	15:31:00	2.5	4.4	12	270
26/03/2024	15:32:00	2.2	3.8	12	283
26/03/2024	15:33:00	1.9	2.8	12	270
26/03/2024	15:34:00	2.5	5.2	12	262
26/03/2024	15:35:00	1.8	3.5	12	255
26/03/2024	15:36:00	2.2	3.9	12	264
26/03/2024	15:37:00	2.5	4.1	12	300
26/03/2024	15:38:00	2.1	3.1	12	279
26/03/2024	15:39:00	2.2	3.5	12	259
26/03/2024	15:40:00	2.8	4.9	12	260
26/03/2024	15:41:00	2.3	3.3	12	267
26/03/2024	15:42:00	3.6	5.2	12	271

Data for N 3 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/25/2024	17:57:58	50.5	78.3	82.5	25.3	45.1	28.4
3/25/2024	18:07:58	42	69.8	55.7	23.5	46.3	26.5
3/25/2024	18:17:58	37.3	65.1	51.9	22.8	41.8	24.9
3/25/2024	18:27:58	41.4	69.2	55.6	24.8	45.4	30.7
3/25/2024	18:37:58	43.2	71	56.1	23.6	48.4	27.1
3/25/2024	18:47:58	37.8	65.6	52.6	22.3	42.2	24.4
3/25/2024	18:57:58	36.9	64.7	51.7	21.2	40.9	23.9
3/25/2024	19:07:58	36.6	64.4	53.2	21.4	41.3	24.3
3/25/2024	19:17:58	38.9	66.7	57	21.5	43.3	26.9
3/25/2024	19:27:58	39.1	66.9	61.4	21.6	43	26.9
3/25/2024	19:37:58	30.7	58.5	54.9	20.7	32.9	22.5
3/25/2024	19:47:58	38.1	65.9	56.4	21.4	42.3	24.3
3/25/2024	19:57:58	36.6	64.4	51.5	22.1	40.9	24.3
3/25/2024	20:07:58	31.6	59.4	52.1	22.8	33.3	24.8
3/25/2024	20:17:58	26.2	54	43.6	22.3	27.3	24.2
3/25/2024	20:27:58	36.8	64.6	56.6	24.1	39.2	26.7
3/25/2024	20:37:58	43.2	71	62.2	23.9	46	25.6
3/25/2024	20:47:58	35.8	63.6	54.6	23.1	39.1	25.2
3/25/2024	20:57:58	28.1	55.9	45.9	21.9	27.2	23.8
3/25/2024	21:07:58	30	57.8	52	23.4	29.6	25.4
3/25/2024	21:17:58	29.5	57.3	46.8	26.2	30.6	27.8
3/25/2024	21:27:58	34.8	62.6	59	26.6	35.7	28.9
3/25/2024	21:37:58	40.2	68	65.1	30.3	37.3	32.6
3/25/2024	21:47:58	37.4	65.2	51.4	31.8	39.2	34.4

3/25/2024	21:57:58	41.7	69.5	75.2	32.2	40.8	35.2
3/25/2024	22:07:58	37.6	65.4	50.5	31.7	39.6	34.8
3/25/2024	22:17:58	41	68.8	65.8	28	44	29.9
3/25/2024	22:27:58	36.3	64.1	59.4	23.3	38.4	26.7
3/25/2024	22:37:58	31.5	59.3	47.4	22.9	34.3	25.2
3/25/2024	22:47:58	32.4	60.2	54.2	22.1	30.6	24.3
3/25/2024	22:57:58	32.6	60.4	46.4	26.5	34.5	29.3
3/25/2024	23:07:58	37.9	65.7	59.7	27.7	38.8	29.4
3/25/2024	23:17:58	35.6	63.4	56.8	27.6	35.8	29.6
3/25/2024	23:27:58	32	59.8	45.3	25.8	34	28.1
3/25/2024	23:37:58	33.9	61.7	55.6	25.5	32.1	27.4
3/25/2024	23:47:58	33.8	61.6	50.4	24.7	36.9	27.4
3/25/2024	23:57:58	30.4	58.2	46	24.3	31	26.6
3/26/2024	0:07:58	32.2	60	52.4	23.7	33.1	25.4
3/26/2024	0:17:58	29	56.8	49.2	21.4	28.8	22.9
3/26/2024	0:27:58	33.1	60.9	58.4	19.2	33.2	20.9
3/26/2024	0:37:58	26.2	54	48	19.6	25.6	21.1
3/26/2024	0:47:58	32	59.8	44.8	20.7	34.6	23.6
3/26/2024	0:57:58	31.7	59.5	55.6	23.7	34.3	25.9
3/26/2024	1:07:58	30.7	58.5	49.5	19.5	35.8	21.8
3/26/2024	1:17:58	32.3	60.1	39.9	18.1	35.2	20.9
3/26/2024	1:27:58	22.6	50.4	41.1	18.4	24.4	20.1
3/26/2024	1:37:58	23.9	51.7	50.5	18.6	23.7	20.5
3/26/2024	1:47:58	31.1	58.9	50.6	19.3	30.2	21.2
3/26/2024	1:57:58	26	53.8	38.6	20.1	28.5	22.8
3/26/2024	2:07:58	40.7	68.5	54.9	26.5	43.8	31.4
3/26/2024	2:17:58	30	57.8	47.6	22.7	32.3	25.3
3/26/2024	2:27:58	25.8	53.6	33	21.7	27.8	23.6
3/26/2024	2:37:58	26.4	54.2	37.1	22.4	28.2	23.9
3/26/2024	2:47:58	26.7	54.5	34.5	23	28.3	24.7
3/26/2024	2:57:58	26.7	54.5	37.6	23	28.2	24.9
3/26/2024	3:07:58	40.4	68.2	49.5	24.9	45.1	28.9
3/26/2024	3:17:58	27	54.8	35.9	22	29.3	24
3/26/2024	3:27:58	25.6	53.4	34.7	19.6	27.6	23
3/26/2024	3:37:58	28.3	56.1	47.7	20.6	29.1	23.1
3/26/2024	3:47:58	34.8	62.6	44.5	32.4	35.6	33.8
3/26/2024	3:57:58	34.7	62.5	40.8	32.7	35.5	33.9
3/26/2024	4:07:58	34.4	62.2	38.2	32.4	35.1	33.7
3/26/2024	4:17:58	34.5	62.3	36.9	32.2	35.2	33.7
3/26/2024	4:27:58	34.1	61.9	36.8	31.9	34.8	33.3
3/26/2024	4:37:58	34.6	62.4	45.2	31.1	35.4	33.5
3/26/2024	4:47:58	35	62.8	48.4	31	36	33.6
3/26/2024	4:57:58	37.9	65.7	54.7	30.7	40.7	33.5
3/26/2024	5:07:58	27.2	55	39.7	16.8	33.4	18.7
3/26/2024	5:17:58	33.4	61.2	54.5	16.1	29	17.6
3/26/2024	5:27:58	21.2	49	32.3	16.1	23.9	17.7

3/26/2024	5:37:58	28.6	56.4	46.8	15.9	32.4	18.2
3/26/2024	5:47:58	19.3	47.1	32.6	15.4	21.3	16.8
3/26/2024	5:57:58	20.5	48.3	35.6	15.7	22.7	17.3
3/26/2024	6:07:58	20.3	48.1	41.8	15.5	21.6	16.6
3/26/2024	6:17:58	21.1	48.9	42.9	15.5	23.4	16.5
3/26/2024	6:27:58	23.2	51	45.8	15.2	26.3	16.2
3/26/2024	6:37:58	35.4	63.2	53	27.2	37.9	29.6
3/26/2024	6:47:58	35.8	63.6	45.5	30.2	38.2	32.4
3/26/2024	6:57:58	34.9	62.7	43.8	29.6	38.1	31.5
3/26/2024	7:07:58	37.9	65.7	63.3	26.2	36.5	28.3
3/26/2024	7:17:58	29.7	57.5	41.1	25.2	31.9	27
3/26/2024	7:27:58	31.5	59.3	45.4	23.2	33.8	27.1
3/26/2024	7:37:58	31.3	59.1	48.7	23.9	34.7	26.2
3/26/2024	7:47:58	34.7	62.5	57.3	24.8	35	27.2
3/26/2024	7:57:58	32.9	60.7	54.8	24.5	34.5	26.8
3/26/2024	8:07:58	43	70.8	66.2	24.7	41.8	29
3/26/2024	8:17:58	36.7	64.5	62.6	27.4	37.8	29.7
3/26/2024	8:27:58	39	66.8	58.6	26.7	40.1	29.9
3/26/2024	8:37:58	35.8	63.6	54.2	27.6	38.1	29.8
3/26/2024	8:47:58	36.7	64.5	43.9	31.8	38.9	34.1
3/26/2024	8:57:58	38.7	66.5	55.7	33.1	40.9	35.4
3/26/2024	9:07:58	45	72.8	67	33	47.7	36.8
3/26/2024	9:17:58	39.2	67	58.9	34.7	40.7	36.3
3/26/2024	9:27:58	40.5	68.3	54.3	33.5	42.9	35.6
3/26/2024	9:37:58	39.4	67.2	48.2	28.5	42.7	32.6
3/26/2024	9:47:58	35.5	63.3	50.2	26.2	38.2	30
3/26/2024	9:57:58	29.6	57.4	46.1	22.8	31.6	25.6
3/26/2024	10:07:58	31.8	59.6	44.6	23.9	34.6	27.3
3/26/2024	10:17:58	34.6	62.4	44.3	29.4	36.8	31.5
3/26/2024	10:27:58	37.5	65.3	44.7	29	40.2	32.2
3/26/2024	10:37:58	41.7	69.5	69.4	32	41.4	35.1
3/26/2024	10:47:58	38.9	66.7	44.9	32	41.3	35.4
3/26/2024	10:57:58	40.2	68	48.6	34.4	42.9	36.4
3/26/2024	11:07:58	37.8	65.6	46.1	30.7	40.8	33.5
3/26/2024	11:17:58	37.3	65.1	46.2	30.6	39.8	33.9
3/26/2024	11:27:58	39.9	67.7	46	32.8	42.4	35.4
3/26/2024	11:37:58	39.1	66.9	47.1	31.7	41.6	35.7
3/26/2024	11:47:58	34.4	62.2	42.7	29.8	36.5	31.5
3/26/2024	11:57:58	35.4	63.2	40.7	30.4	37.7	32.2
3/26/2024	12:07:58	39.1	66.9	48	29	43.9	31.8
3/26/2024	12:17:58	38.1	65.9	49.3	30.4	41.1	32.8
3/26/2024	12:27:58	32.6	60.4	58	25.2	34	28
3/26/2024	12:37:58	38.3	66.1	45	29.2	41.7	32.2
3/26/2024	12:47:58	41	68.8	46.8	37.5	42.5	39.2
3/26/2024	12:57:58	36.9	64.7	43.8	30.4	40.3	33.4
3/26/2024	13:07:58	35.9	63.7	44.3	29.1	38.1	32.7

3/26/2024	13:17:58	35.7	63.5	49.3	30.3	37.9	32.8
3/26/2024	13:27:58	37.5	65.3	45.8	29.9	40.4	31.7
3/26/2024	13:37:58	37.2	65	45.6	30.3	40.3	32.8
3/26/2024	13:47:58	36.3	64.1	41.7	30.4	38.3	33.5
3/26/2024	13:57:58	39.1	66.9	44.3	32.4	41.3	35.1
3/26/2024	14:07:58	41.5	69.3	48.9	34.6	44	37.5
3/26/2024	14:17:58	40.1	67.9	48.2	35.2	41.9	37.5
3/26/2024	14:27:58	45	72.8	56.8	38.3	47.4	41.8
3/26/2024	14:37:58	41.6	69.4	48.7	35.2	44.4	37.3
3/26/2024	14:47:58	41.2	69	49.8	34.2	43.8	36.4
3/26/2024	14:57:58	43.3	71.1	54.6	34.2	46	38
3/26/2024	15:07:58	42.2	70	57.7	35.2	44.4	38.1
3/26/2024	15:17:58	42.8	70.6	52	36.4	45.1	39.2
3/26/2024	15:27:58	42.1	69.9	50.4	34.8	44.4	37.9
3/26/2024	15:37:58	40.6	68.4	54.6	34.4	42.8	36.9
3/26/2024	15:47:58	42.9	70.7	58.7	36	45.6	38.4
3/26/2024	15:57:58	41.5	69.3	65.2	35.3	42.9	37.8
3/26/2024	16:07:58	38.6	66.4	44.3	33.1	40.5	35.9
3/26/2024	16:17:58	39.7	67.5	46.2	32.8	41.8	36.1
3/26/2024	16:27:58	38.6	66.4	45.7	32	41.8	34
3/26/2024	16:37:58	37	64.8	46.7	31.4	39.4	33.5
3/26/2024	16:47:58	37.8	65.6	46.8	32.1	40	34.5
3/26/2024	16:57:58	37.1	64.9	44.3	31.8	39.2	34.2
3/26/2024	17:07:58	37.2	65	46.8	30.7	39.4	33.9
3/26/2024	17:17:58	39	66.8	47.5	28.9	42	32.8
3/26/2024	17:27:58	38.9	66.7	44.2	33.1	41	35.7
3/26/2024	17:37:58	35.9	63.7	43.5	29.3	38.2	32.2
3/26/2024	17:47:58	34.7	62.5	54.3	28.9	36.4	31.2
3/26/2024	17:57:58	33.6	61.4	49.2	28.4	35.8	30.7

Data for N 3 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
25/03/2024	17:57:00	1.7	2.0	27	111
25/03/2024	17:58:00	2.0	2.7	27	110
25/03/2024	17:59:00	2.3	3.5	27	113
25/03/2024	18:00:00	1.9	2.5	26	113
25/03/2024	18:01:00	1.9	2.9	26	113
25/03/2024	18:02:00	1.8	2.4	26	111
25/03/2024	18:03:00	1.7	2.3	26	110
25/03/2024	18:04:00	1.8	2.3	26	111
25/03/2024	18:05:00	1.7	2.3	26	115
25/03/2024	18:06:00	2.0	2.8	26	111
25/03/2024	18:07:00	1.9	2.7	25	113

25/03/2024	18:08:00	1.9	3.1	25	113
25/03/2024	18:09:00	1.6	2.1	25	113
25/03/2024	18:10:00	1.5	2.6	25	112
25/03/2024	18:11:00	1.7	2.9	25	113
25/03/2024	18:12:00	1.9	2.8	24	110
25/03/2024	18:13:00	1.6	2.0	24	112
25/03/2024	18:14:00	1.4	2.1	24	112
25/03/2024	18:15:00	1.6	2.8	24	112
25/03/2024	18:16:00	1.6	2.6	24	104
25/03/2024	18:17:00	1.6	2.3	24	111
25/03/2024	18:18:00	1.6	2.2	24	111
25/03/2024	18:19:00	1.6	2.1	24	110
25/03/2024	18:20:00	1.6	2.2	24	111
25/03/2024	18:21:00	1.5	2.1	24	111
25/03/2024	18:22:00	1.3	1.7	24	107
25/03/2024	18:23:00	1.2	1.7	24	93
25/03/2024	18:24:00	1.3	2.0	24	111
25/03/2024	18:25:00	1.2	1.8	24	112
25/03/2024	18:26:00	1.4	2.2	24	105
25/03/2024	18:27:00	1.2	1.9	24	103
25/03/2024	18:28:00	1.2	2.2	24	111
25/03/2024	18:29:00	1.1	1.8	24	106
25/03/2024	18:30:00	1.1	1.4	24	106
25/03/2024	18:31:00	1.3	1.9	24	110
25/03/2024	18:32:00	1.3	2.1	24	111
25/03/2024	18:33:00	1.0	1.5	24	111
25/03/2024	18:34:00	1.1	1.6	24	97
25/03/2024	18:35:00	1.2	1.8	24	98
25/03/2024	18:36:00	1.3	1.8	24	94
25/03/2024	18:37:00	1.3	1.9	24	94
25/03/2024	18:38:00	1.2	1.5	23	94
25/03/2024	18:39:00	1.2	1.4	23	93
25/03/2024	18:40:00	1.2	1.5	23	90
25/03/2024	18:41:00	1.3	1.8	23	94
25/03/2024	18:42:00	1.2	1.7	23	105
25/03/2024	18:43:00	1.1	1.5	23	110
25/03/2024	18:44:00	1.2	1.7	23	95
25/03/2024	18:45:00	1.2	1.7	23	93
25/03/2024	18:46:00	1.1	1.5	23	95
25/03/2024	18:47:00	1.1	1.6	23	107
25/03/2024	18:48:00	1.0	1.4	23	111
25/03/2024	18:49:00	1.0	1.5	23	111
25/03/2024	18:50:00	1.0	1.6	23	112
25/03/2024	18:51:00	0.9	1.5	23	111
25/03/2024	18:52:00	1.0	1.1	23	111
25/03/2024	18:53:00	1.0	1.2	23	111

25/03/2024	18:54:00	1.2	1.4	23	111
25/03/2024	18:55:00	1.2	1.5	23	112
25/03/2024	18:56:00	1.1	1.5	23	112
25/03/2024	18:57:00	0.9	1.3	23	111
25/03/2024	18:58:00	0.9	1.1	22	111
25/03/2024	18:59:00	1.0	1.3	22	111
25/03/2024	19:00:00	1.1	1.4	22	109
25/03/2024	19:01:00	1.4	1.6	22	90
25/03/2024	19:02:00	1.6	1.8	22	86
25/03/2024	19:03:00	1.6	1.7	22	86
25/03/2024	19:04:00	1.6	1.7	22	85
25/03/2024	19:05:00	1.6	1.8	22	85
25/03/2024	19:06:00	1.6	1.8	22	85
25/03/2024	19:07:00	1.5	1.7	22	85
25/03/2024	19:08:00	1.4	1.6	22	86
25/03/2024	19:09:00	1.4	1.6	22	86
25/03/2024	19:10:00	1.4	1.6	22	86
25/03/2024	19:11:00	1.3	1.6	22	86
25/03/2024	19:12:00	1.3	1.6	22	86
25/03/2024	19:13:00	1.4	1.7	22	86
25/03/2024	19:14:00	1.6	1.8	22	85
25/03/2024	19:15:00	1.8	2.1	21	84
25/03/2024	19:16:00	1.9	2.1	21	83
25/03/2024	19:17:00	1.9	2.1	21	82
25/03/2024	19:18:00	1.9	2.1	21	83
25/03/2024	19:19:00	1.9	2.1	21	83
25/03/2024	19:20:00	2.0	2.4	21	82
25/03/2024	19:21:00	1.8	2.1	21	85
25/03/2024	19:22:00	1.6	1.9	21	86
25/03/2024	19:23:00	1.6	1.9	21	86
25/03/2024	19:24:00	1.6	2.2	21	86
25/03/2024	19:25:00	1.7	2.1	21	86
25/03/2024	19:26:00	1.6	1.9	21	86
25/03/2024	19:27:00	1.7	2.0	21	85
25/03/2024	19:28:00	1.6	2.0	21	86
25/03/2024	19:29:00	1.8	2.2	21	86
25/03/2024	19:30:00	1.8	2.2	21	86
25/03/2024	19:31:00	1.8	2.1	21	86
25/03/2024	19:32:00	1.9	2.3	21	86
25/03/2024	19:33:00	1.7	1.9	21	85
25/03/2024	19:34:00	1.8	2.1	21	83
25/03/2024	19:35:00	1.7	2.0	21	85
25/03/2024	19:36:00	1.5	1.9	21	86
25/03/2024	19:37:00	1.6	1.9	20	86
25/03/2024	19:38:00	1.6	1.9	20	85
25/03/2024	19:39:00	1.7	2.0	20	85

25/03/2024	19:40:00	1.7	1.9	20	85
25/03/2024	19:41:00	1.5	1.9	20	86
25/03/2024	19:42:00	1.6	2.0	20	85
25/03/2024	19:43:00	1.6	1.9	20	85
25/03/2024	19:44:00	1.5	2.1	20	86
25/03/2024	19:45:00	1.7	2.1	20	85
25/03/2024	19:46:00	1.8	2.1	20	86
25/03/2024	19:47:00	1.9	2.2	20	85
25/03/2024	19:48:00	1.7	2.2	20	86
25/03/2024	19:49:00	1.9	2.4	20	87
25/03/2024	19:50:00	2.0	2.5	20	86
25/03/2024	19:51:00	2.0	2.6	20	86
25/03/2024	19:52:00	2.1	2.6	20	86
25/03/2024	19:53:00	2.3	2.8	20	86
25/03/2024	19:54:00	2.1	2.7	20	85
25/03/2024	19:55:00	2.0	2.7	20	86
25/03/2024	19:56:00	2.3	3.1	19	84
25/03/2024	19:57:00	2.1	2.9	19	80
25/03/2024	19:58:00	2.0	2.5	19	80
25/03/2024	19:59:00	2.1	2.8	19	80
25/03/2024	20:00:00	2.0	2.5	19	81
25/03/2024	20:01:00	2.1	2.6	19	81
25/03/2024	20:02:00	1.9	2.8	19	84
25/03/2024	20:03:00	2.0	2.5	19	84
25/03/2024	20:04:00	2.1	2.5	19	82
25/03/2024	20:05:00	2.0	2.6	20	83
25/03/2024	20:06:00	2.1	2.7	20	83
25/03/2024	20:07:00	2.1	3.0	20	84
25/03/2024	20:08:00	2.2	3.1	20	83
25/03/2024	20:09:00	2.0	2.8	20	85
25/03/2024	20:10:00	1.8	2.3	20	87
25/03/2024	20:11:00	1.9	2.7	20	86
25/03/2024	20:12:00	1.8	2.5	20	86
25/03/2024	20:13:00	1.8	2.4	20	87
25/03/2024	20:14:00	1.7	2.2	20	86
25/03/2024	20:15:00	1.9	2.9	20	85
25/03/2024	20:16:00	1.8	2.3	20	87
25/03/2024	20:17:00	1.8	2.5	20	85
25/03/2024	20:18:00	1.9	2.5	20	85
25/03/2024	20:19:00	1.8	2.4	20	86
25/03/2024	20:20:00	1.9	2.7	20	86
25/03/2024	20:21:00	1.8	2.4	20	86
25/03/2024	20:22:00	1.9	3.0	20	87
25/03/2024	20:23:00	1.9	2.7	20	87
25/03/2024	20:24:00	1.8	2.4	20	93
25/03/2024	20:25:00	2.2	2.8	20	90

25/03/2024	20:26:00	2.0	2.8	20	89
25/03/2024	20:27:00	1.9	2.4	20	92
25/03/2024	20:28:00	1.8	2.4	20	93
25/03/2024	20:29:00	1.9	2.4	20	92
25/03/2024	20:30:00	1.8	2.9	20	94
25/03/2024	20:31:00	1.7	2.4	20	102
25/03/2024	20:32:00	2.1	3.0	20	89
25/03/2024	20:33:00	2.2	3.5	20	87
25/03/2024	20:34:00	1.8	2.5	20	94
25/03/2024	20:35:00	1.9	2.7	20	93
25/03/2024	20:36:00	1.9	2.3	21	90
25/03/2024	20:37:00	1.7	2.1	21	88
25/03/2024	20:38:00	1.7	2.0	21	88
25/03/2024	20:39:00	1.8	2.4	21	94
25/03/2024	20:40:00	1.7	2.2	21	92
25/03/2024	20:41:00	1.6	2.0	21	93
25/03/2024	20:42:00	1.8	2.6	21	92
25/03/2024	20:43:00	1.8	2.4	21	93
25/03/2024	20:44:00	1.9	3.2	21	89
25/03/2024	20:45:00	1.9	3.1	21	93
25/03/2024	20:46:00	1.8	2.7	21	92
25/03/2024	20:47:00	2.3	3.3	21	92
25/03/2024	20:48:00	2.0	3.2	21	96
25/03/2024	20:49:00	2.1	2.8	21	99
25/03/2024	20:50:00	1.8	2.3	21	95
25/03/2024	20:51:00	2.0	2.8	21	95
25/03/2024	20:52:00	1.9	2.8	21	90
25/03/2024	20:53:00	1.8	2.3	21	89
25/03/2024	20:54:00	1.8	2.4	21	91
25/03/2024	20:55:00	1.8	2.6	21	90
25/03/2024	20:56:00	2.0	3.1	21	85
25/03/2024	20:57:00	1.8	2.3	21	84
25/03/2024	20:58:00	1.9	2.6	21	86
25/03/2024	20:59:00	1.8	2.8	21	88
25/03/2024	21:00:00	2.0	2.4	21	90
25/03/2024	21:01:00	1.8	2.7	21	88
25/03/2024	21:02:00	2.1	3.0	21	88
25/03/2024	21:03:00	1.9	3.0	21	87
25/03/2024	21:04:00	1.8	2.4	21	86
25/03/2024	21:05:00	2.0	3.0	21	88
25/03/2024	21:06:00	2.0	2.6	21	86
25/03/2024	21:07:00	2.3	3.6	21	86
25/03/2024	21:08:00	2.4	3.4	21	87
25/03/2024	21:09:00	2.1	2.8	21	88
25/03/2024	21:10:00	2.4	3.2	21	86
25/03/2024	21:11:00	2.7	3.4	21	85

25/03/2024	21:12:00	2.7	3.5	21	87
25/03/2024	21:13:00	2.6	3.5	21	85
25/03/2024	21:14:00	2.5	3.5	21	85
25/03/2024	21:15:00	2.9	4.5	21	86
25/03/2024	21:16:00	2.2	3.0	21	88
25/03/2024	21:17:00	2.7	3.9	21	85
25/03/2024	21:18:00	2.1	3.0	21	92
25/03/2024	21:19:00	2.0	2.7	21	100
25/03/2024	21:20:00	2.2	3.2	21	96
25/03/2024	21:21:00	2.4	3.8	21	95
25/03/2024	21:22:00	2.2	2.8	21	97
25/03/2024	21:23:00	2.0	2.4	21	95
25/03/2024	21:24:00	2.5	3.3	21	93
25/03/2024	21:25:00	2.1	3.0	21	97
25/03/2024	21:26:00	2.2	3.0	21	96
25/03/2024	21:27:00	2.1	2.9	21	94
25/03/2024	21:28:00	2.3	3.6	21	94
25/03/2024	21:29:00	2.5	3.5	21	95
25/03/2024	21:30:00	2.5	3.6	21	93
25/03/2024	21:31:00	2.2	2.9	21	94
25/03/2024	21:32:00	2.4	3.3	21	99
25/03/2024	21:33:00	2.7	4.0	21	99
25/03/2024	21:34:00	2.8	3.8	21	101
25/03/2024	21:35:00	2.6	3.3	21	101
25/03/2024	21:36:00	2.9	3.6	21	106
25/03/2024	21:37:00	2.7	3.6	21	100
25/03/2024	21:38:00	2.6	3.9	21	102
25/03/2024	21:39:00	2.5	3.6	21	108
25/03/2024	21:40:00	2.5	3.3	21	102
25/03/2024	21:41:00	2.8	3.8	21	100
25/03/2024	21:42:00	2.8	3.6	21	105
25/03/2024	21:43:00	2.8	4.1	21	104
25/03/2024	21:44:00	3.0	4.0	21	107
25/03/2024	21:45:00	2.8	4.4	21	108
25/03/2024	21:46:00	2.8	3.7	21	106
25/03/2024	21:47:00	2.4	3.1	21	105
25/03/2024	21:48:00	2.6	3.9	21	101
25/03/2024	21:49:00	2.8	4.7	21	106
25/03/2024	21:50:00	2.8	4.7	21	106
25/03/2024	21:51:00	2.9	4.1	22	107
25/03/2024	21:52:00	2.9	3.8	22	104
25/03/2024	21:53:00	3.1	4.8	22	108
25/03/2024	21:54:00	3.2	4.2	22	109
25/03/2024	21:55:00	2.7	3.8	22	107
25/03/2024	21:56:00	2.9	4.0	22	110
25/03/2024	21:57:00	2.9	4.2	22	107

25/03/2024	21:58:00	2.6	3.9	22	110
25/03/2024	21:59:00	2.7	3.8	22	109
25/03/2024	22:00:00	2.8	3.8	22	105
25/03/2024	22:01:00	2.9	4.1	22	108
25/03/2024	22:02:00	3.3	4.6	22	110
25/03/2024	22:03:00	2.6	4.0	22	108
25/03/2024	22:04:00	3.0	4.2	22	106
25/03/2024	22:05:00	3.0	4.3	22	110
25/03/2024	22:06:00	3.1	4.2	22	107
25/03/2024	22:07:00	2.8	3.7	22	105
25/03/2024	22:08:00	3.0	4.0	22	108
25/03/2024	22:09:00	3.3	4.7	22	106
25/03/2024	22:10:00	2.9	4.0	22	107
25/03/2024	22:11:00	2.8	3.8	22	104
25/03/2024	22:12:00	3.3	4.6	22	106
25/03/2024	22:13:00	3.1	4.3	22	107
25/03/2024	22:14:00	3.0	4.1	23	104
25/03/2024	22:15:00	3.0	4.3	23	100
25/03/2024	22:16:00	2.6	3.5	23	99
25/03/2024	22:17:00	2.8	4.0	23	102
25/03/2024	22:18:00	2.4	3.3	23	96
25/03/2024	22:19:00	2.6	3.6	23	104
25/03/2024	22:20:00	2.7	4.6	23	100
25/03/2024	22:21:00	3.1	4.4	22	104
25/03/2024	22:22:00	3.2	4.2	22	103
25/03/2024	22:23:00	4.7	6.2	22	98
25/03/2024	22:24:00	2.3	5.4	22	111
25/03/2024	22:25:00	2.1	3.1	22	117
25/03/2024	22:26:00	2.0	3.1	22	115
25/03/2024	22:27:00	2.8	4.4	22	116
25/03/2024	22:28:00	2.3	3.5	22	116
25/03/2024	22:29:00	2.4	4.1	22	114
25/03/2024	22:30:00	1.9	3.6	22	118
25/03/2024	22:31:00	1.7	2.6	22	116
25/03/2024	22:32:00	1.9	4.1	22	108
25/03/2024	22:33:00	2.7	4.0	22	108
25/03/2024	22:34:00	2.1	3.5	22	106
25/03/2024	22:35:00	2.6	4.1	22	108
25/03/2024	22:36:00	2.9	4.6	22	107
25/03/2024	22:37:00	2.9	4.7	22	108
25/03/2024	22:38:00	1.9	3.4	22	112
25/03/2024	22:39:00	2.4	3.6	22	113
25/03/2024	22:40:00	2.4	4.3	22	108
25/03/2024	22:41:00	2.6	4.2	22	107
25/03/2024	22:42:00	2.1	4.3	22	101
25/03/2024	22:43:00	1.8	3.2	22	106

25/03/2024	22:44:00	1.7	2.5	22	107
25/03/2024	22:45:00	1.9	2.9	22	110
25/03/2024	22:46:00	1.6	2.7	22	106
25/03/2024	22:47:00	2.3	4.4	22	110
25/03/2024	22:48:00	1.7	2.3	22	106
25/03/2024	22:49:00	1.6	2.3	22	107
25/03/2024	22:50:00	1.6	2.4	22	109
25/03/2024	22:51:00	2.0	3.2	22	104
25/03/2024	22:52:00	2.1	3.7	22	107
25/03/2024	22:53:00	2.4	3.5	21	107
25/03/2024	22:54:00	2.3	3.0	21	108
25/03/2024	22:55:00	2.3	3.5	21	107
25/03/2024	22:56:00	2.2	3.6	21	103
25/03/2024	22:57:00	2.7	4.7	21	108
25/03/2024	22:58:00	2.6	4.3	21	108
25/03/2024	22:59:00	3.3	5.0	21	108
25/03/2024	23:00:00	2.2	4.5	21	111
25/03/2024	23:01:00	3.1	4.9	21	109
25/03/2024	23:02:00	2.5	3.3	21	110
25/03/2024	23:03:00	3.0	5.4	21	111
25/03/2024	23:04:00	2.9	4.6	21	109
25/03/2024	23:05:00	3.2	5.2	21	110
25/03/2024	23:06:00	3.3	5.0	21	113
25/03/2024	23:07:00	3.0	4.5	21	107
25/03/2024	23:08:00	2.9	4.7	21	106
25/03/2024	23:09:00	3.6	5.2	21	108
25/03/2024	23:10:00	3.6	4.6	21	109
25/03/2024	23:11:00	2.9	4.4	21	105
25/03/2024	23:12:00	3.2	5.4	21	108
25/03/2024	23:13:00	2.8	4.4	21	106
25/03/2024	23:14:00	3.0	4.0	21	112
25/03/2024	23:15:00	3.0	4.6	21	107
25/03/2024	23:16:00	2.8	4.5	21	111
25/03/2024	23:17:00	2.6	4.0	22	108
25/03/2024	23:18:00	2.5	4.3	22	110
25/03/2024	23:19:00	2.9	5.1	22	107
25/03/2024	23:20:00	2.7	4.9	22	111
25/03/2024	23:21:00	3.2	5.4	22	109
25/03/2024	23:22:00	3.6	5.9	22	107
25/03/2024	23:23:00	2.8	4.3	22	106
25/03/2024	23:24:00	2.9	5.2	22	108
25/03/2024	23:25:00	2.9	5.0	22	108
25/03/2024	23:26:00	3.2	5.0	22	112
25/03/2024	23:27:00	2.2	3.3	22	106
25/03/2024	23:28:00	3.4	5.2	22	110
25/03/2024	23:29:00	3.0	5.1	22	112

25/03/2024	23:30:00	3.4	5.6	22	109
25/03/2024	23:31:00	2.9	5.4	22	106
25/03/2024	23:32:00	2.8	4.3	21	110
25/03/2024	23:33:00	2.0	3.2	21	111
25/03/2024	23:34:00	2.4	4.8	21	108
25/03/2024	23:35:00	2.3	3.4	21	111
25/03/2024	23:36:00	3.1	4.5	21	107
25/03/2024	23:37:00	2.3	3.4	21	107
25/03/2024	23:38:00	2.5	3.5	21	106
25/03/2024	23:39:00	2.3	4.1	21	105
25/03/2024	23:40:00	2.6	3.7	21	107
25/03/2024	23:41:00	2.4	4.4	21	110
25/03/2024	23:42:00	1.9	3.1	21	105
25/03/2024	23:43:00	2.2	3.4	21	110
25/03/2024	23:44:00	2.4	3.6	21	107
25/03/2024	23:45:00	2.3	3.5	21	106
25/03/2024	23:46:00	3.0	4.7	21	106
25/03/2024	23:47:00	2.7	5.1	21	109
25/03/2024	23:48:00	2.2	4.4	21	110
25/03/2024	23:49:00	2.5	4.2	21	107
25/03/2024	23:50:00	2.6	3.7	21	108
25/03/2024	23:51:00	2.4	3.9	21	108
25/03/2024	23:52:00	2.9	4.4	21	110
25/03/2024	23:53:00	2.7	4.2	21	107
25/03/2024	23:54:00	2.6	4.8	21	108
25/03/2024	23:55:00	2.3	3.6	21	107
25/03/2024	23:56:00	2.7	4.2	21	107
25/03/2024	23:57:00	2.3	3.3	21	107
25/03/2024	23:58:00	2.5	3.7	21	109
25/03/2024	23:59:00	2.5	3.6	21	110
26/03/2024	00:00:00	2.5	3.4	21	109
26/03/2024	00:01:00	2.3	3.5	21	103
26/03/2024	00:02:00	2.6	3.9	21	107
26/03/2024	00:03:00	2.3	3.4	21	107
26/03/2024	00:04:00	2.3	3.3	21	104
26/03/2024	00:05:00	2.2	3.3	21	106
26/03/2024	00:06:00	2.1	3.6	21	108
26/03/2024	00:07:00	2.2	3.7	21	106
26/03/2024	00:08:00	2.2	3.6	21	106
26/03/2024	00:09:00	2.0	2.9	21	107
26/03/2024	00:10:00	2.6	4.3	21	106
26/03/2024	00:11:00	2.3	3.9	21	111
26/03/2024	00:12:00	2.5	4.8	21	106
26/03/2024	00:13:00	2.6	5.2	21	109
26/03/2024	00:14:00	2.2	3.9	21	104
26/03/2024	00:15:00	2.2	3.5	21	107

26/03/2024	00:16:00	2.4	3.6	21	107
26/03/2024	00:17:00	2.0	2.9	21	106
26/03/2024	00:18:00	1.7	2.7	21	109
26/03/2024	00:19:00	1.9	2.8	21	108
26/03/2024	00:20:00	1.5	2.4	21	101
26/03/2024	00:21:00	2.0	3.4	21	110
26/03/2024	00:22:00	1.8	2.6	21	108
26/03/2024	00:23:00	1.5	2.4	21	105
26/03/2024	00:24:00	1.6	3.0	21	105
26/03/2024	00:25:00	1.8	2.5	21	101
26/03/2024	00:26:00	1.9	2.9	21	103
26/03/2024	00:27:00	1.7	2.4	21	107
26/03/2024	00:28:00	1.6	2.7	21	103
26/03/2024	00:29:00	1.7	4.4	21	108
26/03/2024	00:30:00	1.1	1.8	21	108
26/03/2024	00:31:00	1.4	2.1	20	109
26/03/2024	00:32:00	1.8	2.8	20	109
26/03/2024	00:33:00	1.1	2.3	20	103
26/03/2024	00:34:00	0.2	0.9	20	71
26/03/2024	00:35:00	0.0	0.7	20	nW
26/03/2024	00:36:00	0.7	0.9	20	71
26/03/2024	00:37:00	0.8	0.9	20	73
26/03/2024	00:38:00	0.4	0.8	20	73
26/03/2024	00:39:00	0.0	0.7	20	nW
26/03/2024	00:40:00	0.0	0.7	20	nW
26/03/2024	00:41:00	0.1	0.7	20	73
26/03/2024	00:42:00	0.1	0.7	20	72
26/03/2024	00:43:00	0.3	0.7	20	72
26/03/2024	00:44:00	0.8	1.4	20	88
26/03/2024	00:45:00	0.7	1.0	20	122
26/03/2024	00:46:00	0.2	0.8	20	111
26/03/2024	00:47:00	0.6	0.8	20	111
26/03/2024	00:48:00	0.5	0.9	20	111
26/03/2024	00:49:00	0.6	0.9	20	111
26/03/2024	00:50:00	0.7	0.9	20	103
26/03/2024	00:51:00	0.9	1.3	20	101
26/03/2024	00:52:00	0.8	1.1	20	101
26/03/2024	00:53:00	0.7	0.9	20	88
26/03/2024	00:54:00	0.6	0.9	20	87
26/03/2024	00:55:00	0.8	1.0	20	89
26/03/2024	00:56:00	0.8	1.2	20	93
26/03/2024	00:57:00	0.7	1.0	20	92
26/03/2024	00:58:00	0.7	1.0	20	87
26/03/2024	00:59:00	0.7	1.0	20	99
26/03/2024	01:00:00	0.8	1.3	20	87
26/03/2024	01:01:00	0.6	1.1	20	92

26/03/2024	01:02:00	0.7	0.9	20	106
26/03/2024	01:03:00	0.9	1.1	20	93
26/03/2024	01:04:00	0.8	1.0	20	76
26/03/2024	01:05:00	0.8	1.0	20	76
26/03/2024	01:06:00	0.8	1.2	20	76
26/03/2024	01:07:00	0.6	0.9	20	74
26/03/2024	01:08:00	0.6	0.9	20	75
26/03/2024	01:09:00	0.5	0.9	20	76
26/03/2024	01:10:00	0.4	0.8	20	74
26/03/2024	01:11:00	0.5	0.9	20	72
26/03/2024	01:12:00	0.1	0.7	20	72
26/03/2024	01:13:00	0.0	0.0	20	nW
26/03/2024	01:14:00	0.1	0.8	20	70
26/03/2024	01:15:00	0.0	0.7	20	nW
26/03/2024	01:16:00	0.0	0.0	20	nW
26/03/2024	01:17:00	0.0	0.7	20	nW
26/03/2024	01:18:00	0.2	0.8	20	71
26/03/2024	01:19:00	0.0	0.0	19	nW
26/03/2024	01:20:00	0.0	0.0	19	nW
26/03/2024	01:21:00	0.0	0.0	19	nW
26/03/2024	01:22:00	0.0	0.0	19	nW
26/03/2024	01:23:00	0.0	0.0	19	nW
26/03/2024	01:24:00	0.0	0.0	19	nW
26/03/2024	01:25:00	0.0	0.0	19	nW
26/03/2024	01:26:00	0.0	0.0	19	nW
26/03/2024	01:27:00	0.0	0.0	19	nW
26/03/2024	01:28:00	0.0	0.7	19	nW
26/03/2024	01:29:00	0.0	0.0	19	nW
26/03/2024	01:30:00	0.1	0.8	19	104
26/03/2024	01:31:00	0.5	0.8	19	104
26/03/2024	01:32:00	0.1	0.8	19	105
26/03/2024	01:33:00	0.4	0.9	19	105
26/03/2024	01:34:00	0.4	0.8	19	106
26/03/2024	01:35:00	0.6	0.9	19	104
26/03/2024	01:36:00	0.6	0.8	19	95
26/03/2024	01:37:00	0.7	1.0	19	110
26/03/2024	01:38:00	0.5	0.9	19	78
26/03/2024	01:39:00	0.4	0.8	19	77
26/03/2024	01:40:00	0.5	0.8	19	84
26/03/2024	01:41:00	0.0	0.0	19	nW
26/03/2024	01:42:00	0.6	0.8	19	87
26/03/2024	01:43:00	0.7	0.9	19	79
26/03/2024	01:44:00	0.5	1.1	19	101
26/03/2024	01:45:00	0.4	0.8	19	96
26/03/2024	01:46:00	0.2	0.7	19	66
26/03/2024	01:47:00	0.1	0.7	19	59

26/03/2024	01:48:00	0.3	0.7	19	59
26/03/2024	01:49:00	0.1	0.9	19	61
26/03/2024	01:50:00	0.6	0.9	19	83
26/03/2024	01:51:00	0.3	0.8	19	103
26/03/2024	01:52:00	0.1	0.8	19	100
26/03/2024	01:53:00	0.2	0.7	19	111
26/03/2024	01:54:00	0.2	0.7	19	112
26/03/2024	01:55:00	0.4	1.0	19	124
26/03/2024	01:56:00	0.5	0.9	19	91
26/03/2024	01:57:00	0.8	1.4	19	79
26/03/2024	01:58:00	0.7	1.1	19	83
26/03/2024	01:59:00	0.7	1.4	19	100
26/03/2024	02:00:00	0.6	1.1	19	71
26/03/2024	02:01:00	0.5	1.0	19	68
26/03/2024	02:02:00	1.0	1.6	19	38
26/03/2024	02:03:00	0.6	1.1	19	32
26/03/2024	02:04:00	0.9	1.8	19	61
26/03/2024	02:05:00	0.6	0.9	19	48
26/03/2024	02:06:00	0.8	1.4	19	57
26/03/2024	02:07:00	0.4	0.8	19	67
26/03/2024	02:08:00	0.4	1.2	19	68
26/03/2024	02:09:00	0.7	1.1	19	143
26/03/2024	02:10:00	0.6	0.9	19	175
26/03/2024	02:11:00	0.8	1.0	19	134
26/03/2024	02:12:00	0.7	0.9	19	127
26/03/2024	02:13:00	0.8	1.4	19	166
26/03/2024	02:14:00	0.6	1.0	19	161
26/03/2024	02:15:00	0.5	1.1	19	167
26/03/2024	02:16:00	0.7	1.2	19	131
26/03/2024	02:17:00	0.8	1.2	19	99
26/03/2024	02:18:00	0.7	1.2	19	102
26/03/2024	02:19:00	0.5	1.1	19	171
26/03/2024	02:20:00	0.4	0.8	19	170
26/03/2024	02:21:00	0.7	1.5	19	161
26/03/2024	02:22:00	0.8	1.1	19	130
26/03/2024	02:23:00	0.6	1.3	19	128
26/03/2024	02:24:00	0.8	1.4	19	125
26/03/2024	02:25:00	0.5	1.1	19	109
26/03/2024	02:26:00	0.7	1.1	19	107
26/03/2024	02:27:00	0.7	1.0	19	118
26/03/2024	02:28:00	0.8	1.1	19	49
26/03/2024	02:29:00	0.7	1.2	19	72
26/03/2024	02:30:00	0.5	0.8	19	65
26/03/2024	02:31:00	0.5	0.9	19	66
26/03/2024	02:32:00	0.8	1.3	19	73
26/03/2024	02:33:00	0.7	1.1	19	139

26/03/2024	02:34:00	0.7	1.2	19	116
26/03/2024	02:35:00	0.7	1.2	19	115
26/03/2024	02:36:00	0.5	1.2	19	97
26/03/2024	02:37:00	0.4	0.9	19	59
26/03/2024	02:38:00	0.8	1.2	19	98
26/03/2024	02:39:00	0.8	1.0	19	90
26/03/2024	02:40:00	0.5	1.0	19	81
26/03/2024	02:41:00	0.5	1.6	18	343
26/03/2024	02:42:00	0.9	1.7	18	105
26/03/2024	02:43:00	0.5	1.2	18	76
26/03/2024	02:44:00	0.8	2.4	18	107
26/03/2024	02:45:00	0.7	1.5	18	138
26/03/2024	02:46:00	0.7	1.1	18	98
26/03/2024	02:47:00	0.5	1.3	18	114
26/03/2024	02:48:00	0.7	1.2	18	67
26/03/2024	02:49:00	0.7	1.2	18	72
26/03/2024	02:50:00	0.6	1.2	18	111
26/03/2024	02:51:00	0.9	1.7	18	118
26/03/2024	02:52:00	0.5	0.8	18	116
26/03/2024	02:53:00	0.8	1.6	18	124
26/03/2024	02:54:00	0.4	1.0	18	134
26/03/2024	02:55:00	0.8	1.3	18	120
26/03/2024	02:56:00	0.5	1.0	18	99
26/03/2024	02:57:00	0.8	1.2	18	151
26/03/2024	02:58:00	0.7	1.0	18	89
26/03/2024	02:59:00	0.7	1.1	18	131
26/03/2024	03:00:00	0.7	1.0	18	104
26/03/2024	03:01:00	0.6	1.0	18	87
26/03/2024	03:02:00	0.6	1.0	18	128
26/03/2024	03:03:00	0.5	0.9	18	119
26/03/2024	03:04:00	0.6	0.9	18	97
26/03/2024	03:05:00	0.7	1.1	18	120
26/03/2024	03:06:00	0.8	1.1	18	118
26/03/2024	03:07:00	0.6	1.2	18	130
26/03/2024	03:08:00	0.8	1.2	18	114
26/03/2024	03:09:00	0.8	1.1	18	138
26/03/2024	03:10:00	0.7	1.0	18	136
26/03/2024	03:11:00	0.8	1.1	18	131
26/03/2024	03:12:00	0.8	1.1	18	106
26/03/2024	03:13:00	0.6	0.9	18	116
26/03/2024	03:14:00	0.5	0.9	18	134
26/03/2024	03:15:00	0.4	0.8	18	135
26/03/2024	03:16:00	0.6	0.9	18	107
26/03/2024	03:17:00	0.8	1.0	18	85
26/03/2024	03:18:00	0.6	1.0	18	111
26/03/2024	03:19:00	0.3	0.8	18	133

26/03/2024	03:20:00	0.4	0.9	18	125
26/03/2024	03:21:00	0.6	0.9	18	119
26/03/2024	03:22:00	0.7	1.0	18	107
26/03/2024	03:23:00	0.8	1.1	18	105
26/03/2024	03:24:00	0.6	1.0	18	107
26/03/2024	03:25:00	0.4	0.8	18	113
26/03/2024	03:26:00	0.4	0.9	18	96
26/03/2024	03:27:00	0.7	1.1	18	134
26/03/2024	03:28:00	0.4	1.0	18	117
26/03/2024	03:29:00	0.5	1.1	18	132
26/03/2024	03:30:00	0.6	0.9	18	108
26/03/2024	03:31:00	0.6	1.0	18	115
26/03/2024	03:32:00	0.6	1.0	18	103
26/03/2024	03:33:00	0.6	0.9	18	100
26/03/2024	03:34:00	0.3	0.8	18	84
26/03/2024	03:35:00	0.3	0.8	18	79
26/03/2024	03:36:00	0.1	0.8	18	73
26/03/2024	03:37:00	0.5	0.8	18	76
26/03/2024	03:38:00	0.3	0.7	18	90
26/03/2024	03:39:00	0.1	0.7	18	90
26/03/2024	03:40:00	0.1	0.7	18	90
26/03/2024	03:41:00	0.5	0.9	18	91
26/03/2024	03:42:00	0.2	0.9	18	97
26/03/2024	03:43:00	0.5	0.8	18	95
26/03/2024	03:44:00	0.6	1.0	18	94
26/03/2024	03:45:00	0.2	0.7	18	93
26/03/2024	03:46:00	0.5	1.0	18	95
26/03/2024	03:47:00	0.2	0.8	18	91
26/03/2024	03:48:00	0.4	0.8	18	87
26/03/2024	03:49:00	0.5	1.0	18	90
26/03/2024	03:50:00	0.5	1.1	18	96
26/03/2024	03:51:00	0.5	0.8	18	111
26/03/2024	03:52:00	0.1	0.7	18	99
26/03/2024	03:53:00	0.4	0.9	18	111
26/03/2024	03:54:00	0.3	0.9	18	101
26/03/2024	03:55:00	0.5	0.8	18	100
26/03/2024	03:56:00	0.1	0.8	18	101
26/03/2024	03:57:00	0.4	1.7	18	113
26/03/2024	03:58:00	0.7	1.8	18	103
26/03/2024	03:59:00	0.6	1.0	18	88
26/03/2024	04:00:00	0.6	1.0	18	152
26/03/2024	04:01:00	0.7	1.5	18	225
26/03/2024	04:02:00	0.5	1.2	18	227
26/03/2024	04:03:00	0.4	0.8	18	320
26/03/2024	04:04:00	0.5	0.9	18	36
26/03/2024	04:05:00	0.7	1.1	18	50

26/03/2024	04:06:00	0.5	0.8	18	62
26/03/2024	04:07:00	0.6	1.0	18	63
26/03/2024	04:08:00	0.6	1.4	18	75
26/03/2024	04:09:00	0.6	0.9	18	98
26/03/2024	04:10:00	0.4	1.0	18	78
26/03/2024	04:11:00	0.4	0.9	18	71
26/03/2024	04:12:00	0.6	1.3	18	73
26/03/2024	04:13:00	0.4	1.4	18	88
26/03/2024	04:14:00	0.3	0.9	18	96
26/03/2024	04:15:00	0.9	1.6	18	76
26/03/2024	04:16:00	0.6	1.0	18	77
26/03/2024	04:17:00	0.6	0.9	18	93
26/03/2024	04:18:00	0.7	1.1	18	102
26/03/2024	04:19:00	0.6	1.0	18	73
26/03/2024	04:20:00	0.6	0.9	18	114
26/03/2024	04:21:00	0.5	1.2	18	67
26/03/2024	04:22:00	0.1	0.8	18	61
26/03/2024	04:23:00	0.4	1.1	18	60
26/03/2024	04:24:00	0.6	1.6	18	88
26/03/2024	04:25:00	0.2	0.8	18	93
26/03/2024	04:26:00	0.4	0.8	18	83
26/03/2024	04:27:00	0.3	0.8	18	92
26/03/2024	04:28:00	0.4	0.9	18	80
26/03/2024	04:29:00	0.3	0.8	18	104
26/03/2024	04:30:00	0.2	0.9	18	102
26/03/2024	04:31:00	0.7	0.9	18	105
26/03/2024	04:32:00	0.6	0.9	18	94
26/03/2024	04:33:00	0.6	0.9	18	76
26/03/2024	04:34:00	0.5	1.2	18	93
26/03/2024	04:35:00	0.5	0.9	18	94
26/03/2024	04:36:00	0.1	0.8	18	111
26/03/2024	04:37:00	0.2	0.9	18	78
26/03/2024	04:38:00	0.1	0.8	18	90
26/03/2024	04:39:00	0.1	0.7	18	116
26/03/2024	04:40:00	0.2	0.7	18	100
26/03/2024	04:41:00	0.2	0.8	18	93
26/03/2024	04:42:00	0.4	1.0	18	92
26/03/2024	04:43:00	0.3	0.8	18	104
26/03/2024	04:44:00	0.1	0.7	18	99
26/03/2024	04:45:00	0.1	0.8	18	96
26/03/2024	04:46:00	0.0	0.0	18	nW
26/03/2024	04:47:00	0.1	0.7	18	101
26/03/2024	04:48:00	0.3	0.9	18	97
26/03/2024	04:49:00	0.0	0.8	18	nW
26/03/2024	04:50:00	0.3	0.9	18	97
26/03/2024	04:51:00	0.6	1.7	18	78

26/03/2024	04:52:00	0.2	0.8	18	72
26/03/2024	04:53:00	0.0	0.7	18	nW
26/03/2024	04:54:00	0.1	0.8	18	64
26/03/2024	04:55:00	0.3	0.7	18	73
26/03/2024	04:56:00	0.1	0.7	18	73
26/03/2024	04:57:00	0.1	0.8	17	73
26/03/2024	04:58:00	0.1	0.7	17	73
26/03/2024	04:59:00	0.2	0.7	17	72
26/03/2024	05:00:00	0.1	0.7	17	72
26/03/2024	05:01:00	0.0	0.0	17	nW
26/03/2024	05:02:00	0.0	0.0	17	nW
26/03/2024	05:03:00	0.0	0.0	17	nW
26/03/2024	05:04:00	0.0	0.0	17	nW
26/03/2024	05:05:00	0.0	0.0	17	nW
26/03/2024	05:06:00	0.0	0.0	17	nW
26/03/2024	05:07:00	0.0	0.0	17	nW
26/03/2024	05:08:00	0.0	0.0	17	nW
26/03/2024	05:09:00	0.0	0.0	17	nW
26/03/2024	05:10:00	0.0	0.0	17	nW
26/03/2024	05:11:00	0.1	0.8	17	62
26/03/2024	05:12:00	0.0	0.7	17	nW
26/03/2024	05:13:00	0.0	0.0	17	nW
26/03/2024	05:14:00	0.0	0.0	17	nW
26/03/2024	05:15:00	0.0	0.0	17	nW
26/03/2024	05:16:00	0.0	0.0	17	nW
26/03/2024	05:17:00	0.0	0.0	17	nW
26/03/2024	05:18:00	0.2	0.9	17	63
26/03/2024	05:19:00	0.0	0.0	17	nW
26/03/2024	05:20:00	0.0	0.0	17	nW
26/03/2024	05:21:00	0.0	0.0	17	nW
26/03/2024	05:22:00	0.0	0.0	17	nW
26/03/2024	05:23:00	0.0	0.0	17	nW
26/03/2024	05:24:00	0.0	0.0	17	nW
26/03/2024	05:25:00	0.0	0.0	17	nW
26/03/2024	05:26:00	0.0	0.0	17	nW
26/03/2024	05:27:00	0.0	0.6	17	nW
26/03/2024	05:28:00	0.0	0.0	17	nW
26/03/2024	05:29:00	0.0	0.0	17	nW
26/03/2024	05:30:00	0.0	0.0	17	nW
26/03/2024	05:31:00	0.0	0.0	17	nW
26/03/2024	05:32:00	0.0	0.0	17	nW
26/03/2024	05:33:00	0.0	0.0	17	nW
26/03/2024	05:34:00	0.0	0.0	17	nW
26/03/2024	05:35:00	0.0	0.0	17	nW
26/03/2024	05:36:00	0.0	0.0	17	nW
26/03/2024	05:37:00	0.0	0.0	17	nW

26/03/2024	05:38:00	0.0	0.0	17	nW
26/03/2024	05:39:00	0.0	0.0	17	nW
26/03/2024	05:40:00	0.0	0.7	17	nW
26/03/2024	05:41:00	0.0	0.7	17	nW
26/03/2024	05:42:00	0.0	0.0	17	nW
26/03/2024	05:43:00	0.0	0.7	17	nW
26/03/2024	05:44:00	0.0	0.7	17	nW
26/03/2024	05:45:00	0.0	0.0	17	nW
26/03/2024	05:46:00	0.0	0.0	17	nW
26/03/2024	05:47:00	0.0	0.0	17	nW
26/03/2024	05:48:00	0.0	0.0	17	nW
26/03/2024	05:49:00	0.0	0.0	17	nW
26/03/2024	05:50:00	0.0	0.0	17	nW
26/03/2024	05:51:00	0.0	0.0	17	nW
26/03/2024	05:52:00	0.0	0.0	17	nW
26/03/2024	05:53:00	0.0	0.0	17	nW
26/03/2024	05:54:00	0.0	0.0	17	nW
26/03/2024	05:55:00	0.0	0.0	17	nW
26/03/2024	05:56:00	0.0	0.0	17	nW
26/03/2024	05:57:00	0.0	0.0	17	nW
26/03/2024	05:58:00	0.0	0.0	17	nW
26/03/2024	05:59:00	0.0	0.0	17	nW
26/03/2024	06:00:00	0.0	0.0	17	nW
26/03/2024	06:01:00	0.0	0.0	17	nW
26/03/2024	06:02:00	0.0	0.0	17	nW
26/03/2024	06:03:00	0.0	0.0	17	nW
26/03/2024	06:04:00	0.0	0.0	17	nW
26/03/2024	06:05:00	0.0	0.0	17	nW
26/03/2024	06:06:00	0.0	0.0	17	nW
26/03/2024	06:07:00	0.0	0.0	17	nW
26/03/2024	06:08:00	0.0	0.0	17	nW
26/03/2024	06:09:00	0.1	0.7	17	61
26/03/2024	06:10:00	0.1	0.7	17	56
26/03/2024	06:11:00	0.0	0.0	17	nW
26/03/2024	06:12:00	0.4	0.9	17	57
26/03/2024	06:13:00	0.3	0.9	17	54
26/03/2024	06:14:00	0.4	0.9	17	49
26/03/2024	06:15:00	0.0	0.0	17	nW
26/03/2024	06:16:00	0.0	0.0	17	nW
26/03/2024	06:17:00	0.0	0.0	17	nW
26/03/2024	06:18:00	0.0	0.0	17	nW
26/03/2024	06:19:00	0.0	0.0	17	nW
26/03/2024	06:20:00	0.0	0.0	17	nW
26/03/2024	06:21:00	0.0	0.0	17	nW
26/03/2024	06:22:00	0.1	1.0	17	46
26/03/2024	06:23:00	0.0	0.0	17	nW

26/03/2024	06:24:00	0.0	0.0	17	nW
26/03/2024	06:25:00	0.0	0.0	17	nW
26/03/2024	06:26:00	0.0	0.0	17	nW
26/03/2024	06:27:00	0.0	0.0	17	nW
26/03/2024	06:28:00	0.0	0.0	17	nW
26/03/2024	06:29:00	0.0	0.0	17	nW
26/03/2024	06:30:00	0.0	0.0	17	nW
26/03/2024	06:31:00	0.3	0.8	17	46
26/03/2024	06:32:00	0.0	0.0	17	nW
26/03/2024	06:33:00	0.2	0.9	17	46
26/03/2024	06:34:00	0.6	1.3	17	50
26/03/2024	06:35:00	0.3	1.3	17	46
26/03/2024	06:36:00	0.3	1.0	17	46
26/03/2024	06:37:00	0.8	1.9	17	49
26/03/2024	06:38:00	0.8	1.7	17	12
26/03/2024	06:39:00	1.3	2.2	17	43
26/03/2024	06:40:00	1.0	2.2	17	269
26/03/2024	06:41:00	0.8	1.8	17	23
26/03/2024	06:42:00	1.2	2.4	17	70
26/03/2024	06:43:00	1.2	1.9	17	42
26/03/2024	06:44:00	1.1	2.0	17	49
26/03/2024	06:45:00	1.4	2.2	17	52
26/03/2024	06:46:00	1.1	2.0	17	48
26/03/2024	06:47:00	1.2	1.9	17	49
26/03/2024	06:48:00	1.2	1.9	17	72
26/03/2024	06:49:00	0.9	1.5	17	48
26/03/2024	06:50:00	1.0	1.8	17	31
26/03/2024	06:51:00	1.2	1.8	17	57
26/03/2024	06:52:00	0.9	1.7	17	48
26/03/2024	06:53:00	1.2	2.2	17	47
26/03/2024	06:54:00	1.3	2.1	17	50
26/03/2024	06:55:00	1.2	2.1	17	56
26/03/2024	06:56:00	1.5	2.9	17	58
26/03/2024	06:57:00	1.5	2.5	17	51
26/03/2024	06:58:00	1.4	2.6	17	4
26/03/2024	06:59:00	1.5	2.4	17	358
26/03/2024	07:00:00	1.5	2.7	17	319
26/03/2024	07:01:00	1.4	2.1	17	45
26/03/2024	07:02:00	1.8	2.6	17	28
26/03/2024	07:03:00	1.4	2.6	17	43
26/03/2024	07:04:00	1.4	2.5	16	35
26/03/2024	07:05:00	1.6	2.8	16	355
26/03/2024	07:06:00	1.8	3.2	16	310
26/03/2024	07:07:00	1.7	3.1	16	330
26/03/2024	07:08:00	1.4	2.1	16	346
26/03/2024	07:09:00	1.7	2.6	16	40

26/03/2024	07:10:00	1.5	2.3	16	6
26/03/2024	07:11:00	1.6	2.2	16	18
26/03/2024	07:12:00	2.0	2.9	16	25
26/03/2024	07:13:00	1.7	2.6	16	48
26/03/2024	07:14:00	1.5	2.9	16	19
26/03/2024	07:15:00	1.3	1.8	16	39
26/03/2024	07:16:00	1.2	2.0	16	51
26/03/2024	07:17:00	1.0	1.7	16	53
26/03/2024	07:18:00	1.1	2.5	16	41
26/03/2024	07:19:00	1.5	2.6	15	39
26/03/2024	07:20:00	1.2	2.0	15	41
26/03/2024	07:21:00	1.5	1.9	15	55
26/03/2024	07:22:00	1.3	2.0	15	45
26/03/2024	07:23:00	1.4	2.4	15	43
26/03/2024	07:24:00	1.2	2.1	15	36
26/03/2024	07:25:00	1.1	1.6	15	24
26/03/2024	07:26:00	1.4	2.2	15	37
26/03/2024	07:27:00	1.1	2.0	15	1
26/03/2024	07:28:00	1.1	1.8	15	33
26/03/2024	07:29:00	1.7	3.2	15	56
26/03/2024	07:30:00	1.4	2.0	15	48
26/03/2024	07:31:00	1.4	1.9	15	16
26/03/2024	07:32:00	1.3	2.0	15	26
26/03/2024	07:33:00	1.8	3.1	14	34
26/03/2024	07:34:00	1.4	2.1	14	5
26/03/2024	07:35:00	1.2	1.7	14	33
26/03/2024	07:36:00	1.1	2.0	14	32
26/03/2024	07:37:00	1.1	1.8	14	37
26/03/2024	07:38:00	1.3	2.2	14	48
26/03/2024	07:39:00	1.2	2.0	14	62
26/03/2024	07:40:00	1.1	1.7	14	36
26/03/2024	07:41:00	1.1	1.8	14	39
26/03/2024	07:42:00	0.9	1.3	14	44
26/03/2024	07:43:00	0.9	1.3	14	20
26/03/2024	07:44:00	1.0	1.8	14	24
26/03/2024	07:45:00	1.3	2.0	14	25
26/03/2024	07:46:00	1.0	1.9	14	38
26/03/2024	07:47:00	0.9	1.9	14	27
26/03/2024	07:48:00	1.1	1.8	14	27
26/03/2024	07:49:00	1.1	1.9	14	30
26/03/2024	07:50:00	1.4	2.7	14	10
26/03/2024	07:51:00	1.5	2.7	14	34
26/03/2024	07:52:00	1.4	2.4	14	1
26/03/2024	07:53:00	1.5	3.5	15	4
26/03/2024	07:54:00	1.1	1.8	15	52
26/03/2024	07:55:00	1.3	1.9	15	36

26/03/2024	07:56:00	1.6	3.9	15	24
26/03/2024	07:57:00	1.5	3.4	15	329
26/03/2024	07:58:00	2.5	3.8	15	327
26/03/2024	07:59:00	2.1	3.9	15	330
26/03/2024	08:00:00	1.4	2.4	14	47
26/03/2024	08:01:00	1.0	2.4	14	352
26/03/2024	08:02:00	0.9	2.0	14	10
26/03/2024	08:03:00	1.3	1.8	14	14
26/03/2024	08:04:00	1.4	2.8	14	47
26/03/2024	08:05:00	1.3	1.9	14	55
26/03/2024	08:06:00	1.5	4.1	14	37
26/03/2024	08:07:00	1.1	2.2	14	10
26/03/2024	08:08:00	1.2	1.6	14	53
26/03/2024	08:09:00	0.9	1.2	14	42
26/03/2024	08:10:00	1.5	2.9	14	294
26/03/2024	08:11:00	1.5	3.1	14	335
26/03/2024	08:12:00	1.5	2.3	14	344
26/03/2024	08:13:00	1.7	3.1	14	324
26/03/2024	08:14:00	1.4	2.3	14	82
26/03/2024	08:15:00	2.0	3.3	14	6
26/03/2024	08:16:00	1.6	2.8	14	0
26/03/2024	08:17:00	1.4	2.5	14	18
26/03/2024	08:18:00	2.1	3.9	14	358
26/03/2024	08:19:00	2.2	3.9	14	324
26/03/2024	08:20:00	1.8	3.0	14	71
26/03/2024	08:21:00	1.2	1.7	14	142
26/03/2024	08:22:00	1.3	2.4	14	80
26/03/2024	08:23:00	2.2	3.5	14	53
26/03/2024	08:24:00	1.7	2.9	14	22
26/03/2024	08:25:00	1.2	1.9	14	44
26/03/2024	08:26:00	1.6	2.6	14	27
26/03/2024	08:27:00	1.3	1.9	14	45
26/03/2024	08:28:00	1.4	2.7	14	39
26/03/2024	08:29:00	1.5	2.5	14	61
26/03/2024	08:30:00	1.5	2.7	14	79
26/03/2024	08:31:00	1.7	2.9	14	57
26/03/2024	08:32:00	1.6	2.5	14	12
26/03/2024	08:33:00	1.7	2.6	14	60
26/03/2024	08:34:00	1.7	2.7	14	96
26/03/2024	08:35:00	1.9	2.9	14	86
26/03/2024	08:36:00	1.6	2.2	14	60
26/03/2024	08:37:00	1.7	2.9	14	68
26/03/2024	08:38:00	1.3	2.1	14	74
26/03/2024	08:39:00	1.4	2.0	14	73
26/03/2024	08:40:00	1.5	2.4	14	52
26/03/2024	08:41:00	1.9	2.9	14	78

26/03/2024	08:42:00	1.5	2.6	14	56
26/03/2024	08:43:00	1.6	2.4	14	71
26/03/2024	08:44:00	1.7	2.5	14	95
26/03/2024	08:45:00	1.8	2.7	14	88
26/03/2024	08:46:00	1.7	3.1	14	85
26/03/2024	08:47:00	1.7	2.7	14	71
26/03/2024	08:48:00	2.3	4.0	14	62
26/03/2024	08:49:00	2.1	2.9	14	94
26/03/2024	08:50:00	1.6	3.0	14	63
26/03/2024	08:51:00	1.9	3.4	14	79
26/03/2024	08:52:00	1.8	2.9	14	82
26/03/2024	08:53:00	1.8	2.6	14	91
26/03/2024	08:54:00	1.8	2.9	14	56
26/03/2024	08:55:00	1.8	2.9	14	66
26/03/2024	08:56:00	2.0	3.0	14	87
26/03/2024	08:57:00	1.8	3.2	14	81
26/03/2024	08:58:00	2.1	3.4	14	75
26/03/2024	08:59:00	2.0	2.9	14	63
26/03/2024	09:00:00	1.9	3.0	14	44
26/03/2024	09:01:00	1.9	2.7	14	67
26/03/2024	09:02:00	1.8	2.5	14	104
26/03/2024	09:03:00	1.5	2.0	14	62
26/03/2024	09:04:00	1.6	2.4	14	73
26/03/2024	09:05:00	1.5	2.2	14	90
26/03/2024	09:06:00	2.2	3.4	14	81
26/03/2024	09:07:00	2.3	3.8	14	100
26/03/2024	09:08:00	2.0	3.2	14	94
26/03/2024	09:09:00	1.5	1.9	14	52
26/03/2024	09:10:00	1.8	3.3	14	53
26/03/2024	09:11:00	1.8	2.8	14	77
26/03/2024	09:12:00	2.1	3.2	13	83
26/03/2024	09:13:00	1.8	2.5	13	57
26/03/2024	09:14:00	2.2	2.9	13	90
26/03/2024	09:15:00	1.4	2.1	13	70
26/03/2024	09:16:00	2.1	3.0	13	91
26/03/2024	09:17:00	2.0	3.0	13	86
26/03/2024	09:18:00	2.1	3.2	13	88
26/03/2024	09:19:00	1.7	2.3	13	82
26/03/2024	09:20:00	1.5	2.2	13	77
26/03/2024	09:21:00	1.4	1.9	13	76
26/03/2024	09:22:00	1.5	2.2	13	65
26/03/2024	09:23:00	1.1	1.5	13	51
26/03/2024	09:24:00	1.6	2.5	13	84
26/03/2024	09:25:00	1.7	2.6	13	67
26/03/2024	09:26:00	1.2	1.9	13	66
26/03/2024	09:27:00	1.4	2.0	13	75

26/03/2024	09:28:00	1.9	2.7	13	65
26/03/2024	09:29:00	1.7	2.5	13	75
26/03/2024	09:30:00	1.5	2.1	13	81
26/03/2024	09:31:00	1.1	1.8	13	57
26/03/2024	09:32:00	1.7	2.5	13	76
26/03/2024	09:33:00	1.6	2.1	12	59
26/03/2024	09:34:00	1.6	2.2	12	75
26/03/2024	09:35:00	1.8	2.9	12	81
26/03/2024	09:36:00	1.6	2.1	12	74
26/03/2024	09:37:00	1.4	2.0	12	55
26/03/2024	09:38:00	1.3	2.3	12	60
26/03/2024	09:39:00	1.3	2.2	12	66
26/03/2024	09:40:00	1.2	1.9	12	28
26/03/2024	09:41:00	1.2	1.7	12	47
26/03/2024	09:42:00	1.1	2.1	12	64
26/03/2024	09:43:00	1.2	2.2	12	3
26/03/2024	09:44:00	1.5	2.1	12	344
26/03/2024	09:45:00	1.3	1.9	12	9
26/03/2024	09:46:00	1.3	1.9	12	4
26/03/2024	09:47:00	1.1	1.6	12	8
26/03/2024	09:48:00	1.4	2.1	12	351
26/03/2024	09:49:00	1.2	1.9	12	21
26/03/2024	09:50:00	1.2	1.8	12	59
26/03/2024	09:51:00	1.0	1.5	12	44
26/03/2024	09:52:00	1.5	2.5	12	78
26/03/2024	09:53:00	1.6	2.4	12	59
26/03/2024	09:54:00	1.3	2.3	12	47
26/03/2024	09:55:00	1.5	2.1	12	74
26/03/2024	09:56:00	1.2	2.1	12	82
26/03/2024	09:57:00	1.4	2.1	12	75
26/03/2024	09:58:00	1.1	1.7	12	65
26/03/2024	09:59:00	1.0	1.4	12	65
26/03/2024	10:00:00	1.2	1.7	12	60
26/03/2024	10:01:00	1.2	1.8	12	48
26/03/2024	10:02:00	1.2	2.5	12	62
26/03/2024	10:03:00	1.3	2.2	12	36
26/03/2024	10:04:00	1.2	2.1	12	55
26/03/2024	10:05:00	2.0	2.6	12	84
26/03/2024	10:06:00	1.6	2.5	12	73
26/03/2024	10:07:00	1.2	1.7	12	59
26/03/2024	10:08:00	1.3	1.8	12	51
26/03/2024	10:09:00	1.5	2.3	12	62
26/03/2024	10:10:00	1.6	2.2	12	84
26/03/2024	10:11:00	1.5	2.2	12	83
26/03/2024	10:12:00	1.7	2.3	13	88
26/03/2024	10:13:00	1.4	2.2	13	77

26/03/2024	10:14:00	1.7	2.2	13	85
26/03/2024	10:15:00	1.8	2.6	13	79
26/03/2024	10:16:00	1.8	2.8	13	90
26/03/2024	10:17:00	1.9	2.9	13	86
26/03/2024	10:18:00	1.8	2.7	13	84
26/03/2024	10:19:00	1.8	2.5	13	87
26/03/2024	10:20:00	2.1	3.2	13	85
26/03/2024	10:21:00	2.0	3.0	13	90
26/03/2024	10:22:00	1.6	2.5	13	83
26/03/2024	10:23:00	1.8	2.7	13	82
26/03/2024	10:24:00	2.2	3.4	13	90
26/03/2024	10:25:00	2.0	2.8	13	87
26/03/2024	10:26:00	1.6	2.5	13	84
26/03/2024	10:27:00	1.5	2.0	13	72
26/03/2024	10:28:00	2.0	2.6	13	74
26/03/2024	10:29:00	2.2	2.7	13	85
26/03/2024	10:30:00	2.2	3.1	13	82
26/03/2024	10:31:00	2.3	4.0	13	90
26/03/2024	10:32:00	2.1	2.7	13	86
26/03/2024	10:33:00	1.9	3.0	13	96
26/03/2024	10:34:00	2.1	3.1	13	87
26/03/2024	10:35:00	2.2	3.0	12	93
26/03/2024	10:36:00	2.1	3.0	12	81
26/03/2024	10:37:00	2.3	3.1	12	95
26/03/2024	10:38:00	2.4	3.2	12	93
26/03/2024	10:39:00	2.3	3.3	12	73
26/03/2024	10:40:00	1.9	2.4	12	68
26/03/2024	10:41:00	1.5	3.0	12	42
26/03/2024	10:42:00	1.6	2.2	12	36
26/03/2024	10:43:00	1.7	2.5	12	51
26/03/2024	10:44:00	1.9	3.0	12	73
26/03/2024	10:45:00	2.1	3.0	12	53
26/03/2024	10:46:00	1.7	2.4	12	21
26/03/2024	10:47:00	1.9	3.0	12	68
26/03/2024	10:48:00	1.7	2.5	12	65
26/03/2024	10:49:00	1.7	2.6	12	97
26/03/2024	10:50:00	2.0	2.9	12	69
26/03/2024	10:51:00	1.5	2.3	12	36
26/03/2024	10:52:00	1.6	2.5	12	38
26/03/2024	10:53:00	1.5	2.2	12	29
26/03/2024	10:54:00	1.3	2.3	12	69
26/03/2024	10:55:00	2.1	3.1	12	54
26/03/2024	10:56:00	1.8	2.8	12	68
26/03/2024	10:57:00	1.9	3.6	12	38
26/03/2024	10:58:00	2.1	2.9	12	46
26/03/2024	10:59:00	1.4	2.0	12	57

26/03/2024	11:00:00	1.9	3.1	12	77
26/03/2024	11:01:00	1.8	2.7	12	50
26/03/2024	11:02:00	2.4	3.5	12	77
26/03/2024	11:03:00	1.5	2.3	12	29
26/03/2024	11:04:00	1.9	3.1	12	63
26/03/2024	11:05:00	2.4	3.6	12	38
26/03/2024	11:06:00	1.9	2.6	12	56
26/03/2024	11:07:00	2.0	3.0	12	25
26/03/2024	11:08:00	1.5	2.6	12	41
26/03/2024	11:09:00	2.0	3.1	12	76
26/03/2024	11:10:00	2.1	3.2	12	55
26/03/2024	11:11:00	1.7	2.1	12	63
26/03/2024	11:12:00	1.8	2.8	12	53
26/03/2024	11:13:00	1.6	2.1	12	64
26/03/2024	11:14:00	1.8	2.7	12	44
26/03/2024	11:15:00	1.7	3.2	12	50
26/03/2024	11:16:00	1.7	2.7	12	3
26/03/2024	11:17:00	1.6	2.3	12	85
26/03/2024	11:18:00	1.9	3.0	12	55
26/03/2024	11:19:00	1.9	2.9	12	46
26/03/2024	11:20:00	1.8	2.6	12	41
26/03/2024	11:21:00	1.7	2.4	12	46
26/03/2024	11:22:00	1.5	2.6	12	57
26/03/2024	11:23:00	2.2	3.0	12	78
26/03/2024	11:24:00	1.6	2.6	12	16
26/03/2024	11:25:00	1.6	2.6	12	27
26/03/2024	11:26:00	1.9	2.5	12	77
26/03/2024	11:27:00	2.0	3.4	12	58
26/03/2024	11:28:00	1.8	2.7	12	75
26/03/2024	11:29:00	1.9	2.9	12	72
26/03/2024	11:30:00	2.4	3.5	12	77
26/03/2024	11:31:00	2.2	3.4	12	77
26/03/2024	11:32:00	1.7	2.8	12	65
26/03/2024	11:33:00	2.4	3.5	12	82
26/03/2024	11:34:00	2.2	3.1	12	56
26/03/2024	11:35:00	2.1	3.5	12	63
26/03/2024	11:36:00	2.1	3.0	12	62
26/03/2024	11:37:00	1.8	2.8	12	100
26/03/2024	11:38:00	1.8	2.7	12	93
26/03/2024	11:39:00	2.1	3.3	12	88
26/03/2024	11:40:00	2.2	3.2	12	81
26/03/2024	11:41:00	2.1	4.0	12	71
26/03/2024	11:42:00	2.1	3.0	12	69
26/03/2024	11:43:00	1.9	2.6	12	68
26/03/2024	11:44:00	1.8	2.4	12	81
26/03/2024	11:45:00	1.8	2.9	12	61

26/03/2024	11:46:00	1.8	2.4	12	67
26/03/2024	11:47:00	1.9	3.1	12	75
26/03/2024	11:48:00	1.5	2.2	12	55
26/03/2024	11:49:00	1.5	2.5	12	68
26/03/2024	11:50:00	1.6	2.2	12	60
26/03/2024	11:51:00	1.5	2.2	12	62
26/03/2024	11:52:00	1.4	2.4	12	50
26/03/2024	11:53:00	1.7	2.3	12	348
26/03/2024	11:54:00	1.4	2.0	12	51
26/03/2024	11:55:00	1.5	2.6	12	61
26/03/2024	11:56:00	1.8	2.6	12	63
26/03/2024	11:57:00	1.9	3.0	12	97
26/03/2024	11:58:00	1.8	2.6	12	64
26/03/2024	11:59:00	2.1	3.0	12	73
26/03/2024	12:00:00	1.8	2.2	12	68
26/03/2024	12:01:00	1.6	2.4	12	57
26/03/2024	12:02:00	1.9	2.8	12	19
26/03/2024	12:03:00	1.9	3.2	12	49
26/03/2024	12:04:00	1.7	2.4	12	40
26/03/2024	12:05:00	1.6	3.0	12	53
26/03/2024	12:06:00	1.5	2.2	12	41
26/03/2024	12:07:00	1.3	2.5	11	30
26/03/2024	12:08:00	1.5	2.0	11	44
26/03/2024	12:09:00	1.6	2.5	11	68
26/03/2024	12:10:00	1.8	3.3	11	16
26/03/2024	12:11:00	1.8	3.0	11	70
26/03/2024	12:12:00	2.1	3.0	11	71
26/03/2024	12:13:00	1.8	2.7	11	52
26/03/2024	12:14:00	1.9	2.6	11	54
26/03/2024	12:15:00	2.2	3.3	11	67
26/03/2024	12:16:00	1.9	3.4	11	59
26/03/2024	12:17:00	2.0	3.0	11	54
26/03/2024	12:18:00	2.1	3.6	11	61
26/03/2024	12:19:00	1.8	2.4	11	65
26/03/2024	12:20:00	1.6	2.5	11	70
26/03/2024	12:21:00	1.8	2.6	11	74
26/03/2024	12:22:00	1.5	2.6	11	49
26/03/2024	12:23:00	1.6	2.4	11	35
26/03/2024	12:24:00	1.6	2.3	11	70
26/03/2024	12:25:00	1.6	2.5	11	67
26/03/2024	12:26:00	1.7	2.3	11	72
26/03/2024	12:27:00	1.6	2.3	11	62
26/03/2024	12:28:00	1.6	2.2	11	70
26/03/2024	12:29:00	1.3	1.8	11	55
26/03/2024	12:30:00	1.2	1.7	11	46
26/03/2024	12:31:00	1.3	1.7	11	51

26/03/2024	12:32:00	1.5	2.2	11	53
26/03/2024	12:33:00	1.5	2.2	11	55
26/03/2024	12:34:00	1.5	2.0	11	51
26/03/2024	12:35:00	1.7	2.2	11	77
26/03/2024	12:36:00	1.7	2.7	11	55
26/03/2024	12:37:00	1.7	2.5	11	63
26/03/2024	12:38:00	1.9	2.8	11	65
26/03/2024	12:39:00	1.7	2.5	11	55
26/03/2024	12:40:00	1.6	2.3	11	58
26/03/2024	12:41:00	1.9	2.7	11	63
26/03/2024	12:42:00	2.0	2.8	11	65
26/03/2024	12:43:00	2.0	2.8	11	68
26/03/2024	12:44:00	1.8	2.9	11	60
26/03/2024	12:45:00	1.8	3.0	11	85
26/03/2024	12:46:00	2.2	3.2	11	77
26/03/2024	12:47:00	2.0	3.3	11	87
26/03/2024	12:48:00	1.9	2.9	11	80
26/03/2024	12:49:00	1.9	2.6	11	71
26/03/2024	12:50:00	1.9	3.1	11	68
26/03/2024	12:51:00	1.7	2.3	11	76
26/03/2024	12:52:00	1.7	2.6	11	68
26/03/2024	12:53:00	1.7	2.5	11	76
26/03/2024	12:54:00	1.4	2.0	11	64
26/03/2024	12:55:00	1.7	2.5	11	67
26/03/2024	12:56:00	2.1	3.1	11	90
26/03/2024	12:57:00	1.9	2.8	11	67
26/03/2024	12:58:00	2.1	3.2	11	88
26/03/2024	12:59:00	1.9	3.0	11	76
26/03/2024	13:00:00	1.9	2.9	11	74
26/03/2024	13:01:00	1.6	2.3	11	61
26/03/2024	13:02:00	1.7	2.4	11	66
26/03/2024	13:03:00	1.9	2.9	11	63
26/03/2024	13:04:00	1.9	2.9	11	75
26/03/2024	13:05:00	1.6	2.9	11	57
26/03/2024	13:06:00	1.6	2.2	11	60
26/03/2024	13:07:00	1.5	2.2	11	48
26/03/2024	13:08:00	1.6	2.1	11	55
26/03/2024	13:09:00	1.7	2.3	11	63
26/03/2024	13:10:00	1.6	2.6	11	66
26/03/2024	13:11:00	1.6	2.2	11	72
26/03/2024	13:12:00	1.7	2.6	11	59
26/03/2024	13:13:00	1.7	2.4	11	80
26/03/2024	13:14:00	1.7	2.9	11	71
26/03/2024	13:15:00	1.8	2.5	11	71
26/03/2024	13:16:00	1.9	2.7	11	72
26/03/2024	13:17:00	1.9	2.7	11	61

26/03/2024	13:18:00	1.6	2.4	11	64
26/03/2024	13:19:00	1.9	2.6	11	80
26/03/2024	13:20:00	1.7	2.9	11	54
26/03/2024	13:21:00	1.6	2.3	11	44
26/03/2024	13:22:00	1.9	2.6	11	63
26/03/2024	13:23:00	2.0	2.6	11	85
26/03/2024	13:24:00	1.7	2.8	11	66
26/03/2024	13:25:00	1.6	2.5	11	70
26/03/2024	13:26:00	1.5	2.3	11	66
26/03/2024	13:27:00	1.7	2.7	11	62
26/03/2024	13:28:00	1.6	2.4	11	62
26/03/2024	13:29:00	2.0	3.1	11	70
26/03/2024	13:30:00	1.8	2.6	11	66
26/03/2024	13:31:00	1.9	2.9	11	51
26/03/2024	13:32:00	1.7	2.4	11	56
26/03/2024	13:33:00	1.6	2.4	11	51
26/03/2024	13:34:00	1.9	2.8	11	73
26/03/2024	13:35:00	2.1	3.4	11	85
26/03/2024	13:36:00	2.0	3.3	11	89
26/03/2024	13:37:00	1.7	2.7	11	80
26/03/2024	13:38:00	1.9	2.7	11	56
26/03/2024	13:39:00	1.8	2.8	11	39
26/03/2024	13:40:00	2.0	2.9	11	69
26/03/2024	13:41:00	1.9	3.1	11	58
26/03/2024	13:42:00	1.7	2.5	11	57
26/03/2024	13:43:00	1.6	2.3	12	61
26/03/2024	13:44:00	1.6	2.0	12	72
26/03/2024	13:45:00	1.9	3.3	12	69
26/03/2024	13:46:00	1.7	2.5	12	71
26/03/2024	13:47:00	1.5	2.2	12	73
26/03/2024	13:48:00	1.9	2.8	12	53
26/03/2024	13:49:00	2.0	2.8	12	77
26/03/2024	13:50:00	2.0	3.0	12	79
26/03/2024	13:51:00	2.0	2.8	12	64
26/03/2024	13:52:00	1.7	2.2	12	90
26/03/2024	13:53:00	2.3	3.7	12	76
26/03/2024	13:54:00	1.8	2.6	12	97
26/03/2024	13:55:00	1.7	2.3	12	61
26/03/2024	13:56:00	1.5	2.2	12	55
26/03/2024	13:57:00	2.0	2.7	12	81
26/03/2024	13:58:00	1.7	2.3	12	65
26/03/2024	13:59:00	1.8	2.4	12	80
26/03/2024	14:00:00	2.0	2.8	12	66
26/03/2024	14:01:00	2.2	3.3	12	86
26/03/2024	14:02:00	2.0	3.2	12	75
26/03/2024	14:03:00	2.1	2.8	12	53

26/03/2024	14:04:00	2.4	3.1	12	74
26/03/2024	14:05:00	2.3	3.4	12	70
26/03/2024	14:06:00	1.8	2.5	12	69
26/03/2024	14:07:00	2.2	3.8	12	101
26/03/2024	14:08:00	2.1	3.9	12	85
26/03/2024	14:09:00	1.8	2.8	12	66
26/03/2024	14:10:00	2.0	2.6	12	71
26/03/2024	14:11:00	2.2	4.0	13	68
26/03/2024	14:12:00	2.2	3.3	13	103
26/03/2024	14:13:00	2.2	3.4	13	65
26/03/2024	14:14:00	2.2	2.9	13	62
26/03/2024	14:15:00	1.7	2.9	13	79
26/03/2024	14:16:00	2.3	3.3	13	87
26/03/2024	14:17:00	2.0	3.0	13	68
26/03/2024	14:18:00	2.0	2.8	13	65
26/03/2024	14:19:00	2.0	2.8	13	75
26/03/2024	14:20:00	1.8	3.0	13	52
26/03/2024	14:21:00	2.0	3.1	13	72
26/03/2024	14:22:00	2.0	2.9	13	105
26/03/2024	14:23:00	2.0	3.1	13	64
26/03/2024	14:24:00	2.2	3.0	13	85
26/03/2024	14:25:00	2.2	3.2	13	65
26/03/2024	14:26:00	2.3	3.7	13	67
26/03/2024	14:27:00	2.3	3.6	13	80
26/03/2024	14:28:00	2.3	3.4	13	87
26/03/2024	14:29:00	2.3	3.4	13	84
26/03/2024	14:30:00	2.1	3.2	13	80
26/03/2024	14:31:00	2.4	3.1	13	81
26/03/2024	14:32:00	2.2	3.3	13	86
26/03/2024	14:33:00	2.1	3.1	13	75
26/03/2024	14:34:00	1.9	2.9	13	70
26/03/2024	14:35:00	2.2	3.3	13	69
26/03/2024	14:36:00	2.5	3.5	13	79
26/03/2024	14:37:00	2.2	3.3	13	97
26/03/2024	14:38:00	2.1	3.3	13	77
26/03/2024	14:39:00	2.3	3.4	13	98
26/03/2024	14:40:00	2.1	3.2	13	75
26/03/2024	14:41:00	1.8	2.6	13	79
26/03/2024	14:42:00	2.1	3.4	13	60
26/03/2024	14:43:00	2.0	3.1	13	62
26/03/2024	14:44:00	2.1	3.8	13	67
26/03/2024	14:45:00	2.4	3.8	13	99
26/03/2024	14:46:00	2.3	3.5	13	85
26/03/2024	14:47:00	1.8	2.7	13	18
26/03/2024	14:48:00	2.4	4.0	13	109
26/03/2024	14:49:00	2.4	4.0	13	74

26/03/2024	14:50:00	2.0	2.8	13	39
26/03/2024	14:51:00	1.8	3.0	13	347
26/03/2024	14:52:00	2.0	3.1	13	71
26/03/2024	14:53:00	2.1	3.5	13	63
26/03/2024	14:54:00	1.9	2.8	12	58
26/03/2024	14:55:00	1.9	3.4	12	75
26/03/2024	14:56:00	1.7	2.4	12	39
26/03/2024	14:57:00	2.1	3.2	12	69
26/03/2024	14:58:00	2.0	3.1	12	69
26/03/2024	14:59:00	2.2	3.3	12	67
26/03/2024	15:00:00	2.3	3.0	12	76
26/03/2024	15:01:00	2.1	2.9	12	73
26/03/2024	15:02:00	2.3	3.8	12	87
26/03/2024	15:03:00	2.3	3.1	12	92
26/03/2024	15:04:00	1.7	2.4	12	69
26/03/2024	15:05:00	1.6	2.6	12	53
26/03/2024	15:06:00	2.4	3.5	12	81
26/03/2024	15:07:00	2.1	3.3	12	88
26/03/2024	15:08:00	2.0	2.9	12	86
26/03/2024	15:09:00	2.2	3.0	12	95
26/03/2024	15:10:00	2.1	3.5	12	75
26/03/2024	15:11:00	2.2	3.6	12	68
26/03/2024	15:12:00	2.4	3.3	12	90
26/03/2024	15:13:00	2.1	3.6	12	84
26/03/2024	15:14:00	2.4	3.4	12	76
26/03/2024	15:15:00	2.3	3.4	12	79
26/03/2024	15:16:00	2.4	3.2	12	104
26/03/2024	15:17:00	1.9	4.0	12	78
26/03/2024	15:18:00	2.4	3.3	12	69
26/03/2024	15:19:00	2.2	3.1	12	71
26/03/2024	15:20:00	1.9	3.4	12	99
26/03/2024	15:21:00	1.7	2.4	12	65
26/03/2024	15:22:00	1.9	2.6	12	94
26/03/2024	15:23:00	2.6	3.9	12	91
26/03/2024	15:24:00	2.2	2.8	12	82
26/03/2024	15:25:00	2.1	3.3	12	86
26/03/2024	15:26:00	2.5	3.6	12	88
26/03/2024	15:27:00	2.7	3.6	12	74
26/03/2024	15:28:00	2.0	3.5	12	74
26/03/2024	15:29:00	2.2	3.2	12	81
26/03/2024	15:30:00	2.4	3.7	12	91
26/03/2024	15:31:00	2.1	3.3	12	67
26/03/2024	15:32:00	1.9	2.9	12	95
26/03/2024	15:33:00	2.5	3.9	12	83
26/03/2024	15:34:00	2.2	3.2	12	85
26/03/2024	15:35:00	1.8	2.4	12	54

26/03/2024	15:36:00	1.9	3.0	12	59
26/03/2024	15:37:00	2.1	3.5	12	58
26/03/2024	15:38:00	2.3	3.3	12	62
26/03/2024	15:39:00	2.1	3.7	12	68
26/03/2024	15:40:00	1.9	2.7	12	62
26/03/2024	15:41:00	2.2	3.6	12	82
26/03/2024	15:42:00	2.4	3.1	12	69
26/03/2024	15:43:00	1.6	3.2	12	65
26/03/2024	15:44:00	1.9	2.6	12	38
26/03/2024	15:45:00	2.1	3.0	12	71
26/03/2024	15:46:00	2.2	2.9	12	70
26/03/2024	15:47:00	2.0	3.0	12	46
26/03/2024	15:48:00	2.1	3.4	12	80
26/03/2024	15:49:00	2.3	3.8	12	65
26/03/2024	15:50:00	1.7	2.4	12	63
26/03/2024	15:51:00	2.1	3.0	12	69
26/03/2024	15:52:00	2.0	3.0	12	69
26/03/2024	15:53:00	2.2	3.7	12	76
26/03/2024	15:54:00	2.2	3.4	12	95
26/03/2024	15:55:00	2.5	3.4	12	101
26/03/2024	15:56:00	2.1	2.8	12	77
26/03/2024	15:57:00	1.9	3.1	12	108
26/03/2024	15:58:00	2.1	3.3	12	44
26/03/2024	15:59:00	1.4	2.2	12	22
26/03/2024	16:00:00	2.1	3.1	12	193
26/03/2024	16:01:00	1.9	3.7	12	29
26/03/2024	16:02:00	2.1	2.8	12	65
26/03/2024	16:03:00	2.1	3.0	12	7
26/03/2024	16:04:00	1.9	2.4	12	43
26/03/2024	16:05:00	1.9	2.7	12	1
26/03/2024	16:06:00	2.2	3.7	12	69
26/03/2024	16:07:00	1.9	3.3	12	66
26/03/2024	16:08:00	1.9	2.7	12	58
26/03/2024	16:09:00	1.8	3.0	12	21
26/03/2024	16:10:00	1.8	3.7	12	130
26/03/2024	16:11:00	1.7	2.3	12	19
26/03/2024	16:12:00	1.8	2.7	12	56
26/03/2024	16:13:00	2.2	3.7	12	71
26/03/2024	16:14:00	2.0	3.0	12	77
26/03/2024	16:15:00	2.1	3.3	12	71
26/03/2024	16:16:00	1.9	2.6	12	88
26/03/2024	16:17:00	1.8	2.8	12	61
26/03/2024	16:18:00	1.7	2.6	12	49
26/03/2024	16:19:00	2.0	2.7	12	43
26/03/2024	16:20:00	1.7	2.7	12	55
26/03/2024	16:21:00	2.0	3.0	12	54

26/03/2024	16:22:00	2.2	3.7	12	45
26/03/2024	16:23:00	2.0	3.1	12	51
26/03/2024	16:24:00	2.1	2.9	12	59
26/03/2024	16:25:00	2.1	3.2	12	65
26/03/2024	16:26:00	2.3	3.1	12	51
26/03/2024	16:27:00	2.1	2.9	12	42
26/03/2024	16:28:00	2.3	3.6	12	115
26/03/2024	16:29:00	2.2	2.9	12	74
26/03/2024	16:30:00	2.1	3.3	12	78
26/03/2024	16:31:00	2.0	2.6	12	70
26/03/2024	16:32:00	1.5	2.5	12	66
26/03/2024	16:33:00	1.9	2.8	12	84
26/03/2024	16:34:00	1.7	2.7	12	87
26/03/2024	16:35:00	1.9	3.1	12	63
26/03/2024	16:36:00	1.7	2.3	12	68
26/03/2024	16:37:00	1.8	2.5	12	55
26/03/2024	16:38:00	1.6	2.3	12	69
26/03/2024	16:39:00	1.5	2.0	12	55
26/03/2024	16:40:00	1.6	2.5	12	79
26/03/2024	16:41:00	2.2	3.3	12	66
26/03/2024	16:42:00	2.1	3.2	12	68
26/03/2024	16:43:00	2.3	3.1	12	84
26/03/2024	16:44:00	1.9	3.3	12	64
26/03/2024	16:45:00	1.8	3.4	12	68
26/03/2024	16:46:00	1.7	2.5	12	64
26/03/2024	16:47:00	1.8	2.8	12	68
26/03/2024	16:48:00	1.9	2.6	12	81
26/03/2024	16:49:00	1.8	2.7	12	40
26/03/2024	16:50:00	1.9	2.7	12	78
26/03/2024	16:51:00	2.2	3.1	12	68
26/03/2024	16:52:00	1.8	2.7	12	85
26/03/2024	16:53:00	2.1	2.8	12	56
26/03/2024	16:54:00	1.8	2.2	12	82
26/03/2024	16:55:00	1.9	2.8	12	67
26/03/2024	16:56:00	2.0	2.9	12	68
26/03/2024	16:57:00	2.0	2.6	12	88
26/03/2024	16:58:00	2.0	3.0	12	72
26/03/2024	16:59:00	1.8	2.8	12	70
26/03/2024	17:00:00	1.8	2.5	12	36
26/03/2024	17:01:00	1.9	2.7	12	68
26/03/2024	17:02:00	1.7	2.5	12	70
26/03/2024	17:03:00	1.8	2.5	12	73
26/03/2024	17:04:00	1.9	2.5	12	80
26/03/2024	17:05:00	1.9	2.7	12	62
26/03/2024	17:06:00	1.7	2.6	12	49
26/03/2024	17:07:00	2.3	3.4	12	87

26/03/2024	17:08:00	1.9	2.8	12	68
26/03/2024	17:09:00	1.6	2.2	12	51
26/03/2024	17:10:00	1.4	1.9	12	51
26/03/2024	17:11:00	1.5	2.1	12	52
26/03/2024	17:12:00	1.9	2.6	12	66
26/03/2024	17:13:00	1.7	2.7	12	43
26/03/2024	17:14:00	1.8	2.5	12	58
26/03/2024	17:15:00	2.2	2.9	12	84
26/03/2024	17:16:00	1.9	2.8	12	66
26/03/2024	17:17:00	1.4	2.6	12	73
26/03/2024	17:18:00	1.6	2.0	12	53
26/03/2024	17:19:00	1.6	2.4	12	61
26/03/2024	17:20:00	1.9	2.9	12	73
26/03/2024	17:21:00	1.9	2.9	12	79
26/03/2024	17:22:00	2.2	2.9	12	73
26/03/2024	17:23:00	1.8	2.7	12	74
26/03/2024	17:24:00	1.9	3.0	12	93
26/03/2024	17:25:00	1.9	2.6	12	80
26/03/2024	17:26:00	1.8	2.8	12	75
26/03/2024	17:27:00	2.0	3.1	12	70
26/03/2024	17:28:00	2.0	2.7	12	75
26/03/2024	17:29:00	2.0	3.4	12	100
26/03/2024	17:30:00	2.4	3.3	12	57
26/03/2024	17:31:00	2.0	3.1	12	96
26/03/2024	17:32:00	2.0	2.8	12	72
26/03/2024	17:33:00	2.1	2.8	12	92
26/03/2024	17:34:00	2.0	3.2	12	73
26/03/2024	17:35:00	2.0	2.7	12	73
26/03/2024	17:36:00	1.9	3.4	12	57
26/03/2024	17:37:00	1.6	2.4	12	55
26/03/2024	17:38:00	1.7	2.3	12	86
26/03/2024	17:39:00	1.8	2.7	12	63
26/03/2024	17:40:00	1.9	2.5	12	65
26/03/2024	17:41:00	1.7	2.3	12	56
26/03/2024	17:42:00	1.9	2.8	12	57
26/03/2024	17:43:00	2.0	2.7	12	73
26/03/2024	17:44:00	1.4	2.0	12	58
26/03/2024	17:45:00	1.4	2.0	12	73
26/03/2024	17:46:00	1.8	2.5	12	56
26/03/2024	17:47:00	1.7	2.5	12	73
26/03/2024	17:48:00	1.7	2.3	12	77
26/03/2024	17:49:00	1.5	2.3	12	59
26/03/2024	17:50:00	1.6	2.9	12	65
26/03/2024	17:51:00	1.8	2.7	12	79
26/03/2024	17:52:00	1.5	2.2	12	46
26/03/2024	17:53:00	1.6	2.4	12	62

26/03/2024	17:54:00	1.6	2.3	12	69
26/03/2024	17:55:00	1.4	2.0	12	51
26/03/2024	17:56:00	1.7	2.7	13	60
26/03/2024	17:57:00	1.4	2.4	13	70

Data for N 4 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/23/2024 0:00	10:25:31	41.5	69.3	64.7	28.5	43.6	34.6
3/23/2024 0:00	10:35:31	43.5	71.3	59.1	33.2	46.9	36.6
3/23/2024 0:00	10:45:31	43.5	71.3	56.4	31.5	46.8	35.3
3/23/2024 0:00	10:55:31	39.2	67	51.9	29.3	42.4	31.9
3/23/2024 0:00	11:05:31	40.6	68.4	54.9	29	44.2	32.5
3/23/2024 0:00	11:15:31	41	68.8	54	29	44.2	35
3/23/2024 0:00	11:25:31	39.5	67.3	57.7	29.8	43.1	32.8
3/23/2024 0:00	11:35:31	39.8	67.6	52.1	27.1	44.4	30
3/23/2024 0:00	11:45:31	42.6	70.4	57.1	29.1	46.6	33.3
3/23/2024 0:00	11:55:31	43.6	71.4	56.1	30.1	47.8	33.7
3/23/2024 0:00	12:05:31	42.5	70.3	63.6	26.3	46.5	32.5
3/23/2024 0:00	12:15:31	39.4	67.2	50.2	27.9	43.3	33
3/23/2024 0:00	12:25:31	43.2	71	57.6	29	47.2	33.7
3/23/2024 0:00	12:35:31	40	67.8	57.7	29.2	42.5	32.7
3/23/2024 0:00	12:45:31	44.9	72.7	61.2	28.1	48.1	33
3/23/2024 0:00	12:55:31	42	69.8	58.6	26.7	44.5	32.6
3/23/2024 0:00	13:05:31	42.5	70.3	55.6	29	46.1	34.8
3/23/2024 0:00	13:15:31	40.1	67.9	61.4	26.3	43.5	30.3
3/23/2024 0:00	13:25:31	64.3	92.1	83.5	28.1	65.2	35.5
3/23/2024 0:00	13:35:31	43.6	71.4	56.7	28.6	47.2	34.6
3/23/2024 0:00	13:45:31	39.7	67.5	49.7	27.3	43.6	33.3
3/23/2024 0:00	13:55:31	43.3	71.1	59.1	27.9	47.7	31.8
3/23/2024 0:00	14:05:31	40.3	68.1	59.3	29	43.6	32.5
3/23/2024 0:00	14:15:31	44.3	72.1	58.5	26.8	47.9	33.3
3/23/2024 0:00	14:25:31	41.1	68.9	56.2	23.4	45.2	28.5
3/23/2024 0:00	14:35:31	51.9	79.7	81.7	25.7	42.9	32.8
3/23/2024 0:00	14:45:31	42.2	70	58.7	27.7	45.3	33.7
3/23/2024 0:00	14:55:31	45.6	73.4	69.2	26.8	46.8	33.4
3/23/2024 0:00	15:05:31	38.6	66.4	56.3	26.6	42.1	30.8
3/23/2024 0:00	15:15:31	38.6	66.4	51	23.5	42	30.3
3/23/2024 0:00	15:25:31	42.4	70.2	58.6	25.4	45.9	32.2
3/23/2024 0:00	15:35:31	43.7	71.5	63.5	26.3	45.4	30.6
3/23/2024 0:00	15:45:31	41	68.8	56.4	26.6	43.8	31.8
3/23/2024 0:00	15:55:31	43.4	71.2	60.7	26	47.1	29.5
3/23/2024 0:00	16:05:31	41.8	69.6	55.2	26	45.3	32
3/23/2024 0:00	16:15:31	40.7	68.5	55.6	26.5	44.4	31.2
3/23/2024 0:00	16:25:31	42.9	70.7	58.3	26.7	46.8	32.2

3/23/2024 0:00	16:35:31	44	71.8	61.2	28.1	47.4	33.9
3/23/2024 0:00	16:45:31	44.5	72.3	61.9	26.3	48.5	32.1
3/23/2024 0:00	16:55:31	44.1	71.9	59.2	29.1	47.5	33.6
3/23/2024 0:00	17:05:31	42.4	70.2	59.9	27	45.1	33.8
3/23/2024 0:00	17:15:31	42.2	70	59.7	28.8	44.7	33.2
3/23/2024 0:00	17:25:31	43.7	71.5	63.5	28.3	46.6	34
3/23/2024 0:00	17:35:31	41.3	69.1	56.8	26.4	45.1	32.4
3/23/2024 0:00	17:45:31	42.5	70.3	55.6	32.3	46	35.4
3/23/2024 0:00	17:55:31	42.8	70.6	58.6	29.6	45	34.2
3/23/2024 0:00	18:05:31	40.5	68.3	56.6	27.7	43.6	31.5
3/23/2024 0:00	18:15:31	41.9	69.7	56.6	27.9	45.2	31.9
3/23/2024 0:00	18:25:31	44	71.8	56.5	27.4	47.8	32.7
3/23/2024 0:00	18:35:31	40.7	68.5	55.2	29.9	44	34.3
3/23/2024 0:00	18:45:31	40.6	68.4	55.9	28.6	43.7	32.7
3/23/2024 0:00	18:55:31	42.5	70.3	57	26.8	47.5	31.8
3/23/2024 0:00	19:05:31	44	71.8	56.8	27.8	47.7	32.6
3/23/2024 0:00	19:15:31	43.5	71.3	57.7	27	47.5	30.6
3/23/2024 0:00	19:25:31	41.9	69.7	57.6	25.7	46.2	30.2
3/23/2024 0:00	19:35:31	34.9	62.7	46.2	21.3	38.4	28.5
3/23/2024 0:00	19:45:31	39.9	67.7	53.8	25.5	43.7	29.1
3/23/2024 0:00	19:55:31	36.8	64.6	49.9	21.9	41.5	25.6
3/23/2024 0:00	20:05:31	41.6	69.4	58.4	28.2	44.6	33.1
3/23/2024 0:00	20:15:31	42.8	70.6	63.5	26.1	46	31.9
3/23/2024 0:00	20:25:31	40.6	68.4	49.9	27.1	44.6	31.3
3/23/2024 0:00	20:35:31	45.9	73.7	58.7	30.8	50.3	35.2
3/23/2024 0:00	20:45:31	48.6	76.4	67.3	26.4	49.6	30
3/23/2024 0:00	20:55:31	43.8	71.6	69.4	29.3	47.3	33.1
3/23/2024 0:00	21:05:31	38.8	66.6	53.4	27	43	30.3
3/23/2024 0:00	21:15:31	42.1	69.9	59.7	27.3	45.4	32.1
3/23/2024 0:00	21:25:31	41.5	69.3	53.9	24.7	45.6	30.6
3/23/2024 0:00	21:35:31	43.8	71.6	58.1	29.7	47.9	33.3
3/23/2024 0:00	21:45:31	41.5	69.3	56	23	45.2	30.7
3/23/2024 0:00	21:55:31	37.4	65.2	48.9	23.5	41.2	27
3/23/2024 0:00	22:05:31	42.9	70.7	61.6	25.6	46.3	30.3
3/23/2024 0:00	22:15:31	42.1	69.9	55.1	28.6	46.4	33.1
3/23/2024 0:00	22:25:31	43.1	70.9	60.3	27.4	46.8	31.7
3/23/2024 0:00	22:35:31	41.5	69.3	59	30	44.5	34.2
3/23/2024 0:00	22:45:31	41	68.8	55.2	28.9	45	32.4
3/23/2024 0:00	22:55:31	45.1	72.9	66.2	27.2	41.5	31.1
3/23/2024 0:00	23:05:31	41.2	69	54.1	29.6	43.6	33.5
3/23/2024 0:00	23:15:31	35.9	63.7	52.4	24.3	39.2	27.4
3/23/2024 0:00	23:25:31	40.1	67.9	54.6	23.3	44.6	27.2
3/23/2024 0:00	23:35:31	36.7	64.5	50.8	23.8	39.9	28.6
3/23/2024 0:00	23:45:31	37.9	65.7	52.1	21.4	40.8	25.1
3/23/2024 0:00	23:55:31	51.2	79	67.8	29.1	52	36.2
3/24/2024 0:00	0:05:31	41	68.8	52.6	25.8	45.3	30.9

3/24/2024 0:00	0:15:31	42.5	70.3	59.5	26.8	46.4	31.4
3/24/2024 0:00	0:25:31	35.3	63.1	46.1	21.8	40.5	24.7
3/24/2024 0:00	0:35:31	41	68.8	56.2	26	43.2	29.4
3/24/2024 0:00	0:45:31	38.7	66.5	50.9	24.5	43.4	27.6
3/24/2024 0:00	0:55:31	37.6	65.4	51.2	23.1	40.2	27.9
3/24/2024 0:00	1:05:31	42.3	70.1	55.9	22.4	46.6	27.5
3/24/2024 0:00	1:15:31	37.6	65.4	48.6	23.3	41.5	28.6
3/24/2024 0:00	1:25:31	34.6	62.4	45.3	21.1	38.5	25.4
3/24/2024 0:00	1:35:31	38	65.8	50.9	20.3	40.5	23.4
3/24/2024 0:00	1:45:31	37.8	65.6	57.6	23.4	37.9	27.6
3/24/2024 0:00	1:55:31	52.6	80.4	87.7	27	44.2	30.2
3/24/2024 0:00	2:05:31	40.1	67.9	57.5	24.4	40.9	28.7
3/24/2024 0:00	2:15:31	31.8	59.6	47	21.3	36	23.6
3/24/2024 0:00	2:25:31	38.2	66	56.5	20.4	40.6	23.5
3/24/2024 0:00	2:35:31	39.8	67.6	56.9	22.1	44.9	26.1
3/24/2024 0:00	2:45:31	34.7	62.5	46	20.2	39.5	22.8
3/24/2024 0:00	2:55:31	38.6	66.4	57.6	20.4	39.7	23.7
3/24/2024 0:00	3:05:31	38.9	66.7	50.3	21.4	43.8	26.1
3/24/2024 0:00	3:15:31	45.3	73.1	67.2	21.5	36.8	26.3
3/24/2024 0:00	3:25:31	48.2	76	66.9	17.9	41.7	21.4
3/24/2024 0:00	3:35:31	34.8	62.6	46	21.7	38.5	27.6
3/24/2024 0:00	3:45:31	32.6	60.4	54.8	16.7	36	18.7
3/24/2024 0:00	3:55:31	34.3	62.1	47	17.4	38.5	20.3
3/24/2024 0:00	4:05:31	33.3	61.1	44.8	20.8	36.4	24.3
3/24/2024 0:00	4:15:31	30.7	58.5	50.2	19.5	34.6	22.7
3/24/2024 0:00	4:25:31	40.4	68.2	58.1	21.1	45.3	25.2
3/24/2024 0:00	4:35:31	38.4	66.2	50.1	27	42.5	31.6
3/24/2024 0:00	4:45:31	39.7	67.5	57.4	19.1	42.3	25.5
3/24/2024 0:00	4:55:31	35	62.8	51.3	16.4	39.7	18.6
3/24/2024 0:00	5:05:31	39.4	67.2	55.8	23.4	43.2	28
3/24/2024 0:00	5:15:31	41.7	69.5	57.7	26.7	45.3	30.8
3/24/2024 0:00	5:25:31	32.8	60.6	50.7	22.5	36	25.5
3/24/2024 0:00	5:35:31	36.9	64.7	55.2	18.9	39.1	22.7
3/24/2024 0:00	5:45:31	42	69.8	57.9	27.1	44.7	32.5
3/24/2024 0:00	5:55:31	40.9	68.7	58.6	24.7	42.2	30
3/24/2024 0:00	6:05:31	41	68.8	56.8	24.7	43.3	29.1
3/24/2024 0:00	6:15:31	45.8	73.6	60.5	22.3	50.1	28.2
3/24/2024 0:00	6:25:31	40.4	68.2	58.5	23.9	43.4	31
3/24/2024 0:00	6:35:31	45.8	73.6	63	27	47.7	30.8
3/24/2024 0:00	6:45:31	40.7	68.5	61.4	30.5	43.1	33.7
3/24/2024 0:00	6:55:31	44.9	72.7	64.5	26.6	48	32.4
3/24/2024 0:00	7:05:31	47.8	75.6	62.1	33.7	51.7	38.4
3/24/2024 0:00	7:15:31	48.5	76.3	64.1	30.2	52.2	35.8
3/24/2024 0:00	7:25:31	44	71.8	60.8	33.5	46.4	38.3
3/24/2024 0:00	7:35:31	44.8	72.6	63.1	30	48	34.9
3/24/2024 0:00	7:45:31	45.3	73.1	62.6	32.6	49	36.1

3/24/2024 0:00	7:55:31	45.1	72.9	64.4	32.3	48.4	37.2
3/24/2024 0:00	8:05:31	42.2	70	61.5	32.6	44.9	35.8
3/24/2024 0:00	8:15:31	39	66.8	51.6	29.5	41.7	33.1
3/24/2024 0:00	8:25:31	42.2	70	52.3	31	46.7	34.9
3/24/2024 0:00	8:35:31	40.5	68.3	51.8	32.7	43.5	35.9
3/24/2024 0:00	8:45:31	41.6	69.4	57.1	31.3	43.5	34.9
3/24/2024 0:00	8:55:31	40.8	68.6	62.9	30.9	43.5	34.5
3/24/2024 0:00	9:05:31	41	68.8	59.5	28.6	43.5	34
3/24/2024 0:00	9:15:31	43	70.8	62.5	30.8	45	35
3/24/2024 0:00	9:25:31	41.7	69.5	65.3	28.8	42.8	33.4
3/24/2024 0:00	9:35:31	40.4	68.2	60.2	30	42.6	34.1
3/24/2024 0:00	9:45:31	39.7	67.5	52.2	30.6	43.3	33.4
3/24/2024 0:00	9:55:31	47.6	75.4	74.1	28.5	46.7	34
3/24/2024 0:00	10:05:31	48.6	76.4	72.7	27.6	48.3	31.7
3/24/2024 0:00	10:15:31	46.4	74.2	63.1	29.1	49.4	34.2
3/24/2024 0:00	10:25:31	41.8	69.6	56.5	26.2	45.5	29.9

Data for N 4 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
23/03/2024	10:25:00	2.3	3.6	12	196
23/03/2024	10:26:00	2.8	4.2	12	218
23/03/2024	10:27:00	2.8	3.8	12	234
23/03/2024	10:28:00	2.8	3.9	12	208
23/03/2024	10:29:00	2.5	3.5	12	224
23/03/2024	10:30:00	2.6	3.4	12	211
23/03/2024	10:31:00	2.7	3.9	12	212
23/03/2024	10:32:00	2.5	4.5	12	200
23/03/2024	10:33:00	3.0	4.2	12	201
23/03/2024	10:34:00	2.8	4.0	12	206
23/03/2024	10:35:00	2.6	3.5	12	206
23/03/2024	10:36:00	2.9	4.5	12	214
23/03/2024	10:37:00	3.1	5.0	12	225
23/03/2024	10:38:00	3.0	4.3	12	211
23/03/2024	10:39:00	2.5	3.9	12	194
23/03/2024	10:40:00	2.2	3.5	12	205
23/03/2024	10:41:00	3.2	4.9	12	214
23/03/2024	10:42:00	2.9	4.6	12	246
23/03/2024	10:43:00	2.9	4.4	12	216
23/03/2024	10:44:00	2.9	4.5	12	229
23/03/2024	10:45:00	3.3	4.6	12	197
23/03/2024	10:46:00	2.2	3.7	12	179
23/03/2024	10:47:00	2.5	3.8	12	198
23/03/2024	10:48:00	2.5	3.9	12	206

23/03/2024	10:49:00	2.2	3.1	12	215
23/03/2024	10:50:00	2.1	2.8	12	213
23/03/2024	10:51:00	2.8	3.9	12	226
23/03/2024	10:52:00	2.7	4.2	12	217
23/03/2024	10:53:00	2.5	3.6	12	193
23/03/2024	10:54:00	2.1	3.7	12	175
23/03/2024	10:55:00	2.2	3.6	12	208
23/03/2024	10:56:00	2.4	3.3	12	205
23/03/2024	10:57:00	2.7	3.9	12	212
23/03/2024	10:58:00	2.6	4.0	12	204
23/03/2024	10:59:00	2.5	4.0	12	203
23/03/2024	11:00:00	2.7	4.5	12	193
23/03/2024	11:01:00	2.3	3.5	12	190
23/03/2024	11:02:00	2.7	3.8	12	181
23/03/2024	11:03:00	2.6	3.6	12	179
23/03/2024	11:04:00	2.2	3.4	12	197
23/03/2024	11:05:00	2.4	4.0	12	191
23/03/2024	11:06:00	2.7	3.9	12	170
23/03/2024	11:07:00	2.6	3.8	12	167
23/03/2024	11:08:00	2.1	3.6	12	199
23/03/2024	11:09:00	2.4	3.7	12	183
23/03/2024	11:10:00	3.1	4.2	12	194
23/03/2024	11:11:00	2.7	4.0	13	217
23/03/2024	11:12:00	2.3	3.6	13	185
23/03/2024	11:13:00	2.4	3.7	13	211
23/03/2024	11:14:00	2.2	3.6	13	208
23/03/2024	11:15:00	2.7	3.8	13	207
23/03/2024	11:16:00	2.6	3.7	13	187
23/03/2024	11:17:00	2.5	3.9	13	189
23/03/2024	11:18:00	2.4	4.0	13	194
23/03/2024	11:19:00	2.2	3.4	13	188
23/03/2024	11:20:00	1.9	3.1	13	199
23/03/2024	11:21:00	2.1	3.1	13	190
23/03/2024	11:22:00	2.5	3.9	13	204
23/03/2024	11:23:00	2.5	3.7	13	191
23/03/2024	11:24:00	2.0	3.1	13	182
23/03/2024	11:25:00	2.4	3.2	13	201
23/03/2024	11:26:00	2.2	3.4	13	209
23/03/2024	11:27:00	2.4	3.2	13	176
23/03/2024	11:28:00	2.3	3.5	13	191
23/03/2024	11:29:00	2.2	3.5	13	201
23/03/2024	11:30:00	1.8	2.5	13	201
23/03/2024	11:31:00	2.0	4.2	13	188
23/03/2024	11:32:00	2.7	4.5	13	176
23/03/2024	11:33:00	2.3	3.2	13	171
23/03/2024	11:34:00	2.3	3.3	13	191

23/03/2024	11:35:00	2.1	3.5	13	190
23/03/2024	11:36:00	2.6	3.4	13	187
23/03/2024	11:37:00	2.8	4.1	13	229
23/03/2024	11:38:00	2.3	3.0	13	211
23/03/2024	11:39:00	2.1	3.0	13	166
23/03/2024	11:40:00	2.5	4.2	13	179
23/03/2024	11:41:00	2.1	3.2	13	190
23/03/2024	11:42:00	2.0	3.2	13	184
23/03/2024	11:43:00	1.9	3.1	13	195
23/03/2024	11:44:00	2.7	4.2	13	178
23/03/2024	11:45:00	2.4	3.4	13	185
23/03/2024	11:46:00	2.2	3.6	13	208
23/03/2024	11:47:00	2.5	3.3	13	172
23/03/2024	11:48:00	2.1	3.4	13	177
23/03/2024	11:49:00	2.0	3.4	13	187
23/03/2024	11:50:00	2.0	3.3	13	191
23/03/2024	11:51:00	2.6	3.6	13	160
23/03/2024	11:52:00	2.2	3.2	13	178
23/03/2024	11:53:00	2.4	4.1	13	210
23/03/2024	11:54:00	2.4	3.7	13	179
23/03/2024	11:55:00	1.9	3.8	13	171
23/03/2024	11:56:00	2.2	3.5	13	181
23/03/2024	11:57:00	2.5	4.1	13	211
23/03/2024	11:58:00	2.5	3.8	13	168
23/03/2024	11:59:00	3.0	4.4	13	182
23/03/2024	12:00:00	1.9	2.8	13	182
23/03/2024	12:01:00	1.9	3.1	13	185
23/03/2024	12:02:00	2.4	3.9	13	176
23/03/2024	12:03:00	2.1	4.3	13	174
23/03/2024	12:04:00	2.3	3.6	13	204
23/03/2024	12:05:00	2.6	4.8	13	213
23/03/2024	12:06:00	2.3	3.5	13	203
23/03/2024	12:07:00	1.9	3.2	13	171
23/03/2024	12:08:00	2.5	5.0	13	236
23/03/2024	12:09:00	2.7	3.6	13	227
23/03/2024	12:10:00	1.9	3.2	13	169
23/03/2024	12:11:00	1.9	2.8	13	193
23/03/2024	12:12:00	2.7	4.3	13	187
23/03/2024	12:13:00	2.3	3.9	13	187
23/03/2024	12:14:00	2.1	3.1	13	192
23/03/2024	12:15:00	2.3	3.1	13	188
23/03/2024	12:16:00	2.7	3.7	13	188
23/03/2024	12:17:00	2.6	4.1	13	200
23/03/2024	12:18:00	2.4	3.7	14	185
23/03/2024	12:19:00	2.1	3.2	14	168
23/03/2024	12:20:00	2.5	3.4	14	181

23/03/2024	12:21:00	2.2	3.4	14	176
23/03/2024	12:22:00	2.1	3.3	14	176
23/03/2024	12:23:00	2.4	3.1	14	203
23/03/2024	12:24:00	2.6	3.5	14	207
23/03/2024	12:25:00	2.4	3.5	14	221
23/03/2024	12:26:00	2.1	3.6	14	223
23/03/2024	12:27:00	2.4	3.9	14	204
23/03/2024	12:28:00	2.6	4.0	14	218
23/03/2024	12:29:00	2.4	3.8	14	203
23/03/2024	12:30:00	2.6	4.1	14	185
23/03/2024	12:31:00	1.9	3.6	14	181
23/03/2024	12:32:00	2.4	3.3	14	190
23/03/2024	12:33:00	2.1	3.0	14	197
23/03/2024	12:34:00	2.1	3.1	14	197
23/03/2024	12:35:00	2.4	3.9	14	212
23/03/2024	12:36:00	1.9	2.8	14	213
23/03/2024	12:37:00	1.8	3.0	14	193
23/03/2024	12:38:00	2.8	4.3	14	209
23/03/2024	12:39:00	2.1	3.2	14	231
23/03/2024	12:40:00	2.3	3.2	14	215
23/03/2024	12:41:00	2.3	3.5	14	205
23/03/2024	12:42:00	2.4	3.5	14	217
23/03/2024	12:43:00	1.9	3.3	14	190
23/03/2024	12:44:00	2.1	3.5	14	179
23/03/2024	12:45:00	2.4	3.6	14	179
23/03/2024	12:46:00	1.8	3.1	14	175
23/03/2024	12:47:00	2.0	3.5	14	233
23/03/2024	12:48:00	2.3	3.3	14	238
23/03/2024	12:49:00	2.0	3.0	14	218
23/03/2024	12:50:00	2.2	3.4	14	210
23/03/2024	12:51:00	2.3	3.3	14	193
23/03/2024	12:52:00	2.5	3.7	14	189
23/03/2024	12:53:00	2.4	3.3	14	207
23/03/2024	12:54:00	2.2	3.4	14	184
23/03/2024	12:55:00	1.7	2.7	14	182
23/03/2024	12:56:00	2.1	3.0	15	213
23/03/2024	12:57:00	1.7	2.8	15	212
23/03/2024	12:58:00	2.6	3.7	15	227
23/03/2024	12:59:00	2.1	4.0	15	209
23/03/2024	13:00:00	2.2	3.0	15	197
23/03/2024	13:01:00	2.6	4.3	15	205
23/03/2024	13:02:00	2.2	3.7	15	195
23/03/2024	13:03:00	2.2	3.4	15	220
23/03/2024	13:04:00	2.2	3.2	15	203
23/03/2024	13:05:00	2.1	3.3	15	177
23/03/2024	13:06:00	1.8	2.9	15	176

23/03/2024	13:07:00	1.8	2.9	15	168
23/03/2024	13:08:00	1.9	2.5	15	182
23/03/2024	13:09:00	1.8	2.7	15	197
23/03/2024	13:10:00	1.8	2.4	15	189
23/03/2024	13:11:00	2.4	3.5	15	186
23/03/2024	13:12:00	2.0	3.2	15	197
23/03/2024	13:13:00	1.7	3.0	15	191
23/03/2024	13:14:00	2.2	3.4	15	202
23/03/2024	13:15:00	2.4	3.1	15	211
23/03/2024	13:16:00	2.3	3.7	15	204
23/03/2024	13:17:00	1.9	3.7	15	231
23/03/2024	13:18:00	2.2	3.4	15	227
23/03/2024	13:19:00	2.2	3.4	15	206
23/03/2024	13:20:00	2.3	3.5	15	197
23/03/2024	13:21:00	2.3	3.7	15	201
23/03/2024	13:22:00	2.1	3.6	15	182
23/03/2024	13:23:00	2.6	4.4	15	192
23/03/2024	13:24:00	2.2	4.0	15	173
23/03/2024	13:25:00	2.1	3.0	15	170
23/03/2024	13:26:00	2.3	3.4	15	176
23/03/2024	13:27:00	2.2	3.2	15	208
23/03/2024	13:28:00	2.1	3.2	15	203
23/03/2024	13:29:00	2.1	3.7	15	198
23/03/2024	13:30:00	2.0	3.1	15	199
23/03/2024	13:31:00	1.8	2.7	15	259
23/03/2024	13:32:00	2.1	2.9	15	228
23/03/2024	13:33:00	2.1	3.6	15	191
23/03/2024	13:34:00	1.8	2.9	15	176
23/03/2024	13:35:00	2.2	3.4	16	208
23/03/2024	13:36:00	2.3	3.6	16	229
23/03/2024	13:37:00	1.7	2.7	16	220
23/03/2024	13:38:00	2.4	4.1	16	223
23/03/2024	13:39:00	2.7	3.7	16	229
23/03/2024	13:40:00	2.2	3.3	16	235
23/03/2024	13:41:00	1.9	3.0	16	223
23/03/2024	13:42:00	2.2	3.5	16	176
23/03/2024	13:43:00	2.7	3.5	16	180
23/03/2024	13:44:00	1.8	2.9	16	178
23/03/2024	13:45:00	1.8	2.6	16	181
23/03/2024	13:46:00	1.8	3.1	16	186
23/03/2024	13:47:00	2.2	3.1	16	198
23/03/2024	13:48:00	1.7	2.6	16	211
23/03/2024	13:49:00	1.2	2.0	16	153
23/03/2024	13:50:00	1.8	2.5	16	234
23/03/2024	13:51:00	2.0	3.0	16	231
23/03/2024	13:52:00	2.1	3.8	17	189

23/03/2024	13:53:00	1.6	2.4	17	188
23/03/2024	13:54:00	2.0	3.7	17	199
23/03/2024	13:55:00	2.2	3.8	17	226
23/03/2024	13:56:00	2.1	2.8	17	227
23/03/2024	13:57:00	2.0	2.8	17	233
23/03/2024	13:58:00	2.0	3.0	17	225
23/03/2024	13:59:00	2.8	4.0	17	216
23/03/2024	14:00:00	2.4	3.5	17	201
23/03/2024	14:01:00	2.1	3.5	17	179
23/03/2024	14:02:00	2.1	3.5	17	181
23/03/2024	14:03:00	2.3	3.4	17	202
23/03/2024	14:04:00	2.6	3.9	17	197
23/03/2024	14:05:00	2.1	3.0	17	184
23/03/2024	14:06:00	1.7	3.0	17	186
23/03/2024	14:07:00	1.7	3.0	17	180
23/03/2024	14:08:00	1.7	2.5	17	179
23/03/2024	14:09:00	1.8	3.1	17	191
23/03/2024	14:10:00	1.9	2.8	17	180
23/03/2024	14:11:00	1.7	2.3	17	183
23/03/2024	14:12:00	2.5	3.5	17	220
23/03/2024	14:13:00	1.9	2.8	17	236
23/03/2024	14:14:00	2.3	3.9	17	216
23/03/2024	14:15:00	2.4	3.4	17	194
23/03/2024	14:16:00	2.1	3.9	17	172
23/03/2024	14:17:00	2.2	3.1	17	193
23/03/2024	14:18:00	2.0	2.7	17	204
23/03/2024	14:19:00	2.1	3.5	17	242
23/03/2024	14:20:00	2.0	3.2	17	200
23/03/2024	14:21:00	2.2	3.4	17	175
23/03/2024	14:22:00	2.1	3.6	17	191
23/03/2024	14:23:00	2.1	3.4	17	193
23/03/2024	14:24:00	2.2	3.8	17	229
23/03/2024	14:25:00	1.9	2.8	17	214
23/03/2024	14:26:00	2.0	3.7	17	184
23/03/2024	14:27:00	2.2	4.0	18	207
23/03/2024	14:28:00	1.9	3.1	18	197
23/03/2024	14:29:00	2.0	2.9	18	204
23/03/2024	14:30:00	1.9	2.8	18	206
23/03/2024	14:31:00	1.7	2.4	18	210
23/03/2024	14:32:00	1.9	3.1	18	189
23/03/2024	14:33:00	1.8	2.8	18	168
23/03/2024	14:34:00	1.5	2.3	18	169
23/03/2024	14:35:00	1.8	3.1	18	216
23/03/2024	14:36:00	1.6	2.5	18	181
23/03/2024	14:37:00	1.5	2.8	18	187
23/03/2024	14:38:00	1.7	2.7	18	171

23/03/2024	14:39:00	1.5	2.3	18	177
23/03/2024	14:40:00	1.7	2.8	18	189
23/03/2024	14:41:00	1.6	2.4	18	183
23/03/2024	14:42:00	2.0	2.7	18	174
23/03/2024	14:43:00	1.7	2.8	18	179
23/03/2024	14:44:00	1.4	2.2	18	189
23/03/2024	14:45:00	1.9	3.3	18	195
23/03/2024	14:46:00	1.8	3.4	18	181
23/03/2024	14:47:00	1.7	2.6	18	182
23/03/2024	14:48:00	1.8	2.6	18	216
23/03/2024	14:49:00	1.6	2.9	18	196
23/03/2024	14:50:00	2.1	3.5	18	180
23/03/2024	14:51:00	2.1	3.0	18	159
23/03/2024	14:52:00	1.7	2.4	18	163
23/03/2024	14:53:00	1.9	2.9	18	171
23/03/2024	14:54:00	2.1	3.2	18	222
23/03/2024	14:55:00	1.9	2.9	18	210
23/03/2024	14:56:00	1.3	2.0	18	197
23/03/2024	14:57:00	1.9	3.1	18	191
23/03/2024	14:58:00	1.8	2.8	18	184
23/03/2024	14:59:00	2.0	2.9	18	165
23/03/2024	15:00:00	2.0	3.3	18	195
23/03/2024	15:01:00	2.2	3.1	18	176
23/03/2024	15:02:00	1.8	2.6	18	169
23/03/2024	15:03:00	2.0	3.1	18	206
23/03/2024	15:04:00	2.2	3.3	18	204
23/03/2024	15:05:00	2.0	2.9	18	242
23/03/2024	15:06:00	1.7	2.8	18	237
23/03/2024	15:07:00	2.0	3.0	18	211
23/03/2024	15:08:00	2.0	3.5	18	199
23/03/2024	15:09:00	1.7	2.4	18	172
23/03/2024	15:10:00	1.7	2.9	18	200
23/03/2024	15:11:00	1.8	2.8	18	188
23/03/2024	15:12:00	1.7	2.5	18	197
23/03/2024	15:13:00	2.4	3.6	18	227
23/03/2024	15:14:00	2.6	3.7	18	243
23/03/2024	15:15:00	2.0	4.6	18	223
23/03/2024	15:16:00	2.0	2.7	18	200
23/03/2024	15:17:00	1.7	2.4	18	197
23/03/2024	15:18:00	1.8	2.6	18	227
23/03/2024	15:19:00	1.8	2.9	18	218
23/03/2024	15:20:00	1.7	2.6	18	201
23/03/2024	15:21:00	1.5	2.0	18	197
23/03/2024	15:22:00	1.6	2.4	18	163
23/03/2024	15:23:00	1.9	2.8	18	160
23/03/2024	15:24:00	1.8	2.9	18	163

23/03/2024	15:25:00	2.4	3.7	18	133
23/03/2024	15:26:00	2.0	3.1	18	170
23/03/2024	15:27:00	1.7	2.7	18	174
23/03/2024	15:28:00	1.7	2.6	18	179
23/03/2024	15:29:00	1.9	3.3	18	168
23/03/2024	15:30:00	1.2	1.6	18	166
23/03/2024	15:31:00	1.3	2.0	19	192
23/03/2024	15:32:00	1.6	2.8	19	216
23/03/2024	15:33:00	1.6	2.9	19	221
23/03/2024	15:34:00	2.1	3.2	19	209
23/03/2024	15:35:00	1.5	2.3	19	197
23/03/2024	15:36:00	1.8	3.3	19	210
23/03/2024	15:37:00	2.5	3.5	19	246
23/03/2024	15:38:00	2.1	3.3	19	224
23/03/2024	15:39:00	2.2	3.2	19	208
23/03/2024	15:40:00	1.7	2.8	19	197
23/03/2024	15:41:00	1.8	3.3	19	160
23/03/2024	15:42:00	1.5	2.4	19	172
23/03/2024	15:43:00	2.5	3.6	19	222
23/03/2024	15:44:00	2.1	3.1	19	232
23/03/2024	15:45:00	2.0	2.9	19	224
23/03/2024	15:46:00	2.3	3.3	19	234
23/03/2024	15:47:00	1.5	2.5	19	223
23/03/2024	15:48:00	1.8	2.9	19	166
23/03/2024	15:49:00	1.9	3.0	19	199
23/03/2024	15:50:00	1.7	2.8	19	207
23/03/2024	15:51:00	1.8	2.7	19	199
23/03/2024	15:52:00	2.2	3.7	19	207
23/03/2024	15:53:00	1.6	2.5	19	209
23/03/2024	15:54:00	2.2	4.1	19	199
23/03/2024	15:55:00	2.3	2.9	19	198
23/03/2024	15:56:00	1.9	2.9	19	175
23/03/2024	15:57:00	1.9	2.8	19	191
23/03/2024	15:58:00	1.5	2.3	19	184
23/03/2024	15:59:00	2.1	3.1	19	214
23/03/2024	16:00:00	1.7	2.5	19	205
23/03/2024	16:01:00	1.7	2.6	19	225
23/03/2024	16:02:00	1.8	2.6	19	176
23/03/2024	16:03:00	1.8	3.5	19	205
23/03/2024	16:04:00	2.0	3.4	19	199
23/03/2024	16:05:00	1.9	3.7	19	188
23/03/2024	16:06:00	1.9	2.7	19	187
23/03/2024	16:07:00	1.8	3.0	19	216
23/03/2024	16:08:00	2.1	3.0	19	194
23/03/2024	16:09:00	1.7	2.7	19	214
23/03/2024	16:10:00	2.4	3.2	19	201

23/03/2024	16:11:00	2.3	3.5	19	206
23/03/2024	16:12:00	1.6	3.9	19	205
23/03/2024	16:13:00	1.8	2.7	19	185
23/03/2024	16:14:00	1.7	2.9	19	182
23/03/2024	16:15:00	2.1	3.4	19	220
23/03/2024	16:16:00	2.1	3.1	19	222
23/03/2024	16:17:00	2.4	3.4	19	210
23/03/2024	16:18:00	2.5	4.3	19	212
23/03/2024	16:19:00	1.6	2.2	19	202
23/03/2024	16:20:00	1.9	2.8	19	209
23/03/2024	16:21:00	1.7	2.6	19	215
23/03/2024	16:22:00	1.9	3.0	19	225
23/03/2024	16:23:00	2.4	3.6	19	190
23/03/2024	16:24:00	2.0	3.7	19	219
23/03/2024	16:25:00	1.7	2.5	19	222
23/03/2024	16:26:00	1.8	3.1	19	201
23/03/2024	16:27:00	2.0	4.1	19	212
23/03/2024	16:28:00	2.0	2.7	19	214
23/03/2024	16:29:00	1.8	2.6	19	208
23/03/2024	16:30:00	1.6	2.2	19	204
23/03/2024	16:31:00	2.3	3.6	19	229
23/03/2024	16:32:00	2.2	3.3	19	239
23/03/2024	16:33:00	2.4	3.3	19	225
23/03/2024	16:34:00	2.3	3.1	19	212
23/03/2024	16:35:00	2.0	3.1	19	203
23/03/2024	16:36:00	1.7	2.8	19	189
23/03/2024	16:37:00	1.7	3.2	19	201
23/03/2024	16:38:00	1.9	2.5	19	218
23/03/2024	16:39:00	1.5	2.3	19	192
23/03/2024	16:40:00	2.0	3.3	19	209
23/03/2024	16:41:00	1.9	3.5	19	220
23/03/2024	16:42:00	2.5	3.6	19	207
23/03/2024	16:43:00	2.7	3.8	19	212
23/03/2024	16:44:00	1.9	2.8	19	182
23/03/2024	16:45:00	1.9	3.0	19	175
23/03/2024	16:46:00	1.9	2.8	19	191
23/03/2024	16:47:00	2.2	3.1	19	210
23/03/2024	16:48:00	2.3	3.4	19	221
23/03/2024	16:49:00	2.1	3.4	19	221
23/03/2024	16:50:00	3.0	4.1	19	235
23/03/2024	16:51:00	2.6	4.3	19	217
23/03/2024	16:52:00	2.2	3.5	19	207
23/03/2024	16:53:00	2.2	3.3	18	216
23/03/2024	16:54:00	2.1	2.9	18	226
23/03/2024	16:55:00	1.8	2.6	18	203
23/03/2024	16:56:00	1.8	2.6	18	220

23/03/2024	16:57:00	2.3	3.1	18	233
23/03/2024	16:58:00	2.2	2.9	18	219
23/03/2024	16:59:00	2.2	3.1	18	202
23/03/2024	17:00:00	2.2	3.3	18	217
23/03/2024	17:01:00	2.7	3.7	18	215
23/03/2024	17:02:00	2.1	3.3	18	214
23/03/2024	17:03:00	2.4	3.4	18	212
23/03/2024	17:04:00	2.3	3.1	18	219
23/03/2024	17:05:00	2.0	3.2	18	219
23/03/2024	17:06:00	2.4	3.4	18	200
23/03/2024	17:07:00	2.1	3.1	18	237
23/03/2024	17:08:00	2.3	3.3	18	251
23/03/2024	17:09:00	1.9	2.8	18	222
23/03/2024	17:10:00	2.1	2.8	18	218
23/03/2024	17:11:00	2.8	4.2	18	237
23/03/2024	17:12:00	2.5	3.6	18	243
23/03/2024	17:13:00	2.3	3.4	18	243
23/03/2024	17:14:00	3.0	4.3	18	226
23/03/2024	17:15:00	2.4	3.6	18	222
23/03/2024	17:16:00	2.7	4.1	18	226
23/03/2024	17:17:00	2.0	3.1	18	219
23/03/2024	17:18:00	2.5	3.7	18	211
23/03/2024	17:19:00	2.1	3.8	18	229
23/03/2024	17:20:00	2.4	4.6	18	218
23/03/2024	17:21:00	2.7	4.2	18	228
23/03/2024	17:22:00	2.4	3.7	18	224
23/03/2024	17:23:00	2.2	3.2	18	206
23/03/2024	17:24:00	2.0	3.1	18	203
23/03/2024	17:25:00	2.2	3.0	18	224
23/03/2024	17:26:00	2.1	3.1	18	195
23/03/2024	17:27:00	2.4	3.4	18	228
23/03/2024	17:28:00	2.2	3.5	18	219
23/03/2024	17:29:00	2.8	4.4	18	216
23/03/2024	17:30:00	2.6	3.9	18	224
23/03/2024	17:31:00	2.3	3.9	18	250
23/03/2024	17:32:00	2.2	3.4	18	216
23/03/2024	17:33:00	2.1	3.1	18	238
23/03/2024	17:34:00	2.7	3.8	18	206
23/03/2024	17:35:00	2.5	4.0	18	207
23/03/2024	17:36:00	2.6	3.8	18	221
23/03/2024	17:37:00	2.2	3.2	18	207
23/03/2024	17:38:00	2.3	3.4	18	190
23/03/2024	17:39:00	2.2	3.3	18	200
23/03/2024	17:40:00	2.1	3.0	18	218
23/03/2024	17:41:00	2.1	3.2	18	206
23/03/2024	17:42:00	2.8	3.7	18	208

23/03/2024	17:43:00	2.2	3.7	18	199
23/03/2024	17:44:00	2.8	5.1	18	180
23/03/2024	17:45:00	2.7	4.1	18	232
23/03/2024	17:46:00	2.4	3.8	18	213
23/03/2024	17:47:00	2.6	4.4	18	225
23/03/2024	17:48:00	2.4	3.6	18	226
23/03/2024	17:49:00	2.7	4.3	18	219
23/03/2024	17:50:00	2.4	3.9	18	218
23/03/2024	17:51:00	2.9	4.1	18	210
23/03/2024	17:52:00	2.7	3.6	18	212
23/03/2024	17:53:00	2.7	3.9	17	240
23/03/2024	17:54:00	2.6	3.6	17	220
23/03/2024	17:55:00	2.2	3.4	17	212
23/03/2024	17:56:00	2.0	3.1	17	225
23/03/2024	17:57:00	2.0	3.1	17	222
23/03/2024	17:58:00	2.2	3.5	17	189
23/03/2024	17:59:00	2.2	3.2	17	215
23/03/2024	18:00:00	2.7	3.9	17	200
23/03/2024	18:01:00	2.5	4.1	17	206
23/03/2024	18:02:00	2.6	3.8	17	205
23/03/2024	18:03:00	2.5	4.0	17	215
23/03/2024	18:04:00	2.5	4.0	17	197
23/03/2024	18:05:00	2.1	2.8	17	201
23/03/2024	18:06:00	2.4	3.2	17	212
23/03/2024	18:07:00	2.3	3.1	17	232
23/03/2024	18:08:00	2.5	3.6	17	224
23/03/2024	18:09:00	2.2	3.4	17	220
23/03/2024	18:10:00	2.6	4.3	17	212
23/03/2024	18:11:00	2.1	3.3	17	189
23/03/2024	18:12:00	2.4	4.8	16	211
23/03/2024	18:13:00	2.2	3.2	16	209
23/03/2024	18:14:00	2.2	3.5	16	204
23/03/2024	18:15:00	2.4	3.2	16	218
23/03/2024	18:16:00	2.3	3.4	16	201
23/03/2024	18:17:00	1.8	2.5	16	201
23/03/2024	18:18:00	2.0	3.1	16	194
23/03/2024	18:19:00	2.0	3.3	16	204
23/03/2024	18:20:00	2.1	3.3	16	217
23/03/2024	18:21:00	2.1	3.0	16	208
23/03/2024	18:22:00	2.0	3.3	16	190
23/03/2024	18:23:00	2.3	3.7	16	199
23/03/2024	18:24:00	1.8	3.5	16	203
23/03/2024	18:25:00	2.2	3.1	16	200
23/03/2024	18:26:00	2.1	2.9	16	230
23/03/2024	18:27:00	2.0	2.6	16	210
23/03/2024	18:28:00	2.0	2.8	16	237

23/03/2024	18:29:00	1.8	2.9	16	222
23/03/2024	18:30:00	2.2	2.9	16	218
23/03/2024	18:31:00	2.0	2.8	16	248
23/03/2024	18:32:00	1.8	2.6	16	230
23/03/2024	18:33:00	1.9	2.8	16	221
23/03/2024	18:34:00	1.6	2.2	16	238
23/03/2024	18:35:00	1.9	2.5	16	213
23/03/2024	18:36:00	1.4	2.0	16	227
23/03/2024	18:37:00	1.5	2.2	16	240
23/03/2024	18:38:00	1.7	3.0	16	200
23/03/2024	18:39:00	2.0	2.7	16	207
23/03/2024	18:40:00	1.8	2.6	16	212
23/03/2024	18:41:00	1.8	2.7	16	220
23/03/2024	18:42:00	1.9	2.9	15	215
23/03/2024	18:43:00	1.8	2.7	15	199
23/03/2024	18:44:00	1.9	2.7	15	193
23/03/2024	18:45:00	2.0	2.9	15	205
23/03/2024	18:46:00	1.9	2.6	15	211
23/03/2024	18:47:00	2.1	3.1	15	202
23/03/2024	18:48:00	2.1	2.9	15	199
23/03/2024	18:49:00	2.2	3.3	15	194
23/03/2024	18:50:00	1.7	2.8	15	236
23/03/2024	18:51:00	1.9	2.9	15	209
23/03/2024	18:52:00	1.8	2.8	15	201
23/03/2024	18:53:00	2.1	2.9	15	205
23/03/2024	18:54:00	1.5	2.8	15	213
23/03/2024	18:55:00	1.8	2.6	15	211
23/03/2024	18:56:00	1.5	2.3	15	239
23/03/2024	18:57:00	1.9	2.7	15	213
23/03/2024	18:58:00	1.3	2.1	15	246
23/03/2024	18:59:00	2.0	3.0	15	207
23/03/2024	19:00:00	1.7	2.3	14	209
23/03/2024	19:01:00	1.7	2.7	14	198
23/03/2024	19:02:00	1.6	2.5	14	226
23/03/2024	19:03:00	1.3	2.1	14	234
23/03/2024	19:04:00	1.3	2.0	14	240
23/03/2024	19:05:00	1.4	2.0	14	205
23/03/2024	19:06:00	1.4	2.3	14	249
23/03/2024	19:07:00	1.6	2.3	14	201
23/03/2024	19:08:00	1.6	2.1	14	216
23/03/2024	19:09:00	1.3	2.1	14	252
23/03/2024	19:10:00	1.4	1.9	14	232
23/03/2024	19:11:00	1.8	2.6	14	234
23/03/2024	19:12:00	1.4	2.1	14	225
23/03/2024	19:13:00	1.3	1.8	14	244
23/03/2024	19:14:00	1.4	1.8	14	235

23/03/2024	19:15:00	1.4	1.8	14	232
23/03/2024	19:16:00	1.5	1.8	14	219
23/03/2024	19:17:00	1.4	2.1	14	241
23/03/2024	19:18:00	1.4	2.3	14	233
23/03/2024	19:19:00	1.6	2.0	14	234
23/03/2024	19:20:00	1.3	1.9	14	244
23/03/2024	19:21:00	1.6	2.2	14	218
23/03/2024	19:22:00	1.4	1.9	14	222
23/03/2024	19:23:00	1.6	2.1	14	222
23/03/2024	19:24:00	1.4	2.1	14	221
23/03/2024	19:25:00	1.7	2.5	14	229
23/03/2024	19:26:00	1.4	2.0	14	232
23/03/2024	19:27:00	1.4	2.0	14	239
23/03/2024	19:28:00	1.5	2.1	14	203
23/03/2024	19:29:00	1.4	2.2	14	227
23/03/2024	19:30:00	1.4	2.0	14	232
23/03/2024	19:31:00	1.4	1.7	14	233
23/03/2024	19:32:00	1.4	2.2	14	241
23/03/2024	19:33:00	1.4	2.1	14	237
23/03/2024	19:34:00	1.4	2.5	14	241
23/03/2024	19:35:00	1.4	1.9	14	212
23/03/2024	19:36:00	1.3	1.8	14	206
23/03/2024	19:37:00	1.4	2.1	14	229
23/03/2024	19:38:00	1.4	2.1	14	234
23/03/2024	19:39:00	1.4	1.9	14	229
23/03/2024	19:40:00	1.4	2.2	13	241
23/03/2024	19:41:00	1.3	2.1	13	236
23/03/2024	19:42:00	1.4	2.1	13	240
23/03/2024	19:43:00	1.3	1.8	13	233
23/03/2024	19:44:00	1.5	2.4	13	234
23/03/2024	19:45:00	1.5	2.2	13	241
23/03/2024	19:46:00	1.5	2.1	13	223
23/03/2024	19:47:00	1.5	2.1	13	244
23/03/2024	19:48:00	1.0	1.7	13	249
23/03/2024	19:49:00	1.6	2.4	13	255
23/03/2024	19:50:00	1.7	2.5	13	235
23/03/2024	19:51:00	1.2	2.0	13	248
23/03/2024	19:52:00	1.2	2.2	13	235
23/03/2024	19:53:00	1.5	2.2	13	236
23/03/2024	19:54:00	1.4	2.3	13	263
23/03/2024	19:55:00	1.4	2.3	13	244
23/03/2024	19:56:00	1.2	1.8	13	241
23/03/2024	19:57:00	1.3	1.9	13	236
23/03/2024	19:58:00	1.4	1.9	13	230
23/03/2024	19:59:00	1.2	1.9	13	226
23/03/2024	20:00:00	1.4	1.9	13	229

23/03/2024	20:01:00	1.5	2.2	13	242
23/03/2024	20:02:00	1.3	2.1	13	237
23/03/2024	20:03:00	1.3	1.9	13	246
23/03/2024	20:04:00	1.4	1.8	13	239
23/03/2024	20:05:00	1.2	1.8	13	217
23/03/2024	20:06:00	1.4	1.9	13	231
23/03/2024	20:07:00	1.4	1.8	13	240
23/03/2024	20:08:00	1.5	2.4	13	230
23/03/2024	20:09:00	1.1	1.8	13	221
23/03/2024	20:10:00	1.3	1.9	13	222
23/03/2024	20:11:00	1.3	1.8	13	219
23/03/2024	20:12:00	0.9	1.9	13	217
23/03/2024	20:13:00	1.4	2.1	13	223
23/03/2024	20:14:00	1.3	1.8	13	259
23/03/2024	20:15:00	1.0	1.7	13	237
23/03/2024	20:16:00	0.8	1.4	13	219
23/03/2024	20:17:00	1.2	1.6	13	236
23/03/2024	20:18:00	0.9	1.2	13	224
23/03/2024	20:19:00	0.9	1.6	13	225
23/03/2024	20:20:00	1.2	1.7	13	238
23/03/2024	20:21:00	1.3	1.8	13	230
23/03/2024	20:22:00	1.3	1.8	13	238
23/03/2024	20:23:00	1.3	2.0	13	232
23/03/2024	20:24:00	1.4	1.9	13	249
23/03/2024	20:25:00	1.5	2.1	13	264
23/03/2024	20:26:00	1.1	1.6	13	241
23/03/2024	20:27:00	1.1	1.8	13	237
23/03/2024	20:28:00	1.5	2.4	13	223
23/03/2024	20:29:00	1.4	2.4	13	242
23/03/2024	20:30:00	1.0	1.4	13	250
23/03/2024	20:31:00	1.3	1.9	13	256
23/03/2024	20:32:00	0.9	1.5	12	251
23/03/2024	20:33:00	1.2	1.8	12	251
23/03/2024	20:34:00	1.1	1.6	12	247
23/03/2024	20:35:00	1.1	1.6	12	243
23/03/2024	20:36:00	1.4	1.8	12	253
23/03/2024	20:37:00	1.2	1.6	12	250
23/03/2024	20:38:00	1.1	1.7	12	252
23/03/2024	20:39:00	1.2	1.6	12	244
23/03/2024	20:40:00	1.3	1.6	12	249
23/03/2024	20:41:00	1.2	1.7	12	251
23/03/2024	20:42:00	1.0	1.4	12	266
23/03/2024	20:43:00	1.0	1.4	12	250
23/03/2024	20:44:00	1.0	1.4	12	248
23/03/2024	20:45:00	1.2	1.6	12	250
23/03/2024	20:46:00	1.2	1.8	12	252

23/03/2024	20:47:00	1.0	1.6	12	190
23/03/2024	20:48:00	1.2	1.7	12	223
23/03/2024	20:49:00	1.3	1.6	12	221
23/03/2024	20:50:00	1.2	1.6	12	219
23/03/2024	20:51:00	1.1	1.6	12	225
23/03/2024	20:52:00	1.3	1.9	12	247
23/03/2024	20:53:00	1.1	1.7	12	243
23/03/2024	20:54:00	1.3	1.8	12	240
23/03/2024	20:55:00	1.2	1.5	12	244
23/03/2024	20:56:00	1.1	1.8	12	258
23/03/2024	20:57:00	1.1	1.4	12	251
23/03/2024	20:58:00	1.1	1.8	12	231
23/03/2024	20:59:00	1.4	1.7	12	232
23/03/2024	21:00:00	1.0	1.6	12	232
23/03/2024	21:01:00	1.0	1.7	12	230
23/03/2024	21:02:00	1.1	1.6	12	229
23/03/2024	21:03:00	1.2	1.7	12	213
23/03/2024	21:04:00	1.2	1.7	12	213
23/03/2024	21:05:00	1.3	1.7	12	216
23/03/2024	21:06:00	1.3	2.1	12	260
23/03/2024	21:07:00	1.0	1.6	12	230
23/03/2024	21:08:00	1.2	1.8	12	227
23/03/2024	21:09:00	1.1	1.8	12	232
23/03/2024	21:10:00	1.1	1.6	12	238
23/03/2024	21:11:00	1.2	1.8	12	232
23/03/2024	21:12:00	1.1	1.8	12	230
23/03/2024	21:13:00	1.0	1.7	12	231
23/03/2024	21:14:00	1.4	2.0	12	230
23/03/2024	21:15:00	1.3	1.8	12	234
23/03/2024	21:16:00	1.2	1.8	12	221
23/03/2024	21:17:00	1.3	2.0	12	237
23/03/2024	21:18:00	1.3	1.9	12	245
23/03/2024	21:19:00	1.2	2.0	12	248
23/03/2024	21:20:00	1.1	1.8	12	232
23/03/2024	21:21:00	1.3	1.8	12	240
23/03/2024	21:22:00	1.2	1.9	12	243
23/03/2024	21:23:00	1.2	1.8	12	252
23/03/2024	21:24:00	1.4	1.9	12	260
23/03/2024	21:25:00	1.3	2.2	12	249
23/03/2024	21:26:00	1.1	2.3	12	240
23/03/2024	21:27:00	1.5	2.0	12	235
23/03/2024	21:28:00	1.5	1.9	12	236
23/03/2024	21:29:00	1.5	2.3	12	232
23/03/2024	21:30:00	1.4	1.9	12	232
23/03/2024	21:31:00	1.5	2.2	12	230
23/03/2024	21:32:00	1.4	1.9	12	234

23/03/2024	21:33:00	1.5	2.0	12	238
23/03/2024	21:34:00	1.4	1.7	12	238
23/03/2024	21:35:00	1.2	1.8	12	255
23/03/2024	21:36:00	1.5	2.1	12	216
23/03/2024	21:37:00	1.4	2.2	12	235
23/03/2024	21:38:00	1.2	1.8	12	232
23/03/2024	21:39:00	1.4	1.8	12	241
23/03/2024	21:40:00	1.5	2.3	12	241
23/03/2024	21:41:00	1.4	2.0	12	244
23/03/2024	21:42:00	1.6	2.2	12	228
23/03/2024	21:43:00	1.4	1.9	12	255
23/03/2024	21:44:00	1.5	2.0	12	251
23/03/2024	21:45:00	1.4	1.9	12	244
23/03/2024	21:46:00	1.5	2.1	12	236
23/03/2024	21:47:00	1.4	2.0	12	241
23/03/2024	21:48:00	1.6	2.3	12	227
23/03/2024	21:49:00	1.5	2.0	12	248
23/03/2024	21:50:00	1.6	2.1	12	241
23/03/2024	21:51:00	1.4	2.0	12	245
23/03/2024	21:52:00	1.5	2.1	12	251
23/03/2024	21:53:00	1.6	2.1	12	249
23/03/2024	21:54:00	1.4	1.8	12	249
23/03/2024	21:55:00	1.5	2.2	12	239
23/03/2024	21:56:00	1.8	2.7	12	250
23/03/2024	21:57:00	1.4	2.1	12	237
23/03/2024	21:58:00	1.4	2.1	12	258
23/03/2024	21:59:00	1.6	2.0	12	250
23/03/2024	22:00:00	1.4	1.9	12	241
23/03/2024	22:01:00	1.4	2.0	12	246
23/03/2024	22:02:00	1.6	2.3	12	245
23/03/2024	22:03:00	1.7	2.5	12	242
23/03/2024	22:04:00	1.6	2.2	12	260
23/03/2024	22:05:00	1.7	2.2	12	249
23/03/2024	22:06:00	1.4	2.1	12	244
23/03/2024	22:07:00	1.6	2.6	12	256
23/03/2024	22:08:00	1.5	2.0	12	253
23/03/2024	22:09:00	1.3	1.9	12	250
23/03/2024	22:10:00	1.6	2.3	12	248
23/03/2024	22:11:00	1.5	2.1	12	250
23/03/2024	22:12:00	1.3	2.4	12	246
23/03/2024	22:13:00	1.6	2.5	12	248
23/03/2024	22:14:00	1.4	2.3	12	240
23/03/2024	22:15:00	1.5	2.0	12	257
23/03/2024	22:16:00	1.5	2.0	12	242
23/03/2024	22:17:00	1.4	2.0	12	240
23/03/2024	22:18:00	1.5	2.0	12	241

23/03/2024	22:19:00	1.5	2.2	12	248
23/03/2024	22:20:00	1.6	2.4	12	231
23/03/2024	22:21:00	1.6	2.2	12	228
23/03/2024	22:22:00	1.6	2.3	12	226
23/03/2024	22:23:00	1.4	1.9	12	209
23/03/2024	22:24:00	1.7	2.5	12	223
23/03/2024	22:25:00	1.5	2.6	12	228
23/03/2024	22:26:00	1.5	2.1	12	245
23/03/2024	22:27:00	1.4	2.3	12	237
23/03/2024	22:28:00	1.6	2.3	12	227
23/03/2024	22:29:00	1.5	2.1	12	243
23/03/2024	22:30:00	1.4	2.4	12	230
23/03/2024	22:31:00	1.5	2.4	12	246
23/03/2024	22:32:00	1.4	2.2	12	234
23/03/2024	22:33:00	1.7	2.2	12	227
23/03/2024	22:34:00	1.4	2.2	12	248
23/03/2024	22:35:00	1.4	2.1	12	231
23/03/2024	22:36:00	1.6	2.8	12	215
23/03/2024	22:37:00	1.6	2.3	12	239
23/03/2024	22:38:00	1.4	1.9	12	224
23/03/2024	22:39:00	1.7	2.1	12	226
23/03/2024	22:40:00	1.4	2.0	12	235
23/03/2024	22:41:00	1.7	2.3	12	235
23/03/2024	22:42:00	1.5	2.2	12	234
23/03/2024	22:43:00	1.6	2.3	12	234
23/03/2024	22:44:00	1.5	2.1	12	221
23/03/2024	22:45:00	1.4	2.1	12	240
23/03/2024	22:46:00	1.5	2.2	12	227
23/03/2024	22:47:00	1.3	1.9	12	253
23/03/2024	22:48:00	1.4	2.3	12	219
23/03/2024	22:49:00	1.4	1.8	12	202
23/03/2024	22:50:00	1.2	1.9	12	224
23/03/2024	22:51:00	1.2	2.1	12	227
23/03/2024	22:52:00	1.6	2.4	12	240
23/03/2024	22:53:00	1.4	2.0	12	220
23/03/2024	22:54:00	1.5	2.6	12	227
23/03/2024	22:55:00	1.4	2.0	12	244
23/03/2024	22:56:00	1.2	2.2	12	252
23/03/2024	22:57:00	1.3	2.2	12	242
23/03/2024	22:58:00	1.3	2.0	12	248
23/03/2024	22:59:00	1.6	2.2	12	205
23/03/2024	23:00:00	1.1	1.7	12	205
23/03/2024	23:01:00	1.6	2.0	12	203
23/03/2024	23:02:00	1.5	2.7	12	210
23/03/2024	23:03:00	1.5	2.4	12	196
23/03/2024	23:04:00	1.1	1.8	12	187

23/03/2024	23:05:00	1.5	2.4	12	201
23/03/2024	23:06:00	1.4	1.8	12	197
23/03/2024	23:07:00	1.5	1.9	12	197
23/03/2024	23:08:00	1.3	2.2	11	202
23/03/2024	23:09:00	1.5	2.1	11	205
23/03/2024	23:10:00	1.4	2.7	11	223
23/03/2024	23:11:00	1.7	2.9	11	203
23/03/2024	23:12:00	1.5	2.1	11	187
23/03/2024	23:13:00	1.5	2.1	11	201
23/03/2024	23:14:00	1.4	2.1	11	199
23/03/2024	23:15:00	1.2	2.5	11	197
23/03/2024	23:16:00	1.2	1.8	11	195
23/03/2024	23:17:00	1.3	1.8	11	205
23/03/2024	23:18:00	1.2	1.6	11	214
23/03/2024	23:19:00	1.3	1.9	11	213
23/03/2024	23:20:00	1.0	1.3	11	213
23/03/2024	23:21:00	1.1	1.9	11	209
23/03/2024	23:22:00	1.0	1.6	11	210
23/03/2024	23:23:00	1.2	1.5	11	214
23/03/2024	23:24:00	1.2	1.6	11	220
23/03/2024	23:25:00	1.0	1.4	11	219
23/03/2024	23:26:00	0.9	1.5	11	216
23/03/2024	23:27:00	1.0	1.4	11	224
23/03/2024	23:28:00	0.9	1.6	11	223
23/03/2024	23:29:00	1.2	2.1	11	211
23/03/2024	23:30:00	1.2	1.6	11	215
23/03/2024	23:31:00	1.1	1.7	11	221
23/03/2024	23:32:00	1.2	1.8	11	222
23/03/2024	23:33:00	1.1	1.6	11	233
23/03/2024	23:34:00	1.4	1.8	11	237
23/03/2024	23:35:00	1.0	1.6	11	236
23/03/2024	23:36:00	1.1	1.7	11	238
23/03/2024	23:37:00	1.0	1.3	11	238
23/03/2024	23:38:00	1.2	2.0	11	246
23/03/2024	23:39:00	1.2	1.8	11	240
23/03/2024	23:40:00	1.1	1.7	11	247
23/03/2024	23:41:00	1.2	1.8	11	234
23/03/2024	23:42:00	1.2	1.8	11	244
23/03/2024	23:43:00	1.2	1.7	11	243
23/03/2024	23:44:00	1.2	1.5	11	242
23/03/2024	23:45:00	1.1	1.3	10	244
23/03/2024	23:46:00	1.2	2.0	10	248
23/03/2024	23:47:00	1.4	1.9	10	252
23/03/2024	23:48:00	1.2	1.9	10	262
23/03/2024	23:49:00	1.4	1.9	10	250
23/03/2024	23:50:00	1.3	1.7	10	256

23/03/2024	23:51:00	1.5	1.9	10	257
23/03/2024	23:52:00	1.4	2.0	10	254
23/03/2024	23:53:00	1.3	1.7	10	256
23/03/2024	23:54:00	1.3	1.8	10	256
23/03/2024	23:55:00	1.5	1.9	10	261
23/03/2024	23:56:00	1.5	2.0	10	273
23/03/2024	23:57:00	1.3	1.8	10	274
23/03/2024	23:58:00	1.3	1.9	10	276
23/03/2024	23:59:00	1.5	1.9	10	284
24/03/2024	00:00:00	1.3	1.9	10	286
24/03/2024	00:01:00	1.4	2.0	10	286
24/03/2024	00:02:00	1.3	1.9	10	292
24/03/2024	00:03:00	1.3	1.7	10	284
24/03/2024	00:04:00	1.3	1.6	10	279
24/03/2024	00:05:00	1.2	1.4	10	292
24/03/2024	00:06:00	1.0	1.2	10	293
24/03/2024	00:07:00	1.1	1.4	10	282
24/03/2024	00:08:00	1.1	1.4	10	286
24/03/2024	00:09:00	1.2	1.6	10	274
24/03/2024	00:10:00	1.1	1.5	10	270
24/03/2024	00:11:00	1.0	1.3	10	273
24/03/2024	00:12:00	1.0	1.5	10	267
24/03/2024	00:13:00	1.1	1.6	10	264
24/03/2024	00:14:00	1.0	1.3	10	265
24/03/2024	00:15:00	1.0	1.5	10	256
24/03/2024	00:16:00	1.1	1.8	10	257
24/03/2024	00:17:00	1.1	1.9	10	256
24/03/2024	00:18:00	1.0	1.5	10	256
24/03/2024	00:19:00	1.1	1.7	10	233
24/03/2024	00:20:00	1.2	1.7	10	234
24/03/2024	00:21:00	1.1	1.6	10	225
24/03/2024	00:22:00	1.4	1.9	10	236
24/03/2024	00:23:00	1.4	1.9	10	241
24/03/2024	00:24:00	1.3	1.9	10	237
24/03/2024	00:25:00	1.3	1.8	10	249
24/03/2024	00:26:00	1.4	2.0	10	271
24/03/2024	00:27:00	1.1	1.7	10	258
24/03/2024	00:28:00	1.3	2.0	10	260
24/03/2024	00:29:00	1.2	1.7	10	264
24/03/2024	00:30:00	1.3	2.1	10	260
24/03/2024	00:31:00	1.2	1.9	10	260
24/03/2024	00:32:00	1.2	1.8	10	261
24/03/2024	00:33:00	1.3	1.8	10	260
24/03/2024	00:34:00	1.3	1.9	10	263
24/03/2024	00:35:00	1.4	1.8	10	261
24/03/2024	00:36:00	1.3	2.0	10	245

24/03/2024	00:37:00	1.1	1.8	10	245
24/03/2024	00:38:00	1.3	2.0	10	251
24/03/2024	00:39:00	1.4	2.2	10	263
24/03/2024	00:40:00	1.1	1.7	10	265
24/03/2024	00:41:00	1.4	1.8	10	264
24/03/2024	00:42:00	1.4	1.7	10	260
24/03/2024	00:43:00	1.3	1.9	10	264
24/03/2024	00:44:00	1.3	2.0	10	290
24/03/2024	00:45:00	1.4	1.9	10	266
24/03/2024	00:46:00	1.4	1.9	10	266
24/03/2024	00:47:00	1.6	2.3	10	272
24/03/2024	00:48:00	1.5	2.0	10	258
24/03/2024	00:49:00	1.3	1.9	10	248
24/03/2024	00:50:00	1.6	2.3	10	256
24/03/2024	00:51:00	1.6	2.5	10	252
24/03/2024	00:52:00	1.7	2.4	10	253
24/03/2024	00:53:00	1.4	1.8	10	254
24/03/2024	00:54:00	1.3	1.9	10	241
24/03/2024	00:55:00	1.2	1.7	10	244
24/03/2024	00:56:00	1.5	2.1	10	243
24/03/2024	00:57:00	1.4	2.0	10	250
24/03/2024	00:58:00	1.3	1.8	10	252
24/03/2024	00:59:00	1.5	2.1	10	247
24/03/2024	01:00:00	1.3	1.8	10	261
24/03/2024	01:01:00	1.5	2.3	10	270
24/03/2024	01:02:00	1.4	1.9	10	241
24/03/2024	01:03:00	1.3	1.8	10	228
24/03/2024	01:04:00	1.0	1.6	10	170
24/03/2024	01:05:00	1.0	1.3	10	307
24/03/2024	01:06:00	1.3	1.8	10	244
24/03/2024	01:07:00	1.1	1.7	10	248
24/03/2024	01:08:00	1.1	1.7	10	254
24/03/2024	01:09:00	1.2	1.8	10	257
24/03/2024	01:10:00	1.2	1.8	10	244
24/03/2024	01:11:00	1.2	2.0	10	233
24/03/2024	01:12:00	1.0	1.5	10	236
24/03/2024	01:13:00	1.2	1.6	10	230
24/03/2024	01:14:00	1.3	1.9	10	233
24/03/2024	01:15:00	1.3	1.8	10	246
24/03/2024	01:16:00	1.4	2.0	10	226
24/03/2024	01:17:00	1.1	1.5	10	225
24/03/2024	01:18:00	1.0	1.6	10	227
24/03/2024	01:19:00	1.4	2.1	10	223
24/03/2024	01:20:00	1.3	1.7	10	224
24/03/2024	01:21:00	1.4	2.0	10	241
24/03/2024	01:22:00	1.4	2.1	10	237

24/03/2024	01:23:00	1.4	2.0	10	259
24/03/2024	01:24:00	1.3	1.9	10	239
24/03/2024	01:25:00	1.3	2.0	10	264
24/03/2024	01:26:00	1.3	1.7	10	260
24/03/2024	01:27:00	1.2	1.6	10	245
24/03/2024	01:28:00	1.3	1.9	10	241
24/03/2024	01:29:00	1.1	1.7	10	249
24/03/2024	01:30:00	1.5	2.3	10	239
24/03/2024	01:31:00	1.6	2.2	10	239
24/03/2024	01:32:00	1.4	2.0	10	244
24/03/2024	01:33:00	1.6	2.1	10	246
24/03/2024	01:34:00	1.7	2.6	10	244
24/03/2024	01:35:00	1.5	2.1	10	239
24/03/2024	01:36:00	1.6	2.3	10	239
24/03/2024	01:37:00	1.6	2.3	10	234
24/03/2024	01:38:00	1.5	2.1	10	228
24/03/2024	01:39:00	1.5	2.3	10	233
24/03/2024	01:40:00	1.5	2.2	10	242
24/03/2024	01:41:00	1.9	2.7	10	249
24/03/2024	01:42:00	1.6	2.3	9	238
24/03/2024	01:43:00	1.6	2.4	9	243
24/03/2024	01:44:00	1.6	2.0	9	249
24/03/2024	01:45:00	1.5	2.4	9	235
24/03/2024	01:46:00	1.3	2.0	9	240
24/03/2024	01:47:00	1.5	2.0	9	237
24/03/2024	01:48:00	1.4	2.3	9	231
24/03/2024	01:49:00	1.5	1.9	9	246
24/03/2024	01:50:00	1.5	2.1	9	246
24/03/2024	01:51:00	1.4	2.0	9	252
24/03/2024	01:52:00	1.5	2.3	9	239
24/03/2024	01:53:00	1.5	2.0	9	229
24/03/2024	01:54:00	1.3	1.7	9	237
24/03/2024	01:55:00	1.2	1.9	9	235
24/03/2024	01:56:00	1.4	2.0	9	237
24/03/2024	01:57:00	1.3	1.8	9	242
24/03/2024	01:58:00	1.4	1.9	9	255
24/03/2024	01:59:00	1.5	2.1	9	247
24/03/2024	02:00:00	1.5	2.1	9	235
24/03/2024	02:01:00	1.5	2.2	9	238
24/03/2024	02:02:00	1.5	2.1	9	253
24/03/2024	02:03:00	1.5	1.9	9	223
24/03/2024	02:04:00	1.6	2.2	9	240
24/03/2024	02:05:00	1.3	2.2	9	247
24/03/2024	02:06:00	1.3	1.9	9	226
24/03/2024	02:07:00	1.4	2.0	9	228
24/03/2024	02:08:00	1.5	2.2	9	223

24/03/2024	02:09:00	1.6	2.6	9	232
24/03/2024	02:10:00	1.5	2.2	9	227
24/03/2024	02:11:00	1.5	2.0	9	213
24/03/2024	02:12:00	1.6	2.2	9	214
24/03/2024	02:13:00	1.5	2.4	9	233
24/03/2024	02:14:00	1.4	1.9	9	231
24/03/2024	02:15:00	1.2	1.8	9	265
24/03/2024	02:16:00	1.3	1.9	9	224
24/03/2024	02:17:00	1.5	2.1	9	223
24/03/2024	02:18:00	1.3	1.7	9	221
24/03/2024	02:19:00	1.3	2.0	9	230
24/03/2024	02:20:00	1.3	1.8	9	229
24/03/2024	02:21:00	1.2	1.6	9	226
24/03/2024	02:22:00	1.3	2.1	9	233
24/03/2024	02:23:00	1.2	1.9	9	200
24/03/2024	02:24:00	1.2	2.0	9	159
24/03/2024	02:25:00	1.4	1.7	9	207
24/03/2024	02:26:00	1.1	1.8	9	217
24/03/2024	02:27:00	1.5	2.6	9	229
24/03/2024	02:28:00	1.2	1.7	9	229
24/03/2024	02:29:00	1.4	1.9	9	230
24/03/2024	02:30:00	1.2	1.7	9	236
24/03/2024	02:31:00	1.2	1.8	9	232
24/03/2024	02:32:00	1.2	1.8	9	228
24/03/2024	02:33:00	1.2	1.9	9	225
24/03/2024	02:34:00	1.0	1.5	9	228
24/03/2024	02:35:00	1.2	1.6	9	226
24/03/2024	02:36:00	1.2	1.9	9	236
24/03/2024	02:37:00	1.3	1.9	9	237
24/03/2024	02:38:00	1.3	1.8	9	236
24/03/2024	02:39:00	1.4	1.9	9	236
24/03/2024	02:40:00	1.2	1.9	9	230
24/03/2024	02:41:00	1.2	1.8	9	278
24/03/2024	02:42:00	1.1	1.5	9	279
24/03/2024	02:43:00	1.2	1.9	9	258
24/03/2024	02:44:00	1.1	1.6	9	245
24/03/2024	02:45:00	1.2	1.7	9	243
24/03/2024	02:46:00	1.3	1.8	9	243
24/03/2024	02:47:00	1.2	1.6	9	238
24/03/2024	02:48:00	1.3	1.9	9	248
24/03/2024	02:49:00	1.2	2.2	9	243
24/03/2024	02:50:00	0.9	1.5	9	241
24/03/2024	02:51:00	1.3	1.8	9	237
24/03/2024	02:52:00	1.2	1.7	9	239
24/03/2024	02:53:00	1.2	1.7	9	242
24/03/2024	02:54:00	1.1	1.5	9	236

24/03/2024	02:55:00	1.2	1.7	9	233
24/03/2024	02:56:00	1.1	1.4	9	237
24/03/2024	02:57:00	1.2	1.9	9	231
24/03/2024	02:58:00	1.1	1.7	9	242
24/03/2024	02:59:00	0.9	1.4	9	243
24/03/2024	03:00:00	1.1	1.5	8	243
24/03/2024	03:01:00	1.0	1.6	8	233
24/03/2024	03:02:00	1.1	1.6	8	241
24/03/2024	03:03:00	1.3	1.9	8	242
24/03/2024	03:04:00	1.3	1.8	8	232
24/03/2024	03:05:00	1.1	1.5	8	250
24/03/2024	03:06:00	1.2	1.7	8	236
24/03/2024	03:07:00	1.3	1.7	8	238
24/03/2024	03:08:00	1.3	1.8	8	244
24/03/2024	03:09:00	0.9	1.2	8	239
24/03/2024	03:10:00	1.1	1.5	8	235
24/03/2024	03:11:00	1.2	1.9	8	231
24/03/2024	03:12:00	1.1	1.6	8	234
24/03/2024	03:13:00	1.3	1.6	8	242
24/03/2024	03:14:00	1.0	1.7	8	245
24/03/2024	03:15:00	1.0	1.4	8	238
24/03/2024	03:16:00	0.9	1.6	8	238
24/03/2024	03:17:00	1.2	1.7	8	242
24/03/2024	03:18:00	1.0	1.7	8	235
24/03/2024	03:19:00	1.3	1.9	8	240
24/03/2024	03:20:00	1.2	1.8	8	243
24/03/2024	03:21:00	1.0	1.5	8	241
24/03/2024	03:22:00	1.3	1.7	8	238
24/03/2024	03:23:00	1.2	1.8	8	247
24/03/2024	03:24:00	1.1	1.7	8	226
24/03/2024	03:25:00	1.3	1.7	8	230
24/03/2024	03:26:00	1.3	1.7	8	231
24/03/2024	03:27:00	1.2	1.6	8	232
24/03/2024	03:28:00	1.2	1.7	8	232
24/03/2024	03:29:00	1.2	1.8	8	231
24/03/2024	03:30:00	1.0	1.2	8	232
24/03/2024	03:31:00	1.3	1.7	8	231
24/03/2024	03:32:00	1.0	1.6	8	233
24/03/2024	03:33:00	1.1	1.4	8	234
24/03/2024	03:34:00	1.2	1.6	8	239
24/03/2024	03:35:00	1.2	1.6	8	231
24/03/2024	03:36:00	1.0	1.5	8	235
24/03/2024	03:37:00	1.1	1.4	8	229
24/03/2024	03:38:00	1.1	1.8	8	238
24/03/2024	03:39:00	1.3	1.9	8	235
24/03/2024	03:40:00	1.1	1.7	8	233

24/03/2024	03:41:00	1.4	1.7	8	232
24/03/2024	03:42:00	1.2	1.7	8	233
24/03/2024	03:43:00	1.2	1.7	8	234
24/03/2024	03:44:00	1.0	1.7	8	236
24/03/2024	03:45:00	1.3	1.8	8	228
24/03/2024	03:46:00	1.3	1.9	8	220
24/03/2024	03:47:00	1.3	1.8	8	223
24/03/2024	03:48:00	1.4	2.0	8	217
24/03/2024	03:49:00	1.1	1.5	8	218
24/03/2024	03:50:00	1.4	2.0	8	215
24/03/2024	03:51:00	1.1	1.5	8	221
24/03/2024	03:52:00	1.2	2.3	8	216
24/03/2024	03:53:00	1.4	2.1	8	213
24/03/2024	03:54:00	1.4	1.9	8	212
24/03/2024	03:55:00	1.3	1.9	8	212
24/03/2024	03:56:00	1.4	1.8	8	213
24/03/2024	03:57:00	1.5	2.3	8	214
24/03/2024	03:58:00	1.2	2.0	8	217
24/03/2024	03:59:00	1.3	1.8	8	218
24/03/2024	04:00:00	1.1	1.6	8	225
24/03/2024	04:01:00	1.3	1.7	8	223
24/03/2024	04:02:00	1.2	1.8	8	226
24/03/2024	04:03:00	1.3	1.6	8	223
24/03/2024	04:04:00	1.2	1.8	8	229
24/03/2024	04:05:00	1.2	1.7	8	234
24/03/2024	04:06:00	1.2	1.8	8	230
24/03/2024	04:07:00	1.1	1.6	8	224
24/03/2024	04:08:00	1.3	2.0	8	234
24/03/2024	04:09:00	1.2	1.6	8	226
24/03/2024	04:10:00	1.1	1.6	8	223
24/03/2024	04:11:00	1.3	1.7	8	235
24/03/2024	04:12:00	1.1	1.4	8	236
24/03/2024	04:13:00	1.2	1.5	8	240
24/03/2024	04:14:00	1.3	1.7	8	237
24/03/2024	04:15:00	1.2	1.7	8	237
24/03/2024	04:16:00	1.0	1.5	8	232
24/03/2024	04:17:00	1.2	1.7	8	237
24/03/2024	04:18:00	1.2	1.5	8	239
24/03/2024	04:19:00	1.4	1.7	8	242
24/03/2024	04:20:00	1.1	1.6	8	263
24/03/2024	04:21:00	1.2	1.9	8	228
24/03/2024	04:22:00	0.9	1.4	8	220
24/03/2024	04:23:00	1.0	1.5	8	221
24/03/2024	04:24:00	1.0	1.8	8	221
24/03/2024	04:25:00	1.1	1.6	8	226
24/03/2024	04:26:00	1.0	1.4	8	218

24/03/2024	04:27:00	1.1	1.4	8	225
24/03/2024	04:28:00	1.3	1.7	8	220
24/03/2024	04:29:00	1.0	1.5	8	222
24/03/2024	04:30:00	0.6	1.3	8	216
24/03/2024	04:31:00	1.0	1.4	8	217
24/03/2024	04:32:00	0.9	1.3	8	218
24/03/2024	04:33:00	0.9	1.4	8	215
24/03/2024	04:34:00	0.9	1.3	8	218
24/03/2024	04:35:00	1.0	1.4	8	218
24/03/2024	04:36:00	1.0	1.5	8	221
24/03/2024	04:37:00	1.1	1.7	8	216
24/03/2024	04:38:00	1.3	1.8	8	258
24/03/2024	04:39:00	1.2	1.7	8	269
24/03/2024	04:40:00	1.2	2.0	8	271
24/03/2024	04:41:00	1.1	1.7	8	268
24/03/2024	04:42:00	0.9	1.3	8	262
24/03/2024	04:43:00	0.8	1.3	8	267
24/03/2024	04:44:00	1.1	1.7	8	256
24/03/2024	04:45:00	0.9	1.4	8	256
24/03/2024	04:46:00	1.1	1.4	8	267
24/03/2024	04:47:00	0.7	1.3	8	267
24/03/2024	04:48:00	0.9	1.5	8	268
24/03/2024	04:49:00	1.0	1.4	8	267
24/03/2024	04:50:00	0.9	1.3	8	267
24/03/2024	04:51:00	1.1	1.6	8	267
24/03/2024	04:52:00	1.0	1.4	8	267
24/03/2024	04:53:00	1.1	1.4	8	266
24/03/2024	04:54:00	1.0	1.6	8	263
24/03/2024	04:55:00	1.2	1.6	8	249
24/03/2024	04:56:00	1.1	1.6	8	246
24/03/2024	04:57:00	1.1	1.6	8	240
24/03/2024	04:58:00	1.1	1.4	8	243
24/03/2024	04:59:00	0.9	1.3	8	249
24/03/2024	05:00:00	1.2	1.6	8	245
24/03/2024	05:01:00	1.1	1.5	8	238
24/03/2024	05:02:00	0.8	1.6	8	244
24/03/2024	05:03:00	1.1	1.5	8	252
24/03/2024	05:04:00	0.8	1.1	8	267
24/03/2024	05:05:00	0.9	1.1	8	266
24/03/2024	05:06:00	1.0	1.2	8	266
24/03/2024	05:07:00	1.0	1.3	8	261
24/03/2024	05:08:00	1.0	1.4	8	266
24/03/2024	05:09:00	0.8	1.5	8	266
24/03/2024	05:10:00	1.0	1.3	8	263
24/03/2024	05:11:00	1.2	1.8	8	245
24/03/2024	05:12:00	1.3	1.7	8	243

24/03/2024	05:13:00	1.0	1.6	8	256
24/03/2024	05:14:00	1.0	1.5	8	305
24/03/2024	05:15:00	1.1	1.5	8	301
24/03/2024	05:16:00	1.0	1.6	8	300
24/03/2024	05:17:00	1.0	1.5	8	307
24/03/2024	05:18:00	1.0	1.4	8	303
24/03/2024	05:19:00	1.0	1.6	8	303
24/03/2024	05:20:00	1.0	1.4	8	309
24/03/2024	05:21:00	1.0	1.3	8	297
24/03/2024	05:22:00	0.9	1.4	8	297
24/03/2024	05:23:00	1.1	1.5	8	285
24/03/2024	05:24:00	1.2	1.5	8	282
24/03/2024	05:25:00	1.0	1.6	8	277
24/03/2024	05:26:00	0.8	1.2	8	282
24/03/2024	05:27:00	1.3	1.7	8	269
24/03/2024	05:28:00	1.1	1.6	8	268
24/03/2024	05:29:00	0.8	1.2	8	268
24/03/2024	05:30:00	0.9	1.6	8	268
24/03/2024	05:31:00	1.1	1.5	8	271
24/03/2024	05:32:00	1.2	1.6	8	269
24/03/2024	05:33:00	1.3	1.7	8	259
24/03/2024	05:34:00	1.0	1.7	8	258
24/03/2024	05:35:00	1.2	1.7	8	261
24/03/2024	05:36:00	1.3	1.9	8	246
24/03/2024	05:37:00	1.2	1.7	8	245
24/03/2024	05:38:00	1.1	1.7	8	244
24/03/2024	05:39:00	1.4	2.0	8	232
24/03/2024	05:40:00	1.3	1.8	8	232
24/03/2024	05:41:00	1.3	1.8	8	233
24/03/2024	05:42:00	1.1	1.8	8	234
24/03/2024	05:43:00	1.0	1.5	8	230
24/03/2024	05:44:00	1.2	1.7	8	222
24/03/2024	05:45:00	1.2	1.6	8	235
24/03/2024	05:46:00	1.1	2.0	8	232
24/03/2024	05:47:00	1.0	1.6	8	237
24/03/2024	05:48:00	1.4	1.7	8	232
24/03/2024	05:49:00	1.2	1.9	8	235
24/03/2024	05:50:00	1.2	1.5	8	239
24/03/2024	05:51:00	1.2	1.9	8	237
24/03/2024	05:52:00	1.4	1.9	8	228
24/03/2024	05:53:00	1.2	1.8	8	235
24/03/2024	05:54:00	1.0	1.3	8	259
24/03/2024	05:55:00	1.4	2.0	8	243
24/03/2024	05:56:00	0.9	1.4	8	244
24/03/2024	05:57:00	1.3	1.8	8	241
24/03/2024	05:58:00	1.3	1.8	8	242

24/03/2024	05:59:00	1.2	1.7	8	242
24/03/2024	06:00:00	1.0	1.6	8	244
24/03/2024	06:01:00	1.1	1.6	8	244
24/03/2024	06:02:00	0.9	1.3	8	243
24/03/2024	06:03:00	0.9	1.4	8	244
24/03/2024	06:04:00	1.0	1.4	8	244
24/03/2024	06:05:00	1.0	1.6	8	244
24/03/2024	06:06:00	1.1	1.7	8	244
24/03/2024	06:07:00	0.9	1.7	8	244
24/03/2024	06:08:00	1.1	1.7	8	243
24/03/2024	06:09:00	1.2	1.5	8	244
24/03/2024	06:10:00	0.9	1.5	8	244
24/03/2024	06:11:00	1.0	1.4	8	244
24/03/2024	06:12:00	0.9	1.2	8	244
24/03/2024	06:13:00	1.1	1.4	8	246
24/03/2024	06:14:00	1.1	1.5	8	244
24/03/2024	06:15:00	1.4	1.8	8	254
24/03/2024	06:16:00	1.3	1.6	8	240
24/03/2024	06:17:00	1.2	1.6	8	190
24/03/2024	06:18:00	1.1	1.6	8	210
24/03/2024	06:19:00	1.2	1.9	8	220
24/03/2024	06:20:00	1.5	1.9	8	234
24/03/2024	06:21:00	1.4	2.0	8	243
24/03/2024	06:22:00	1.4	1.9	8	245
24/03/2024	06:23:00	1.2	1.6	8	244
24/03/2024	06:24:00	1.2	1.6	8	268
24/03/2024	06:25:00	1.1	1.5	8	282
24/03/2024	06:26:00	1.3	1.9	8	280
24/03/2024	06:27:00	1.1	1.6	8	263
24/03/2024	06:28:00	1.5	1.9	8	265
24/03/2024	06:29:00	1.3	1.7	8	248
24/03/2024	06:30:00	1.1	1.4	8	263
24/03/2024	06:31:00	1.2	1.9	8	271
24/03/2024	06:32:00	1.4	1.7	8	245
24/03/2024	06:33:00	1.2	1.6	8	245
24/03/2024	06:34:00	1.0	1.6	8	251
24/03/2024	06:35:00	1.1	1.4	8	252
24/03/2024	06:36:00	1.0	1.5	7	250
24/03/2024	06:37:00	1.1	1.5	7	248
24/03/2024	06:38:00	1.1	1.8	7	253
24/03/2024	06:39:00	1.2	1.5	7	244
24/03/2024	06:40:00	1.1	1.4	7	242
24/03/2024	06:41:00	1.1	1.5	7	243
24/03/2024	06:42:00	1.2	1.6	7	249
24/03/2024	06:43:00	1.1	1.6	7	253
24/03/2024	06:44:00	0.9	1.3	7	246

24/03/2024	06:45:00	0.9	1.2	7	238
24/03/2024	06:46:00	1.2	1.7	7	243
24/03/2024	06:47:00	1.2	1.7	7	249
24/03/2024	06:48:00	1.0	1.6	7	247
24/03/2024	06:49:00	1.2	1.6	7	243
24/03/2024	06:50:00	1.1	1.6	7	240
24/03/2024	06:51:00	1.1	1.7	7	237
24/03/2024	06:52:00	0.9	1.7	7	240
24/03/2024	06:53:00	1.3	1.9	7	245
24/03/2024	06:54:00	1.2	1.8	7	239
24/03/2024	06:55:00	1.2	1.8	7	263
24/03/2024	06:56:00	1.2	1.7	7	262
24/03/2024	06:57:00	1.4	1.8	7	239
24/03/2024	06:58:00	1.0	1.5	7	239
24/03/2024	06:59:00	1.3	1.8	7	242
24/03/2024	07:00:00	1.5	1.8	7	261
24/03/2024	07:01:00	1.3	2.1	7	266
24/03/2024	07:02:00	1.3	1.9	7	246
24/03/2024	07:03:00	1.4	1.9	7	251
24/03/2024	07:04:00	1.2	1.6	7	254
24/03/2024	07:05:00	1.4	1.8	7	254
24/03/2024	07:06:00	1.2	1.7	7	258
24/03/2024	07:07:00	1.4	1.9	7	252
24/03/2024	07:08:00	1.2	1.7	7	250
24/03/2024	07:09:00	1.3	1.7	7	250
24/03/2024	07:10:00	1.4	1.9	7	258
24/03/2024	07:11:00	1.1	1.7	7	258
24/03/2024	07:12:00	1.3	1.8	7	257
24/03/2024	07:13:00	1.3	1.9	7	256
24/03/2024	07:14:00	1.5	2.0	7	260
24/03/2024	07:15:00	1.5	1.8	7	258
24/03/2024	07:16:00	1.5	2.0	7	258
24/03/2024	07:17:00	1.2	1.6	7	244
24/03/2024	07:18:00	1.2	1.7	7	255
24/03/2024	07:19:00	1.3	2.1	7	275
24/03/2024	07:20:00	1.6	2.3	7	258
24/03/2024	07:21:00	1.4	2.0	7	260
24/03/2024	07:22:00	1.4	1.8	7	257
24/03/2024	07:23:00	1.5	2.2	7	253
24/03/2024	07:24:00	1.6	2.3	7	249
24/03/2024	07:25:00	1.6	2.3	7	252
24/03/2024	07:26:00	1.4	1.7	7	248
24/03/2024	07:27:00	1.3	2.0	7	240
24/03/2024	07:28:00	1.4	2.1	7	242
24/03/2024	07:29:00	1.6	2.4	7	242
24/03/2024	07:30:00	1.5	2.0	7	238

24/03/2024	07:31:00	1.1	1.5	7	241
24/03/2024	07:32:00	1.5	1.9	7	238
24/03/2024	07:33:00	1.5	1.9	7	237
24/03/2024	07:34:00	1.3	1.6	8	237
24/03/2024	07:35:00	1.2	1.6	8	237
24/03/2024	07:36:00	1.2	1.7	8	237
24/03/2024	07:37:00	1.2	1.6	8	237
24/03/2024	07:38:00	1.2	1.8	8	237
24/03/2024	07:39:00	1.4	2.0	8	244
24/03/2024	07:40:00	1.2	1.7	8	245
24/03/2024	07:41:00	1.4	1.8	8	241
24/03/2024	07:42:00	1.3	1.7	8	238
24/03/2024	07:43:00	1.3	2.1	8	236
24/03/2024	07:44:00	1.3	2.0	8	260
24/03/2024	07:45:00	1.3	2.1	8	244
24/03/2024	07:46:00	1.8	2.8	8	238
24/03/2024	07:47:00	1.3	2.1	8	221
24/03/2024	07:48:00	1.2	1.8	8	227
24/03/2024	07:49:00	1.5	2.2	8	221
24/03/2024	07:50:00	1.7	2.4	8	209
24/03/2024	07:51:00	1.3	2.3	8	212
24/03/2024	07:52:00	1.3	2.1	8	214
24/03/2024	07:53:00	1.5	2.3	8	219
24/03/2024	07:54:00	1.5	2.0	8	217
24/03/2024	07:55:00	1.5	2.0	8	207
24/03/2024	07:56:00	1.2	1.7	8	165
24/03/2024	07:57:00	1.5	1.9	8	176
24/03/2024	07:58:00	1.5	2.3	8	223
24/03/2024	07:59:00	1.6	2.4	8	245
24/03/2024	08:00:00	2.1	2.5	8	240
24/03/2024	08:01:00	1.9	3.1	8	206
24/03/2024	08:02:00	2.0	2.6	8	253
24/03/2024	08:03:00	1.5	2.3	8	226
24/03/2024	08:04:00	1.4	1.8	8	244
24/03/2024	08:05:00	1.3	1.8	8	242
24/03/2024	08:06:00	1.5	2.1	8	229
24/03/2024	08:07:00	1.6	2.6	8	226
24/03/2024	08:08:00	1.7	2.6	8	240
24/03/2024	08:09:00	1.4	2.1	8	215
24/03/2024	08:10:00	1.9	3.0	8	224
24/03/2024	08:11:00	1.6	2.3	8	212
24/03/2024	08:12:00	1.7	2.9	8	238
24/03/2024	08:13:00	1.9	2.7	8	213
24/03/2024	08:14:00	2.0	3.0	8	214
24/03/2024	08:15:00	1.5	2.1	8	201
24/03/2024	08:16:00	1.7	2.3	9	206

24/03/2024	08:17:00	1.9	2.9	9	209
24/03/2024	08:18:00	1.4	1.9	9	209
24/03/2024	08:19:00	1.4	2.3	9	198
24/03/2024	08:20:00	1.5	2.2	9	195
24/03/2024	08:21:00	1.8	2.5	9	219
24/03/2024	08:22:00	1.7	2.7	9	233
24/03/2024	08:23:00	1.5	2.2	9	228
24/03/2024	08:24:00	1.3	2.6	9	176
24/03/2024	08:25:00	1.3	2.0	9	197
24/03/2024	08:26:00	1.8	3.0	9	214
24/03/2024	08:27:00	1.9	2.9	9	167
24/03/2024	08:28:00	1.8	2.8	9	194
24/03/2024	08:29:00	1.9	3.1	9	246
24/03/2024	08:30:00	2.0	3.3	10	218
24/03/2024	08:31:00	1.8	2.6	10	201
24/03/2024	08:32:00	1.5	2.2	10	171
24/03/2024	08:33:00	1.6	2.3	10	185
24/03/2024	08:34:00	1.6	2.3	10	195
24/03/2024	08:35:00	1.4	2.3	10	166
24/03/2024	08:36:00	1.4	2.6	10	172
24/03/2024	08:37:00	1.7	2.7	10	182
24/03/2024	08:38:00	1.7	2.5	10	174
24/03/2024	08:39:00	1.3	2.1	10	193
24/03/2024	08:40:00	1.6	2.3	10	195
24/03/2024	08:41:00	1.6	2.4	10	178
24/03/2024	08:42:00	1.4	2.7	10	172
24/03/2024	08:43:00	1.5	2.3	10	197
24/03/2024	08:44:00	1.7	2.4	10	180
24/03/2024	08:45:00	1.6	2.3	11	165
24/03/2024	08:46:00	1.8	2.2	11	184
24/03/2024	08:47:00	1.4	2.1	11	173
24/03/2024	08:48:00	1.6	2.4	11	178
24/03/2024	08:49:00	1.5	2.3	11	166
24/03/2024	08:50:00	1.5	1.9	11	165
24/03/2024	08:51:00	1.3	1.7	11	177
24/03/2024	08:52:00	1.4	2.2	11	189
24/03/2024	08:53:00	1.3	2.4	11	209
24/03/2024	08:54:00	1.4	2.3	11	177
24/03/2024	08:55:00	1.5	2.8	11	186
24/03/2024	08:56:00	1.5	2.7	11	200
24/03/2024	08:57:00	1.5	2.4	11	173
24/03/2024	08:58:00	1.5	2.5	11	173
24/03/2024	08:59:00	1.4	1.9	12	174
24/03/2024	09:00:00	1.7	2.6	12	195
24/03/2024	09:01:00	1.7	2.4	12	157
24/03/2024	09:02:00	1.5	1.9	12	166

24/03/2024	09:03:00	1.5	2.0	12	168
24/03/2024	09:04:00	1.4	1.9	12	168
24/03/2024	09:05:00	1.5	2.2	12	167
24/03/2024	09:06:00	1.4	2.3	12	173
24/03/2024	09:07:00	1.4	2.5	12	183
24/03/2024	09:08:00	1.3	2.1	12	167
24/03/2024	09:09:00	1.6	2.4	12	169
24/03/2024	09:10:00	1.5	2.2	12	215
24/03/2024	09:11:00	1.5	2.1	12	168
24/03/2024	09:12:00	1.3	2.2	12	178
24/03/2024	09:13:00	1.5	2.4	12	161
24/03/2024	09:14:00	1.7	2.7	12	169
24/03/2024	09:15:00	1.6	2.4	12	189
24/03/2024	09:16:00	1.4	1.9	12	197
24/03/2024	09:17:00	1.6	2.1	12	179
24/03/2024	09:18:00	1.6	2.3	12	161
24/03/2024	09:19:00	1.9	2.8	13	169
24/03/2024	09:20:00	1.6	2.1	13	164
24/03/2024	09:21:00	1.7	2.3	13	161
24/03/2024	09:22:00	1.7	2.2	13	193
24/03/2024	09:23:00	1.5	2.3	13	184
24/03/2024	09:24:00	1.4	2.3	13	178
24/03/2024	09:25:00	1.4	2.5	13	172
24/03/2024	09:26:00	1.4	2.0	13	188
24/03/2024	09:27:00	1.6	2.3	13	192
24/03/2024	09:28:00	1.5	2.2	13	173
24/03/2024	09:29:00	1.6	3.2	13	199
24/03/2024	09:30:00	1.6	3.1	13	179
24/03/2024	09:31:00	1.6	2.5	13	162
24/03/2024	09:32:00	1.6	2.1	13	164
24/03/2024	09:33:00	1.5	2.1	13	166
24/03/2024	09:34:00	1.3	2.1	13	196
24/03/2024	09:35:00	1.4	2.1	13	183
24/03/2024	09:36:00	1.8	2.7	13	157
24/03/2024	09:37:00	1.7	2.5	13	169
24/03/2024	09:38:00	1.6	2.5	13	176
24/03/2024	09:39:00	1.5	2.1	13	175
24/03/2024	09:40:00	1.7	2.4	13	170
24/03/2024	09:41:00	1.6	2.3	13	188
24/03/2024	09:42:00	1.4	2.0	13	164
24/03/2024	09:43:00	1.2	2.4	13	161
24/03/2024	09:44:00	1.5	2.3	13	179
24/03/2024	09:45:00	1.6	2.1	13	183
24/03/2024	09:46:00	1.6	2.5	13	182
24/03/2024	09:47:00	1.6	2.3	13	182
24/03/2024	09:48:00	2.0	2.9	14	177

24/03/2024	09:49:00	1.8	2.8	14	166
24/03/2024	09:50:00	1.7	2.6	14	165
24/03/2024	09:51:00	1.4	2.0	14	189
24/03/2024	09:52:00	1.4	2.0	14	175
24/03/2024	09:53:00	1.4	2.1	14	181
24/03/2024	09:54:00	1.5	2.1	14	174
24/03/2024	09:55:00	1.4	2.3	14	168
24/03/2024	09:56:00	1.2	1.9	14	192
24/03/2024	09:57:00	1.3	2.1	14	176
24/03/2024	09:58:00	1.5	2.1	14	186
24/03/2024	09:59:00	1.5	2.0	14	180
24/03/2024	10:00:00	1.7	2.3	14	186
24/03/2024	10:01:00	1.6	2.2	14	190
24/03/2024	10:02:00	1.7	2.4	14	184
24/03/2024	10:03:00	1.6	2.2	14	170
24/03/2024	10:04:00	1.5	2.2	14	187
24/03/2024	10:05:00	1.6	2.5	14	193
24/03/2024	10:06:00	1.6	2.2	14	179
24/03/2024	10:07:00	1.6	2.2	14	180
24/03/2024	10:08:00	1.5	2.1	14	182
24/03/2024	10:09:00	1.6	2.4	14	184
24/03/2024	10:10:00	1.6	2.2	15	177
24/03/2024	10:11:00	1.5	2.3	15	167
24/03/2024	10:12:00	1.4	2.0	15	155
24/03/2024	10:13:00	1.3	1.9	15	176
24/03/2024	10:14:00	1.5	2.1	15	174
24/03/2024	10:15:00	1.5	2.2	15	152
24/03/2024	10:16:00	1.4	2.1	15	173
24/03/2024	10:17:00	1.3	2.2	15	188
24/03/2024	10:18:00	1.5	2.2	15	206
24/03/2024	10:19:00	1.4	2.2	15	166
24/03/2024	10:20:00	1.5	2.0	15	164
24/03/2024	10:21:00	1.5	2.3	15	158
24/03/2024	10:22:00	1.2	1.9	15	169
24/03/2024	10:23:00	1.3	1.8	15	174
24/03/2024	10:24:00	1.2	1.9	15	171
24/03/2024	10:25:00	1.2	1.7	15	207

Data for N 5 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/23/2024	10:51:42	48.6	76.4	76.4	34.6	48.9	38.5
3/23/2024	11:01:42	44.1	71.9	55.2	36.2	46.8	39.6
3/23/2024	11:11:42	45.9	73.7	57.1	35.9	49.3	39.4
3/23/2024	11:21:42	43.5	71.3	53	35.7	46.5	38.7

3/23/2024	11:31:42	43.3	71.1	53.8	34.8	46.5	37.6
3/23/2024	11:41:42	49.4	77.2	77.9	34.7	46.9	38.2
3/23/2024	11:51:42	46.3	74.1	56.2	33.4	50.2	38.2
3/23/2024	12:01:42	45.6	73.4	55.4	34.4	49.8	38.5
3/23/2024	12:11:42	43.6	71.4	56.6	33.3	46.2	37.3
3/23/2024	12:21:42	47.1	74.9	72.9	33.3	47.6	37.9
3/23/2024	12:31:42	45.2	73	57.9	35.9	48	39.8
3/23/2024	12:41:42	45.3	73.1	57.6	32.1	49.7	36.5
3/23/2024	12:51:42	45.1	72.9	60.6	29.4	49	35.5
3/23/2024	13:01:42	44.6	72.4	66.4	32.9	47.6	38
3/23/2024	13:11:42	46	73.8	73.3	32.6	47.9	36.9
3/23/2024	13:21:42	43.6	71.4	55.6	30.9	47.1	35.6
3/23/2024	13:31:42	44.3	72.1	57.4	30.6	48.3	34.1
3/23/2024	13:41:42	42.4	70.2	56.6	30.2	46.4	35.2
3/23/2024	13:51:42	43.1	70.9	61	29.7	46.5	34.4
3/23/2024	14:01:42	44.6	72.4	59	31.7	47.9	35.7
3/23/2024	14:11:42	43.8	71.6	56.2	31.8	47.6	36.2
3/23/2024	14:21:42	44.2	72	56.4	30.1	47.9	34.1
3/23/2024	14:31:42	41.7	69.5	56.8	27.9	44.5	31.8
3/23/2024	14:41:42	43.1	70.9	57.1	28.9	47	33.2
3/23/2024	14:51:42	43.6	71.4	55.3	31.4	47.4	36.7
3/23/2024	15:01:42	43.3	71.1	57.2	26.5	46.3	33.1
3/23/2024	15:11:42	43.5	71.3	59	28.9	46.4	33.3
3/23/2024	15:21:42	41.8	69.6	59.7	31	44.6	34.5
3/23/2024	15:31:42	45.6	73.4	61.6	29.7	49.6	34.3
3/23/2024	15:41:42	42.6	70.4	59.7	30.9	47	34.1
3/23/2024	15:51:42	46.2	74	68.4	27.8	49.6	33.7
3/23/2024	16:01:42	45	72.8	61	29.2	49.5	32.1
3/23/2024	16:11:42	43.4	71.2	55.8	32.4	47.4	35.8
3/23/2024	16:21:42	42.6	70.4	54.6	32	46.3	35.1
3/23/2024	16:31:42	44	71.8	57.5	28	48.1	34.2
3/23/2024	16:41:42	45.3	73.1	55.4	32.2	49.1	37.9
3/23/2024	16:51:42	41.7	69.5	57.4	29.2	43.7	34.7
3/23/2024	17:01:42	43.5	71.3	53.5	34.7	47	36.9
3/23/2024	17:11:42	43.2	71	55.4	33.3	46.8	36.9
3/23/2024	17:21:42	44.3	72.1	55	33.1	47.9	37.2
3/23/2024	17:31:42	44.6	72.4	57.5	30.5	48.5	36.3
3/23/2024	17:41:42	44.6	72.4	54.9	33.6	48.1	38
3/23/2024	17:51:42	44	71.8	53.8	34.7	47.4	38
3/23/2024	18:01:42	44.8	72.6	56.7	31.9	48.5	36.2
3/23/2024	18:11:42	42.4	70.2	55.3	31	45.8	34.5
3/23/2024	18:21:42	45.3	73.1	60.8	27.9	48.5	33.6
3/23/2024	18:31:42	42.9	70.7	57.4	32.6	46	35.8
3/23/2024	18:41:42	43.6	71.4	58.2	31.7	47.3	35
3/23/2024	18:51:42	42.8	70.6	56.7	28.5	46.3	34.1
3/23/2024	19:01:42	44.8	72.6	55.7	30.3	49.1	33.4

3/23/2024	19:11:42	45.9	73.7	59	31.2	50	36.3
3/23/2024	19:21:42	46.2	74	71.7	26	48.7	32.2
3/23/2024	19:31:42	39.6	67.4	55.2	23.4	42.3	27.8
3/23/2024	19:41:42	41.3	69.1	56.2	23.2	44.7	29
3/23/2024	19:51:42	40.4	68.2	55.6	24.2	43.6	28.4
3/23/2024	20:01:42	43.1	70.9	66.8	26.8	46.5	32.1
3/23/2024	20:11:42	44.3	72.1	55.6	28	48.5	32.7
3/23/2024	20:21:42	43.6	71.4	57.3	28.2	48	31.6
3/23/2024	20:31:42	48.9	76.7	71.2	27.9	50	31.6
3/23/2024	20:41:42	48.7	76.5	68.8	29.9	52.6	33
3/23/2024	20:51:42	45.8	73.6	71.2	30.5	47.9	33.9
3/23/2024	21:01:42	60.9	88.7	77.1	31	66.5	36.2
3/23/2024	21:11:42	57.7	85.5	79.5	28.9	49.9	32.3
3/23/2024	21:21:42	52.6	80.4	73.6	26.8	50	30.2
3/23/2024	21:31:42	49.7	77.5	73.7	29.1	47.8	33.8
3/23/2024	21:41:42	47.4	75.2	71.4	29.7	48	33.8
3/23/2024	21:51:42	41.8	69.6	66.6	25.7	43.2	28.8
3/23/2024	22:01:42	46.7	74.5	73.1	27.4	45.2	31.4
3/23/2024	22:11:42	49.6	77.4	76.9	30.6	47.9	34
3/23/2024	22:21:42	55.7	83.5	78.3	31.4	51.5	34.7
3/23/2024	22:31:42	57.7	85.5	75	29.4	61.5	33.6
3/23/2024	22:41:42	43.4	71.2	55.5	34.9	46.6	37.4
3/23/2024	22:51:42	43.6	71.4	66.9	28.2	46.4	31.4
3/23/2024	23:01:42	41.4	69.2	53	29.4	46.3	33.2
3/23/2024	23:11:42	51.5	79.3	78.9	29.1	45.5	33.3
3/23/2024	23:21:42	36.5	64.3	49	25.2	40.1	29.1
3/23/2024	23:31:42	47.1	74.9	70.5	27.6	46.7	31.6
3/23/2024	23:41:42	37.4	65.2	49	24.6	41.2	29
3/23/2024	23:51:42	43.1	70.9	55.3	22.5	47.5	25.9
3/24/2024	0:01:42	46.2	74	61.9	28.6	48.7	33.8
3/24/2024	0:11:42	42.5	70.3	55.8	28.7	46.3	32.4
3/24/2024	0:21:42	39.4	67.2	49.9	28.5	44.1	31.8
3/24/2024	0:31:42	37.4	65.2	50.6	22	41.8	25.6
3/24/2024	0:41:42	41.5	69.3	55	26.8	45.5	30.6
3/24/2024	0:51:42	39.3	67.1	53	25.1	41.5	28.7
3/24/2024	1:01:42	41.2	69	53.3	23.9	45.7	27.7
3/24/2024	1:11:42	38.7	66.5	52.5	27.2	41.5	30.4
3/24/2024	1:21:42	45.7	73.5	71.2	27	44.2	30.8
3/24/2024	1:31:42	33.2	61	47.4	20.2	37.8	23.4
3/24/2024	1:41:42	41.4	69.2	56.9	25.1	44.7	29.2
3/24/2024	1:51:42	45.8	73.6	72.5	26.1	44	32.3
3/24/2024	2:01:42	40.2	68	65.7	25.8	40	28.3
3/24/2024	2:11:42	40.3	68.1	70.6	20.7	41	23.6
3/24/2024	2:21:42	35.3	63.1	50.6	22	39.5	24.6
3/24/2024	2:31:42	48.3	76.1	75.3	26.4	46.2	31.3
3/24/2024	2:41:42	48	75.8	71.2	22.6	42.2	25.1

3/24/2024	2:51:42	37.2	65	53.7	20.7	38.7	23.2
3/24/2024	3:01:42	41.4	69.2	56.1	24	44.8	27.7
3/24/2024	3:11:42	37.2	65	50.8	23.4	41.2	26.8
3/24/2024	3:21:42	36.9	64.7	51.7	23.2	39.6	26.6
3/24/2024	3:31:42	49.9	77.7	72.8	18.5	50.4	28
3/24/2024	3:41:42	34.3	62.1	46.8	18.2	38.5	20.2
3/24/2024	3:51:42	36.6	64.4	49.2	20.1	40.4	27.1
3/24/2024	4:01:42	48	75.8	72.3	19.5	42.7	24.5
3/24/2024	4:11:42	39.6	67.4	64.1	32.2	40.9	33.4
3/24/2024	4:21:42	39.1	66.9	52.8	33.6	40	34.8
3/24/2024	4:31:42	41.3	69.1	54.6	34.8	44.7	36.5
3/24/2024	4:41:42	42.4	70.2	56.1	34.9	45.7	36.7
3/24/2024	4:51:42	38.2	66	48.4	33.4	41	34.9
3/24/2024	5:01:42	41.9	69.7	53.2	33.7	45.8	35.6
3/24/2024	5:11:42	41.6	69.4	52.2	35.2	44.4	36.5
3/24/2024	5:21:42	42.9	70.7	56.8	34	45.8	35.6
3/24/2024	5:31:42	38.5	66.3	48	21	43.1	25
3/24/2024	5:41:42	41.5	69.3	55.6	21.2	44.9	27.9
3/24/2024	5:51:42	40.8	68.6	52.9	26.3	45.4	30.5
3/24/2024	6:01:42	41.8	69.6	55.9	23.9	45.3	27.5
3/24/2024	6:11:42	42.6	70.4	57.1	29.8	45.7	33.5
3/24/2024	6:21:42	39.3	67.1	57.5	24.1	42.6	27.5
3/24/2024	6:31:42	43.6	71.4	59.7	25.7	46	32.4
3/24/2024	6:41:42	44.6	72.4	57.1	28.6	48.2	33
3/24/2024	6:51:42	39.6	67.4	52.6	26.8	43.5	31.2
3/24/2024	7:01:42	47	74.8	63.9	33.2	50.2	36.7
3/24/2024	7:11:42	49.3	77.1	59.5	36	53.8	40
3/24/2024	7:21:42	44	71.8	57.9	33.5	47.2	38
3/24/2024	7:31:42	47.1	74.9	58.4	34.5	50.6	38.9
3/24/2024	7:41:42	41.9	69.7	51.3	32.4	45.9	35.4
3/24/2024	7:51:42	46.3	74.1	57.4	34.5	49.9	37.6
3/24/2024	8:01:42	46.5	74.3	58.2	33.9	50.7	38.4
3/24/2024	8:11:42	43.3	71.1	53.2	32.3	46.8	36.1
3/24/2024	8:21:42	44.6	72.4	58.4	30.7	47.4	35.7
3/24/2024	8:31:42	46.1	73.9	55.9	34.6	49.3	39
3/24/2024	8:41:42	43.8	71.6	59.9	35.3	47	37.8
3/24/2024	8:51:42	43.9	71.7	54.1	32	47.6	36.6
3/24/2024	9:01:42	44.7	72.5	52.9	32.8	48.4	37.1
3/24/2024	9:11:42	44.9	72.7	55.5	33.2	48.5	38.2
3/24/2024	9:21:42	43.1	70.9	58.9	33.2	46.3	37.1
3/24/2024	9:31:42	46.5	74.3	69.5	32.8	46.4	37.1
3/24/2024	9:41:42	43.7	71.5	64.9	32	46.6	37.4
3/24/2024	9:51:42	43.4	71.2	55.1	31.4	46.7	35.5
3/24/2024	10:01:42	42.1	69.9	52.7	30.1	45.8	34
3/24/2024	10:11:42	46.1	73.9	58.3	30.8	49.7	35
3/24/2024	10:21:42	46.1	73.9	63.3	30.1	50.8	33.7

3/24/2024	10:31:42	46.5	74.3	61.8	32.8	50.4	36.4
3/24/2024	10:41:42	47	74.8	71	31.3	48.8	35.1
3/24/2024	10:51:42	47.9	75.7	63.6	32	52.8	37.6

Data for N 5 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
23/03/2024	10:51:00	4.2	5.3	17	52
23/03/2024	10:52:00	5.0	6.3	17	53
23/03/2024	10:53:00	4.3	5.9	17	73
23/03/2024	10:54:00	4.0	5.5	17	92
23/03/2024	10:55:00	4.6	6.7	17	79
23/03/2024	10:56:00	3.4	6.1	16	83
23/03/2024	10:57:00	3.5	4.5	16	88
23/03/2024	10:58:00	4.0	5.9	16	74
23/03/2024	10:59:00	3.6	5.4	15	69
23/03/2024	11:00:00	4.6	5.8	14	61
23/03/2024	11:01:00	5.3	6.7	14	51
23/03/2024	11:02:00	4.9	6.7	14	61
23/03/2024	11:03:00	5.0	6.4	13	77
23/03/2024	11:04:00	4.7	6.3	13	56
23/03/2024	11:05:00	4.5	6.0	13	63
23/03/2024	11:06:00	3.7	5.8	13	74
23/03/2024	11:07:00	4.3	5.3	12	81
23/03/2024	11:08:00	3.7	4.7	12	75
23/03/2024	11:09:00	3.6	5.1	12	84
23/03/2024	11:10:00	3.8	5.3	12	74
23/03/2024	11:11:00	5.0	6.2	12	67
23/03/2024	11:12:00	4.2	5.4	12	64
23/03/2024	11:13:00	4.5	6.1	12	63
23/03/2024	11:14:00	4.2	5.5	12	71
23/03/2024	11:15:00	3.4	4.4	12	85
23/03/2024	11:16:00	3.3	4.5	12	90
23/03/2024	11:17:00	3.5	5.1	12	87
23/03/2024	11:18:00	4.0	6.0	12	77
23/03/2024	11:19:00	3.0	4.1	12	90
23/03/2024	11:20:00	3.3	4.3	12	95
23/03/2024	11:21:00	3.7	4.7	12	90
23/03/2024	11:22:00	3.9	5.7	12	89
23/03/2024	11:23:00	4.3	5.6	12	66
23/03/2024	11:24:00	4.3	5.5	12	67
23/03/2024	11:25:00	4.8	5.8	12	56
23/03/2024	11:26:00	4.3	5.6	12	76
23/03/2024	11:27:00	3.8	5.3	13	70

23/03/2024	11:28:00	3.4	4.3	13	81
23/03/2024	11:29:00	3.5	5.1	13	84
23/03/2024	11:30:00	4.0	5.2	13	81
23/03/2024	11:31:00	3.7	4.4	13	91
23/03/2024	11:32:00	3.4	4.8	13	81
23/03/2024	11:33:00	4.3	5.7	13	78
23/03/2024	11:34:00	4.9	6.3	13	63
23/03/2024	11:35:00	4.6	6.1	13	67
23/03/2024	11:36:00	3.7	4.7	13	91
23/03/2024	11:37:00	3.6	5.8	13	89
23/03/2024	11:38:00	4.8	5.9	13	78
23/03/2024	11:39:00	4.2	5.4	13	78
23/03/2024	11:40:00	4.1	5.2	13	80
23/03/2024	11:41:00	3.6	5.2	13	86
23/03/2024	11:42:00	3.5	4.3	13	86
23/03/2024	11:43:00	3.4	4.3	13	87
23/03/2024	11:44:00	3.6	4.5	13	76
23/03/2024	11:45:00	4.4	5.6	13	74
23/03/2024	11:46:00	4.3	6.6	13	77
23/03/2024	11:47:00	4.3	6.5	13	79
23/03/2024	11:48:00	4.7	5.9	13	72
23/03/2024	11:49:00	4.4	5.7	13	77
23/03/2024	11:50:00	4.2	6.3	13	73
23/03/2024	11:51:00	4.6	5.6	13	77
23/03/2024	11:52:00	3.9	5.2	13	74
23/03/2024	11:53:00	3.6	4.6	13	79
23/03/2024	11:54:00	3.9	5.9	13	81
23/03/2024	11:55:00	3.4	4.6	13	86
23/03/2024	11:56:00	2.7	3.5	13	83
23/03/2024	11:57:00	3.6	4.5	13	75
23/03/2024	11:58:00	4.7	6.4	13	72
23/03/2024	11:59:00	5.0	7.2	13	56
23/03/2024	12:00:00	3.9	5.2	13	73
23/03/2024	12:01:00	3.6	6.4	13	87
23/03/2024	12:02:00	4.2	6.1	13	82
23/03/2024	12:03:00	4.3	6.1	13	81
23/03/2024	12:04:00	3.8	5.5	13	84
23/03/2024	12:05:00	3.9	4.9	13	74
23/03/2024	12:06:00	3.4	4.6	13	81
23/03/2024	12:07:00	3.2	4.4	13	77
23/03/2024	12:08:00	4.5	6.1	13	67
23/03/2024	12:09:00	4.2	5.7	13	70
23/03/2024	12:10:00	3.0	4.1	13	81
23/03/2024	12:11:00	3.2	4.5	13	88
23/03/2024	12:12:00	3.8	5.7	13	71
23/03/2024	12:13:00	4.3	5.1	13	64

23/03/2024	12:14:00	4.1	5.4	13	50
23/03/2024	12:15:00	4.3	5.0	13	49
23/03/2024	12:16:00	5.0	6.1	13	61
23/03/2024	12:17:00	3.8	5.7	13	87
23/03/2024	12:18:00	3.4	4.6	13	104
23/03/2024	12:19:00	2.9	4.0	13	94
23/03/2024	12:20:00	3.8	5.9	13	86
23/03/2024	12:21:00	4.4	6.5	13	65
23/03/2024	12:22:00	4.0	4.8	13	73
23/03/2024	12:23:00	4.5	7.2	13	73
23/03/2024	12:24:00	4.2	6.8	13	84
23/03/2024	12:25:00	3.6	5.4	13	77
23/03/2024	12:26:00	4.9	6.0	14	61
23/03/2024	12:27:00	4.6	6.1	14	69
23/03/2024	12:28:00	4.5	5.7	14	73
23/03/2024	12:29:00	4.1	5.5	14	58
23/03/2024	12:30:00	4.3	6.1	14	63
23/03/2024	12:31:00	3.5	4.6	14	69
23/03/2024	12:32:00	4.5	5.6	14	62
23/03/2024	12:33:00	5.2	6.8	14	55
23/03/2024	12:34:00	4.5	5.8	14	67
23/03/2024	12:35:00	4.0	5.6	14	70
23/03/2024	12:36:00	4.1	4.8	14	79
23/03/2024	12:37:00	3.9	5.2	14	84
23/03/2024	12:38:00	4.1	6.4	14	81
23/03/2024	12:39:00	4.0	5.0	14	77
23/03/2024	12:40:00	3.4	4.1	14	95
23/03/2024	12:41:00	4.0	5.1	14	83
23/03/2024	12:42:00	3.6	4.8	14	79
23/03/2024	12:43:00	4.0	4.9	14	78
23/03/2024	12:44:00	3.9	5.4	14	77
23/03/2024	12:45:00	3.8	5.0	14	79
23/03/2024	12:46:00	4.0	6.7	14	84
23/03/2024	12:47:00	3.3	4.4	14	92
23/03/2024	12:48:00	3.0	3.5	14	90
23/03/2024	12:49:00	3.5	5.7	14	75
23/03/2024	12:50:00	4.9	6.3	14	70
23/03/2024	12:51:00	4.3	5.8	14	66
23/03/2024	12:52:00	4.2	5.4	14	68
23/03/2024	12:53:00	4.2	5.1	14	72
23/03/2024	12:54:00	3.8	4.8	14	68
23/03/2024	12:55:00	3.5	4.6	14	64
23/03/2024	12:56:00	3.8	4.7	14	56
23/03/2024	12:57:00	2.9	3.7	14	58
23/03/2024	12:58:00	3.8	5.5	14	66
23/03/2024	12:59:00	3.6	5.5	14	58

23/03/2024	13:00:00	3.2	4.3	14	86
23/03/2024	13:01:00	3.4	4.6	14	77
23/03/2024	13:02:00	3.0	4.1	14	85
23/03/2024	13:03:00	2.8	3.7	14	89
23/03/2024	13:04:00	3.7	5.5	14	72
23/03/2024	13:05:00	3.9	5.0	14	68
23/03/2024	13:06:00	3.5	5.0	14	63
23/03/2024	13:07:00	4.2	5.4	14	47
23/03/2024	13:08:00	4.4	5.3	14	59
23/03/2024	13:09:00	5.2	7.1	14	51
23/03/2024	13:10:00	4.1	5.6	14	72
23/03/2024	13:11:00	3.8	4.7	14	67
23/03/2024	13:12:00	3.0	4.7	14	73
23/03/2024	13:13:00	3.5	4.4	14	81
23/03/2024	13:14:00	4.6	5.4	14	71
23/03/2024	13:15:00	3.8	4.7	14	65
23/03/2024	13:16:00	3.6	5.1	14	76
23/03/2024	13:17:00	4.4	6.2	14	60
23/03/2024	13:18:00	4.0	5.1	14	72
23/03/2024	13:19:00	4.2	5.5	14	66
23/03/2024	13:20:00	3.5	4.7	14	73
23/03/2024	13:21:00	3.9	6.2	14	77
23/03/2024	13:22:00	3.8	5.3	14	68
23/03/2024	13:23:00	3.4	5.5	14	78
23/03/2024	13:24:00	3.7	5.4	14	79
23/03/2024	13:25:00	2.7	3.5	14	85
23/03/2024	13:26:00	2.5	3.1	14	89
23/03/2024	13:27:00	3.6	6.0	14	74
23/03/2024	13:28:00	3.7	5.0	14	70
23/03/2024	13:29:00	4.1	5.4	14	83
23/03/2024	13:30:00	4.2	5.1	14	70
23/03/2024	13:31:00	3.7	4.4	14	71
23/03/2024	13:32:00	3.9	5.0	14	78
23/03/2024	13:33:00	3.4	4.6	14	80
23/03/2024	13:34:00	2.6	3.8	14	90
23/03/2024	13:35:00	2.9	4.0	14	87
23/03/2024	13:36:00	3.1	4.6	14	81
23/03/2024	13:37:00	2.7	3.6	14	94
23/03/2024	13:38:00	2.3	3.4	15	91
23/03/2024	13:39:00	3.0	5.0	15	70
23/03/2024	13:40:00	4.2	5.3	15	68
23/03/2024	13:41:00	4.7	6.2	15	48
23/03/2024	13:42:00	4.4	6.2	15	51
23/03/2024	13:43:00	3.6	4.9	15	56
23/03/2024	13:44:00	4.0	5.6	15	75
23/03/2024	13:45:00	3.8	5.3	15	78

23/03/2024	13:46:00	3.2	5.1	15	87
23/03/2024	13:47:00	3.9	5.2	15	71
23/03/2024	13:48:00	3.5	4.5	15	75
23/03/2024	13:49:00	3.2	4.5	15	80
23/03/2024	13:50:00	3.7	5.5	15	77
23/03/2024	13:51:00	4.1	5.5	15	71
23/03/2024	13:52:00	4.0	5.0	15	60
23/03/2024	13:53:00	3.6	4.6	16	59
23/03/2024	13:54:00	3.0	4.3	16	88
23/03/2024	13:55:00	2.2	3.2	16	95
23/03/2024	13:56:00	3.3	4.2	16	93
23/03/2024	13:57:00	3.5	4.5	16	84
23/03/2024	13:58:00	4.1	5.1	16	51
23/03/2024	13:59:00	5.1	6.6	16	48
23/03/2024	14:00:00	4.1	5.4	16	50
23/03/2024	14:01:00	4.0	5.8	16	73
23/03/2024	14:02:00	3.9	5.3	16	53
23/03/2024	14:03:00	3.2	4.7	16	80
23/03/2024	14:04:00	2.8	3.4	16	97
23/03/2024	14:05:00	3.8	5.3	16	78
23/03/2024	14:06:00	2.4	3.4	16	97
23/03/2024	14:07:00	3.4	6.4	16	82
23/03/2024	14:08:00	4.4	5.9	16	50
23/03/2024	14:09:00	3.9	5.6	16	60
23/03/2024	14:10:00	3.0	4.0	16	72
23/03/2024	14:11:00	3.2	5.0	16	80
23/03/2024	14:12:00	3.2	4.8	16	86
23/03/2024	14:13:00	3.4	4.8	16	87
23/03/2024	14:14:00	3.5	4.5	16	76
23/03/2024	14:15:00	3.0	3.9	16	77
23/03/2024	14:16:00	3.2	4.6	16	83
23/03/2024	14:17:00	3.0	5.2	16	82
23/03/2024	14:18:00	3.9	5.4	16	71
23/03/2024	14:19:00	3.4	5.6	16	67
23/03/2024	14:20:00	3.2	5.3	16	86
23/03/2024	14:21:00	3.4	4.8	16	86
23/03/2024	14:22:00	4.4	6.3	16	63
23/03/2024	14:23:00	2.8	4.7	16	92
23/03/2024	14:24:00	3.2	4.4	16	97
23/03/2024	14:25:00	3.3	4.2	16	76
23/03/2024	14:26:00	2.6	4.1	16	91
23/03/2024	14:27:00	2.9	4.2	16	96
23/03/2024	14:28:00	3.3	4.9	17	84
23/03/2024	14:29:00	2.5	3.7	17	88
23/03/2024	14:30:00	3.0	5.0	17	88
23/03/2024	14:31:00	3.5	4.5	17	78

23/03/2024	14:32:00	3.2	4.2	17	73
23/03/2024	14:33:00	3.7	5.1	17	65
23/03/2024	14:34:00	4.2	6.4	17	66
23/03/2024	14:35:00	3.7	5.3	17	80
23/03/2024	14:36:00	3.6	5.6	17	80
23/03/2024	14:37:00	3.2	4.3	17	68
23/03/2024	14:38:00	3.5	4.9	17	51
23/03/2024	14:39:00	4.3	5.9	17	50
23/03/2024	14:40:00	3.5	4.6	17	57
23/03/2024	14:41:00	3.0	4.4	17	59
23/03/2024	14:42:00	2.6	3.7	17	83
23/03/2024	14:43:00	3.0	3.8	17	105
23/03/2024	14:44:00	3.5	5.5	17	123
23/03/2024	14:45:00	3.4	5.5	17	93
23/03/2024	14:46:00	3.7	5.1	17	72
23/03/2024	14:47:00	2.8	3.4	17	63
23/03/2024	14:48:00	3.3	4.8	17	63
23/03/2024	14:49:00	3.7	4.9	17	66
23/03/2024	14:50:00	3.3	4.4	17	81
23/03/2024	14:51:00	3.5	4.8	17	56
23/03/2024	14:52:00	3.9	5.0	17	55
23/03/2024	14:53:00	4.0	5.1	17	41
23/03/2024	14:54:00	4.2	5.7	17	48
23/03/2024	14:55:00	3.7	4.6	17	51
23/03/2024	14:56:00	2.8	3.3	17	66
23/03/2024	14:57:00	3.0	4.7	17	77
23/03/2024	14:58:00	4.4	5.9	17	49
23/03/2024	14:59:00	4.5	6.6	17	50
23/03/2024	15:00:00	3.8	4.9	17	60
23/03/2024	15:01:00	3.2	4.3	17	58
23/03/2024	15:02:00	3.0	4.0	17	68
23/03/2024	15:03:00	2.5	3.6	17	85
23/03/2024	15:04:00	3.2	4.4	17	69
23/03/2024	15:05:00	2.6	3.6	17	52
23/03/2024	15:06:00	3.3	5.5	17	52
23/03/2024	15:07:00	4.1	5.5	17	60
23/03/2024	15:08:00	4.0	4.8	17	61
23/03/2024	15:09:00	2.5	3.9	17	93
23/03/2024	15:10:00	2.5	4.9	17	91
23/03/2024	15:11:00	3.6	5.1	17	65
23/03/2024	15:12:00	3.2	4.1	17	57
23/03/2024	15:13:00	3.0	3.9	17	74
23/03/2024	15:14:00	2.5	3.3	17	70
23/03/2024	15:15:00	3.4	5.7	17	78
23/03/2024	15:16:00	3.3	4.4	17	81
23/03/2024	15:17:00	3.2	4.0	17	78

23/03/2024	15:18:00	3.4	4.0	17	67
23/03/2024	15:19:00	2.7	3.8	17	44
23/03/2024	15:20:00	3.1	4.2	17	51
23/03/2024	15:21:00	4.1	5.9	17	52
23/03/2024	15:22:00	4.3	5.5	17	58
23/03/2024	15:23:00	4.1	5.4	18	71
23/03/2024	15:24:00	4.2	5.5	18	55
23/03/2024	15:25:00	4.2	5.6	18	73
23/03/2024	15:26:00	3.7	4.8	18	69
23/03/2024	15:27:00	3.0	4.1	18	71
23/03/2024	15:28:00	2.3	3.1	18	87
23/03/2024	15:29:00	3.0	4.0	18	76
23/03/2024	15:30:00	3.3	4.7	18	72
23/03/2024	15:31:00	3.0	3.7	18	85
23/03/2024	15:32:00	2.6	3.6	18	86
23/03/2024	15:33:00	3.0	3.9	18	81
23/03/2024	15:34:00	2.3	3.3	18	92
23/03/2024	15:35:00	2.7	3.9	18	80
23/03/2024	15:36:00	3.4	4.9	18	80
23/03/2024	15:37:00	2.6	3.7	18	92
23/03/2024	15:38:00	2.8	3.7	18	90
23/03/2024	15:39:00	3.0	3.8	18	84
23/03/2024	15:40:00	3.2	5.0	18	80
23/03/2024	15:41:00	2.4	3.8	18	92
23/03/2024	15:42:00	2.0	2.6	18	100
23/03/2024	15:43:00	2.8	3.6	18	84
23/03/2024	15:44:00	3.2	4.0	18	68
23/03/2024	15:45:00	3.0	4.3	18	76
23/03/2024	15:46:00	3.9	5.1	18	73
23/03/2024	15:47:00	3.2	4.2	18	82
23/03/2024	15:48:00	3.4	4.6	18	67
23/03/2024	15:49:00	3.5	5.0	18	62
23/03/2024	15:50:00	2.8	3.4	18	70
23/03/2024	15:51:00	2.5	3.2	18	76
23/03/2024	15:52:00	4.0	5.5	18	52
23/03/2024	15:53:00	3.9	5.2	18	56
23/03/2024	15:54:00	4.1	5.3	18	49
23/03/2024	15:55:00	3.5	5.0	18	56
23/03/2024	15:56:00	3.2	4.1	18	50
23/03/2024	15:57:00	3.3	4.1	18	60
23/03/2024	15:58:00	4.0	5.9	18	62
23/03/2024	15:59:00	3.6	4.7	18	71
23/03/2024	16:00:00	3.1	4.0	18	63
23/03/2024	16:01:00	3.9	5.5	18	49
23/03/2024	16:02:00	4.1	5.5	18	53
23/03/2024	16:03:00	3.5	4.3	18	67

23/03/2024	16:04:00	3.4	4.7	18	54
23/03/2024	16:05:00	2.3	3.1	18	86
23/03/2024	16:06:00	3.3	4.6	18	66
23/03/2024	16:07:00	3.5	4.5	18	48
23/03/2024	16:08:00	3.9	5.0	18	56
23/03/2024	16:09:00	4.2	5.4	18	61
23/03/2024	16:10:00	3.2	4.2	18	75
23/03/2024	16:11:00	2.1	2.8	18	91
23/03/2024	16:12:00	3.9	5.3	18	65
23/03/2024	16:13:00	3.7	4.4	18	60
23/03/2024	16:14:00	4.4	5.9	18	73
23/03/2024	16:15:00	3.7	5.4	18	82
23/03/2024	16:16:00	3.6	4.5	18	65
23/03/2024	16:17:00	3.3	4.3	18	65
23/03/2024	16:18:00	3.7	4.8	18	65
23/03/2024	16:19:00	3.5	4.5	18	59
23/03/2024	16:20:00	3.1	3.8	18	69
23/03/2024	16:21:00	3.2	3.8	18	70
23/03/2024	16:22:00	3.0	4.0	18	80
23/03/2024	16:23:00	3.8	5.2	18	75
23/03/2024	16:24:00	3.7	4.7	18	68
23/03/2024	16:25:00	3.2	3.8	18	70
23/03/2024	16:26:00	4.1	5.1	18	55
23/03/2024	16:27:00	3.6	4.6	18	55
23/03/2024	16:28:00	3.1	4.7	18	61
23/03/2024	16:29:00	3.9	5.2	18	63
23/03/2024	16:30:00	3.2	4.6	18	81
23/03/2024	16:31:00	2.7	3.8	18	72
23/03/2024	16:32:00	3.0	4.4	18	70
23/03/2024	16:33:00	3.1	3.9	18	57
23/03/2024	16:34:00	3.9	5.0	18	63
23/03/2024	16:35:00	3.8	5.1	18	70
23/03/2024	16:36:00	3.3	4.0	18	69
23/03/2024	16:37:00	3.6	4.5	18	63
23/03/2024	16:38:00	4.1	5.7	18	48
23/03/2024	16:39:00	4.1	5.4	18	57
23/03/2024	16:40:00	3.2	4.5	18	68
23/03/2024	16:41:00	3.1	4.7	18	73
23/03/2024	16:42:00	3.7	4.9	18	67
23/03/2024	16:43:00	3.7	5.9	18	71
23/03/2024	16:44:00	3.4	4.2	18	72
23/03/2024	16:45:00	3.9	5.2	18	57
23/03/2024	16:46:00	3.9	4.8	18	50
23/03/2024	16:47:00	4.3	5.6	18	48
23/03/2024	16:48:00	3.9	5.2	18	50
23/03/2024	16:49:00	4.3	5.2	18	57

23/03/2024	16:50:00	3.6	4.7	18	52
23/03/2024	16:51:00	3.3	4.6	18	65
23/03/2024	16:52:00	3.7	4.5	18	52
23/03/2024	16:53:00	3.6	4.3	18	49
23/03/2024	16:54:00	4.6	5.6	18	52
23/03/2024	16:55:00	4.0	5.1	18	49
23/03/2024	16:56:00	3.7	4.7	18	53
23/03/2024	16:57:00	4.6	5.7	18	50
23/03/2024	16:58:00	4.0	5.1	18	49
23/03/2024	16:59:00	3.5	4.9	18	61
23/03/2024	17:00:00	3.7	6.0	18	54
23/03/2024	17:01:00	4.5	6.1	18	54
23/03/2024	17:02:00	4.3	5.0	18	46
23/03/2024	17:03:00	4.0	4.9	18	50
23/03/2024	17:04:00	3.6	4.4	18	51
23/03/2024	17:05:00	4.4	6.0	18	53
23/03/2024	17:06:00	4.6	5.4	18	48
23/03/2024	17:07:00	4.7	5.7	18	46
23/03/2024	17:08:00	4.4	5.6	18	48
23/03/2024	17:09:00	4.2	5.4	18	41
23/03/2024	17:10:00	4.5	6.7	18	49
23/03/2024	17:11:00	4.3	5.5	18	45
23/03/2024	17:12:00	4.4	5.8	18	52
23/03/2024	17:13:00	4.4	5.7	18	54
23/03/2024	17:14:00	4.3	5.5	18	71
23/03/2024	17:15:00	3.5	4.7	18	67
23/03/2024	17:16:00	4.5	5.4	18	66
23/03/2024	17:17:00	4.2	6.3	18	57
23/03/2024	17:18:00	5.0	6.5	18	50
23/03/2024	17:19:00	4.9	6.4	18	51
23/03/2024	17:20:00	4.7	6.4	17	48
23/03/2024	17:21:00	4.2	5.1	17	54
23/03/2024	17:22:00	4.1	6.0	17	52
23/03/2024	17:23:00	4.2	5.3	17	49
23/03/2024	17:24:00	4.0	5.3	17	52
23/03/2024	17:25:00	4.8	5.4	17	52
23/03/2024	17:26:00	4.5	5.9	17	55
23/03/2024	17:27:00	4.2	5.3	17	56
23/03/2024	17:28:00	4.3	5.6	17	64
23/03/2024	17:29:00	4.8	5.7	17	74
23/03/2024	17:30:00	3.6	4.4	17	73
23/03/2024	17:31:00	3.6	4.8	17	76
23/03/2024	17:32:00	4.3	6.2	17	69
23/03/2024	17:33:00	4.0	5.1	17	64
23/03/2024	17:34:00	4.0	5.2	17	68
23/03/2024	17:35:00	3.6	5.0	17	52

23/03/2024	17:36:00	4.8	6.2	17	50
23/03/2024	17:37:00	5.1	6.0	17	51
23/03/2024	17:38:00	4.8	5.7	17	51
23/03/2024	17:39:00	5.2	6.9	17	55
23/03/2024	17:40:00	4.5	5.7	17	60
23/03/2024	17:41:00	4.4	6.1	17	47
23/03/2024	17:42:00	4.6	5.7	17	51
23/03/2024	17:43:00	4.0	5.2	17	53
23/03/2024	17:44:00	4.7	5.6	17	49
23/03/2024	17:45:00	4.1	6.1	17	49
23/03/2024	17:46:00	4.4	5.5	17	59
23/03/2024	17:47:00	4.2	5.9	17	53
23/03/2024	17:48:00	4.9	6.7	17	45
23/03/2024	17:49:00	4.4	6.1	17	49
23/03/2024	17:50:00	4.5	5.7	17	49
23/03/2024	17:51:00	5.1	6.3	17	51
23/03/2024	17:52:00	4.7	5.9	17	49
23/03/2024	17:53:00	4.3	5.7	17	50
23/03/2024	17:54:00	4.7	5.8	17	43
23/03/2024	17:55:00	4.3	5.6	17	49
23/03/2024	17:56:00	3.6	4.3	17	60
23/03/2024	17:57:00	4.4	6.3	17	53
23/03/2024	17:58:00	4.7	6.2	17	50
23/03/2024	17:59:00	4.1	5.4	17	65
23/03/2024	18:00:00	3.8	5.3	16	66
23/03/2024	18:01:00	3.3	4.5	16	54
23/03/2024	18:02:00	3.4	4.7	16	52
23/03/2024	18:03:00	4.3	5.5	16	48
23/03/2024	18:04:00	3.6	4.4	16	59
23/03/2024	18:05:00	4.4	5.4	16	68
23/03/2024	18:06:00	4.3	5.7	16	73
23/03/2024	18:07:00	3.8	6.5	16	72
23/03/2024	18:08:00	4.5	6.0	16	60
23/03/2024	18:09:00	4.2	5.2	16	68
23/03/2024	18:10:00	4.0	5.2	16	60
23/03/2024	18:11:00	3.2	4.2	16	65
23/03/2024	18:12:00	3.2	4.1	16	64
23/03/2024	18:13:00	4.3	5.1	16	68
23/03/2024	18:14:00	3.8	4.9	16	74
23/03/2024	18:15:00	3.8	5.8	16	76
23/03/2024	18:16:00	3.2	4.2	16	76
23/03/2024	18:17:00	3.2	4.3	16	74
23/03/2024	18:18:00	3.5	4.8	16	81
23/03/2024	18:19:00	3.1	4.1	16	70
23/03/2024	18:20:00	3.3	4.5	16	69
23/03/2024	18:21:00	3.1	4.0	16	61

23/03/2024	18:22:00	3.0	4.0	16	59
23/03/2024	18:23:00	3.0	3.7	16	56
23/03/2024	18:24:00	3.4	4.8	16	67
23/03/2024	18:25:00	3.1	4.3	16	61
23/03/2024	18:26:00	3.3	4.2	16	59
23/03/2024	18:27:00	2.7	3.3	16	58
23/03/2024	18:28:00	3.6	5.0	16	57
23/03/2024	18:29:00	3.9	5.3	16	74
23/03/2024	18:30:00	3.3	5.2	16	59
23/03/2024	18:31:00	3.8	4.6	16	49
23/03/2024	18:32:00	4.1	5.1	16	57
23/03/2024	18:33:00	3.3	4.5	16	69
23/03/2024	18:34:00	3.6	4.6	16	61
23/03/2024	18:35:00	3.7	5.0	16	68
23/03/2024	18:36:00	3.9	6.1	16	64
23/03/2024	18:37:00	3.8	5.7	16	67
23/03/2024	18:38:00	4.2	5.9	16	67
23/03/2024	18:39:00	3.7	5.0	16	72
23/03/2024	18:40:00	3.1	3.8	16	67
23/03/2024	18:41:00	3.4	4.4	16	66
23/03/2024	18:42:00	3.4	4.9	16	56
23/03/2024	18:43:00	3.7	4.7	15	61
23/03/2024	18:44:00	3.3	4.4	15	65
23/03/2024	18:45:00	3.5	4.6	15	62
23/03/2024	18:46:00	3.2	4.2	15	65
23/03/2024	18:47:00	3.1	3.9	15	68
23/03/2024	18:48:00	3.5	4.6	15	70
23/03/2024	18:49:00	2.8	3.6	15	74
23/03/2024	18:50:00	2.7	3.7	15	58
23/03/2024	18:51:00	2.9	4.4	15	69
23/03/2024	18:52:00	3.2	4.1	15	60
23/03/2024	18:53:00	3.0	3.6	15	51
23/03/2024	18:54:00	3.0	4.1	15	56
23/03/2024	18:55:00	2.6	3.5	15	64
23/03/2024	18:56:00	3.0	3.9	15	68
23/03/2024	18:57:00	3.2	4.0	15	63
23/03/2024	18:58:00	3.0	4.2	15	63
23/03/2024	18:59:00	2.8	3.5	15	68
23/03/2024	19:00:00	3.2	4.3	15	60
23/03/2024	19:01:00	2.7	3.7	15	59
23/03/2024	19:02:00	3.0	4.3	15	67
23/03/2024	19:03:00	2.7	3.7	15	60
23/03/2024	19:04:00	2.8	3.6	15	51
23/03/2024	19:05:00	2.6	3.4	14	51
23/03/2024	19:06:00	2.7	3.4	14	61
23/03/2024	19:07:00	3.0	3.5	14	51

23/03/2024	19:08:00	2.5	2.9	14	53
23/03/2024	19:09:00	2.5	3.2	14	54
23/03/2024	19:10:00	2.4	3.0	14	55
23/03/2024	19:11:00	2.9	4.2	14	61
23/03/2024	19:12:00	2.4	3.0	14	54
23/03/2024	19:13:00	3.1	3.9	14	57
23/03/2024	19:14:00	2.6	3.8	14	65
23/03/2024	19:15:00	2.9	3.8	14	66
23/03/2024	19:16:00	2.7	3.3	14	62
23/03/2024	19:17:00	2.5	3.0	14	68
23/03/2024	19:18:00	2.7	3.5	14	54
23/03/2024	19:19:00	2.5	3.0	14	69
23/03/2024	19:20:00	2.6	3.3	14	64
23/03/2024	19:21:00	2.5	3.1	14	55
23/03/2024	19:22:00	2.8	3.7	14	63
23/03/2024	19:23:00	2.4	2.9	14	57
23/03/2024	19:24:00	2.5	3.4	14	59
23/03/2024	19:25:00	2.4	3.2	14	52
23/03/2024	19:26:00	2.3	3.2	14	58
23/03/2024	19:27:00	2.3	2.7	14	52
23/03/2024	19:28:00	2.4	2.9	14	55
23/03/2024	19:29:00	2.2	2.7	14	55
23/03/2024	19:30:00	2.2	2.7	14	59
23/03/2024	19:31:00	2.2	2.9	14	53
23/03/2024	19:32:00	2.4	3.1	14	49
23/03/2024	19:33:00	2.3	2.9	14	52
23/03/2024	19:34:00	2.2	2.7	14	48
23/03/2024	19:35:00	2.3	3.0	14	50
23/03/2024	19:36:00	2.3	2.8	14	47
23/03/2024	19:37:00	2.3	2.9	14	51
23/03/2024	19:38:00	2.0	2.7	14	55
23/03/2024	19:39:00	2.4	3.0	14	49
23/03/2024	19:40:00	2.2	2.7	14	48
23/03/2024	19:41:00	2.3	2.7	14	52
23/03/2024	19:42:00	2.1	2.6	14	50
23/03/2024	19:43:00	2.3	3.0	14	51
23/03/2024	19:44:00	2.3	2.9	14	56
23/03/2024	19:45:00	2.2	2.6	14	54
23/03/2024	19:46:00	2.3	3.0	14	52
23/03/2024	19:47:00	2.1	2.9	14	52
23/03/2024	19:48:00	2.3	3.1	14	49
23/03/2024	19:49:00	2.2	2.9	14	51
23/03/2024	19:50:00	2.0	2.7	14	51
23/03/2024	19:51:00	2.2	2.7	14	52
23/03/2024	19:52:00	2.2	2.7	13	51
23/03/2024	19:53:00	2.2	2.6	13	48

23/03/2024	19:54:00	2.1	2.8	13	51
23/03/2024	19:55:00	2.3	3.0	13	45
23/03/2024	19:56:00	2.3	3.1	13	51
23/03/2024	19:57:00	2.2	3.0	13	48
23/03/2024	19:58:00	2.3	3.0	13	48
23/03/2024	19:59:00	2.4	3.1	13	47
23/03/2024	20:00:00	2.5	3.4	13	49
23/03/2024	20:01:00	2.1	2.8	13	48
23/03/2024	20:02:00	2.2	2.7	13	47
23/03/2024	20:03:00	2.5	3.3	13	49
23/03/2024	20:04:00	2.4	2.9	13	50
23/03/2024	20:05:00	2.2	2.8	13	48
23/03/2024	20:06:00	2.4	3.2	13	52
23/03/2024	20:07:00	2.4	3.3	13	49
23/03/2024	20:08:00	2.4	3.1	13	50
23/03/2024	20:09:00	2.2	2.8	13	48
23/03/2024	20:10:00	2.2	2.9	13	50
23/03/2024	20:11:00	2.3	3.1	13	48
23/03/2024	20:12:00	2.1	2.6	13	51
23/03/2024	20:13:00	2.1	2.7	13	48
23/03/2024	20:14:00	2.1	2.6	13	46
23/03/2024	20:15:00	2.1	2.5	13	42
23/03/2024	20:16:00	2.2	2.8	13	50
23/03/2024	20:17:00	2.1	2.6	13	48
23/03/2024	20:18:00	2.0	2.4	13	49
23/03/2024	20:19:00	2.0	2.5	13	48
23/03/2024	20:20:00	2.2	2.8	13	49
23/03/2024	20:21:00	2.0	2.6	13	52
23/03/2024	20:22:00	2.0	2.7	13	51
23/03/2024	20:23:00	2.0	2.5	13	48
23/03/2024	20:24:00	2.3	2.9	13	50
23/03/2024	20:25:00	2.4	3.0	13	49
23/03/2024	20:26:00	2.2	2.8	13	49
23/03/2024	20:27:00	2.2	2.9	13	55
23/03/2024	20:28:00	2.2	3.0	13	48
23/03/2024	20:29:00	2.4	3.1	13	48
23/03/2024	20:30:00	2.3	3.0	13	53
23/03/2024	20:31:00	2.1	2.8	13	50
23/03/2024	20:32:00	2.2	2.7	13	49
23/03/2024	20:33:00	2.0	2.3	13	49
23/03/2024	20:34:00	2.1	2.5	13	52
23/03/2024	20:35:00	1.9	2.3	13	49
23/03/2024	20:36:00	2.0	2.6	13	50
23/03/2024	20:37:00	2.0	2.5	13	52
23/03/2024	20:38:00	2.0	2.6	13	49
23/03/2024	20:39:00	2.0	2.7	13	49

23/03/2024	20:40:00	2.1	2.4	13	50
23/03/2024	20:41:00	2.2	2.7	13	51
23/03/2024	20:42:00	1.9	2.3	13	54
23/03/2024	20:43:00	2.1	2.7	13	49
23/03/2024	20:44:00	2.1	2.8	12	47
23/03/2024	20:45:00	2.1	2.8	12	49
23/03/2024	20:46:00	2.1	2.8	12	50
23/03/2024	20:47:00	2.0	2.6	12	50
23/03/2024	20:48:00	2.0	2.4	12	52
23/03/2024	20:49:00	2.1	2.5	12	50
23/03/2024	20:50:00	2.1	2.6	12	50
23/03/2024	20:51:00	2.0	2.5	12	42
23/03/2024	20:52:00	2.1	2.7	12	48
23/03/2024	20:53:00	2.0	2.6	12	46
23/03/2024	20:54:00	2.1	3.0	12	48
23/03/2024	20:55:00	2.2	3.0	12	47
23/03/2024	20:56:00	2.1	2.9	12	50
23/03/2024	20:57:00	2.4	2.9	12	43
23/03/2024	20:58:00	2.1	2.6	12	52
23/03/2024	20:59:00	2.2	2.7	12	49
23/03/2024	21:00:00	2.1	2.5	12	52
23/03/2024	21:01:00	2.0	2.6	12	61
23/03/2024	21:02:00	2.1	2.7	12	49
23/03/2024	21:03:00	2.0	3.0	12	63
23/03/2024	21:04:00	2.0	2.7	12	59
23/03/2024	21:05:00	2.1	2.7	12	60
23/03/2024	21:06:00	2.0	3.0	12	61
23/03/2024	21:07:00	2.0	2.8	12	59
23/03/2024	21:08:00	2.0	2.5	12	57
23/03/2024	21:09:00	2.2	2.8	12	59
23/03/2024	21:10:00	2.1	3.0	12	53
23/03/2024	21:11:00	2.2	2.6	12	62
23/03/2024	21:12:00	2.2	2.8	12	57
23/03/2024	21:13:00	2.2	2.8	12	52
23/03/2024	21:14:00	2.4	3.6	12	60
23/03/2024	21:15:00	2.5	3.1	12	49
23/03/2024	21:16:00	2.5	3.0	12	50
23/03/2024	21:17:00	2.4	3.2	12	52
23/03/2024	21:18:00	2.3	2.8	12	54
23/03/2024	21:19:00	2.4	2.9	12	47
23/03/2024	21:20:00	2.6	3.1	12	49
23/03/2024	21:21:00	2.6	3.5	12	49
23/03/2024	21:22:00	2.4	3.0	12	50
23/03/2024	21:23:00	2.3	3.4	12	50
23/03/2024	21:24:00	2.5	3.6	12	50
23/03/2024	21:25:00	2.9	3.7	12	51

23/03/2024	21:26:00	2.5	3.4	12	49
23/03/2024	21:27:00	2.5	3.3	12	50
23/03/2024	21:28:00	2.3	3.0	12	47
23/03/2024	21:29:00	2.2	3.0	12	50
23/03/2024	21:30:00	2.2	3.3	12	52
23/03/2024	21:31:00	2.3	3.0	12	53
23/03/2024	21:32:00	2.4	3.3	12	53
23/03/2024	21:33:00	2.7	3.2	12	47
23/03/2024	21:34:00	2.4	3.1	12	48
23/03/2024	21:35:00	2.4	3.0	12	54
23/03/2024	21:36:00	2.4	3.1	12	50
23/03/2024	21:37:00	2.4	3.1	12	48
23/03/2024	21:38:00	2.5	3.4	12	48
23/03/2024	21:39:00	2.3	3.0	12	49
23/03/2024	21:40:00	2.1	2.6	12	49
23/03/2024	21:41:00	2.0	2.7	12	50
23/03/2024	21:42:00	2.3	3.0	12	51
23/03/2024	21:43:00	2.2	3.0	12	51
23/03/2024	21:44:00	2.1	3.0	12	45
23/03/2024	21:45:00	2.1	2.5	12	45
23/03/2024	21:46:00	2.3	2.8	12	48
23/03/2024	21:47:00	2.1	2.5	12	42
23/03/2024	21:48:00	2.1	2.9	12	49
23/03/2024	21:49:00	2.1	2.8	12	43
23/03/2024	21:50:00	1.9	2.6	12	40
23/03/2024	21:51:00	1.8	2.2	12	48
23/03/2024	21:52:00	1.8	2.2	12	44
23/03/2024	21:53:00	1.6	2.0	12	38
23/03/2024	21:54:00	1.7	2.3	12	44
23/03/2024	21:55:00	1.6	2.1	12	36
23/03/2024	21:56:00	1.6	2.0	12	42
23/03/2024	21:57:00	1.5	2.1	12	36
23/03/2024	21:58:00	1.7	2.1	12	35
23/03/2024	21:59:00	1.5	2.1	12	28
23/03/2024	22:00:00	1.8	2.3	12	44
23/03/2024	22:01:00	1.3	1.9	12	26
23/03/2024	22:02:00	1.6	2.0	12	40
23/03/2024	22:03:00	1.5	2.0	12	38
23/03/2024	22:04:00	1.7	2.2	12	44
23/03/2024	22:05:00	1.5	2.3	12	36
23/03/2024	22:06:00	1.5	2.0	12	30
23/03/2024	22:07:00	1.6	2.1	12	45
23/03/2024	22:08:00	1.7	2.1	12	47
23/03/2024	22:09:00	1.9	2.4	12	54
23/03/2024	22:10:00	2.0	2.4	12	53
23/03/2024	22:11:00	1.8	2.3	12	49

23/03/2024	22:12:00	2.0	2.6	12	50
23/03/2024	22:13:00	2.2	2.6	12	50
23/03/2024	22:14:00	2.1	2.8	12	50
23/03/2024	22:15:00	1.9	2.7	12	51
23/03/2024	22:16:00	2.3	2.7	12	50
23/03/2024	22:17:00	2.2	3.1	12	50
23/03/2024	22:18:00	1.9	2.3	12	52
23/03/2024	22:19:00	2.2	2.9	12	48
23/03/2024	22:20:00	2.3	3.1	12	48
23/03/2024	22:21:00	2.4	3.1	12	50
23/03/2024	22:22:00	2.5	3.1	12	51
23/03/2024	22:23:00	2.3	2.9	12	51
23/03/2024	22:24:00	2.4	2.9	12	51
23/03/2024	22:25:00	2.5	3.6	12	55
23/03/2024	22:26:00	2.8	3.6	12	53
23/03/2024	22:27:00	2.8	3.4	12	51
23/03/2024	22:28:00	2.8	3.7	12	52
23/03/2024	22:29:00	2.8	3.8	12	49
23/03/2024	22:30:00	2.6	3.8	12	50
23/03/2024	22:31:00	2.4	2.9	12	49
23/03/2024	22:32:00	2.7	3.6	12	45
23/03/2024	22:33:00	2.8	3.9	12	55
23/03/2024	22:34:00	2.5	4.3	12	51
23/03/2024	22:35:00	2.6	3.4	12	50
23/03/2024	22:36:00	2.4	3.1	12	55
23/03/2024	22:37:00	2.9	4.4	12	49
23/03/2024	22:38:00	2.7	3.4	12	49
23/03/2024	22:39:00	2.9	3.7	12	52
23/03/2024	22:40:00	2.7	4.1	12	50
23/03/2024	22:41:00	3.0	3.8	12	48
23/03/2024	22:42:00	3.0	4.0	12	50
23/03/2024	22:43:00	2.8	3.7	12	44
23/03/2024	22:44:00	2.9	3.6	12	49
23/03/2024	22:45:00	2.4	3.6	12	50
23/03/2024	22:46:00	2.6	3.2	12	51
23/03/2024	22:47:00	2.3	3.5	12	51
23/03/2024	22:48:00	2.2	2.7	12	53
23/03/2024	22:49:00	2.4	3.1	12	57
23/03/2024	22:50:00	2.4	3.1	12	54
23/03/2024	22:51:00	2.4	3.1	12	61
23/03/2024	22:52:00	2.0	2.6	12	65
23/03/2024	22:53:00	2.5	3.3	12	66
23/03/2024	22:54:00	2.4	3.2	12	71
23/03/2024	22:55:00	2.1	2.9	12	64
23/03/2024	22:56:00	2.5	3.4	12	70
23/03/2024	22:57:00	2.2	2.6	12	68

23/03/2024	22:58:00	2.4	3.0	12	61
23/03/2024	22:59:00	2.4	3.2	12	68
23/03/2024	23:00:00	2.5	3.5	12	76
23/03/2024	23:01:00	2.3	3.0	12	68
23/03/2024	23:02:00	2.3	2.9	12	61
23/03/2024	23:03:00	2.3	3.0	12	61
23/03/2024	23:04:00	2.5	3.6	12	75
23/03/2024	23:05:00	2.2	2.8	12	71
23/03/2024	23:06:00	2.1	2.7	12	69
23/03/2024	23:07:00	2.6	3.2	12	68
23/03/2024	23:08:00	2.2	3.0	12	71
23/03/2024	23:09:00	2.5	3.5	12	66
23/03/2024	23:10:00	2.8	3.6	12	74
23/03/2024	23:11:00	2.7	4.0	12	74
23/03/2024	23:12:00	2.6	3.3	12	72
23/03/2024	23:13:00	2.5	3.3	12	74
23/03/2024	23:14:00	2.6	3.9	12	75
23/03/2024	23:15:00	2.3	3.3	12	75
23/03/2024	23:16:00	2.1	2.5	12	69
23/03/2024	23:17:00	2.3	3.3	12	70
23/03/2024	23:18:00	2.2	3.0	12	73
23/03/2024	23:19:00	1.9	2.6	12	75
23/03/2024	23:20:00	2.2	2.9	12	68
23/03/2024	23:21:00	2.1	2.6	12	62
23/03/2024	23:22:00	2.0	2.6	12	63
23/03/2024	23:23:00	2.0	2.5	12	64
23/03/2024	23:24:00	2.3	2.9	12	52
23/03/2024	23:25:00	2.1	2.8	12	53
23/03/2024	23:26:00	2.1	2.9	12	53
23/03/2024	23:27:00	2.0	2.7	12	60
23/03/2024	23:28:00	2.0	2.8	12	51
23/03/2024	23:29:00	1.8	2.4	12	51
23/03/2024	23:30:00	1.8	2.1	12	50
23/03/2024	23:31:00	1.8	2.2	12	50
23/03/2024	23:32:00	1.9	2.4	12	51
23/03/2024	23:33:00	2.2	2.8	11	47
23/03/2024	23:34:00	2.1	2.8	11	50
23/03/2024	23:35:00	2.2	2.9	11	49
23/03/2024	23:36:00	2.3	2.9	11	51
23/03/2024	23:37:00	2.0	2.9	11	46
23/03/2024	23:38:00	1.9	2.7	11	51
23/03/2024	23:39:00	1.9	2.5	11	47
23/03/2024	23:40:00	1.8	2.4	11	46
23/03/2024	23:41:00	1.9	2.5	11	37
23/03/2024	23:42:00	1.9	2.4	11	39
23/03/2024	23:43:00	1.8	2.2	11	44

23/03/2024	23:44:00	1.8	2.1	11	47
23/03/2024	23:45:00	1.8	2.4	11	44
23/03/2024	23:46:00	1.8	2.4	11	41
23/03/2024	23:47:00	1.6	2.0	11	24
23/03/2024	23:48:00	1.7	2.3	11	28
23/03/2024	23:49:00	1.6	2.3	11	31
23/03/2024	23:50:00	1.5	2.1	11	37
23/03/2024	23:51:00	1.7	2.4	11	37
23/03/2024	23:52:00	1.5	1.9	11	26
23/03/2024	23:53:00	1.4	2.0	11	44
23/03/2024	23:54:00	1.5	2.0	11	28
23/03/2024	23:55:00	1.2	1.7	11	20
23/03/2024	23:56:00	1.7	2.4	11	29
23/03/2024	23:57:00	1.6	2.3	11	21
23/03/2024	23:58:00	1.5	2.0	10	42
23/03/2024	23:59:00	1.4	1.9	10	32
24/03/2024	00:00:00	0.9	1.4	10	287
24/03/2024	00:01:00	1.2	1.8	10	33
24/03/2024	00:02:00	1.4	1.9	10	37
24/03/2024	00:03:00	1.5	2.0	10	47
24/03/2024	00:04:00	1.6	2.2	10	49
24/03/2024	00:05:00	1.5	1.8	10	40
24/03/2024	00:06:00	1.6	2.0	10	46
24/03/2024	00:07:00	1.5	1.7	10	48
24/03/2024	00:08:00	1.4	1.7	10	44
24/03/2024	00:09:00	1.5	1.8	10	46
24/03/2024	00:10:00	1.6	1.9	10	50
24/03/2024	00:11:00	1.6	2.0	10	56
24/03/2024	00:12:00	1.8	2.2	10	51
24/03/2024	00:13:00	1.7	2.1	10	52
24/03/2024	00:14:00	1.8	2.3	10	49
24/03/2024	00:15:00	1.8	2.4	10	53
24/03/2024	00:16:00	1.7	2.1	10	51
24/03/2024	00:17:00	1.7	2.4	10	48
24/03/2024	00:18:00	1.9	2.4	10	49
24/03/2024	00:19:00	1.9	2.5	10	50
24/03/2024	00:20:00	1.9	2.4	10	50
24/03/2024	00:21:00	1.8	2.2	10	52
24/03/2024	00:22:00	1.8	2.3	10	49
24/03/2024	00:23:00	1.9	2.4	10	48
24/03/2024	00:24:00	1.8	2.3	10	37
24/03/2024	00:25:00	1.8	2.2	10	51
24/03/2024	00:26:00	1.6	2.1	10	43
24/03/2024	00:27:00	1.7	2.2	10	54
24/03/2024	00:28:00	1.7	2.3	10	43
24/03/2024	00:29:00	1.6	2.0	10	49

24/03/2024	00:30:00	1.7	2.1	10	46
24/03/2024	00:31:00	1.5	1.9	10	36
24/03/2024	00:32:00	1.6	2.0	10	40
24/03/2024	00:33:00	1.6	1.9	10	43
24/03/2024	00:34:00	1.6	2.0	10	44
24/03/2024	00:35:00	1.4	1.9	10	42
24/03/2024	00:36:00	1.4	1.8	10	38
24/03/2024	00:37:00	1.4	1.7	10	45
24/03/2024	00:38:00	1.5	1.8	10	40
24/03/2024	00:39:00	1.4	1.8	10	38
24/03/2024	00:40:00	1.5	1.9	10	29
24/03/2024	00:41:00	1.5	2.1	10	32
24/03/2024	00:42:00	1.2	1.6	10	35
24/03/2024	00:43:00	1.2	1.7	10	24
24/03/2024	00:44:00	1.4	1.9	10	39
24/03/2024	00:45:00	1.5	2.1	10	25
24/03/2024	00:46:00	1.6	2.1	10	46
24/03/2024	00:47:00	1.6	2.2	10	37
24/03/2024	00:48:00	1.9	2.4	10	43
24/03/2024	00:49:00	1.5	2.0	9	48
24/03/2024	00:50:00	1.7	2.1	9	44
24/03/2024	00:51:00	1.6	2.2	9	49
24/03/2024	00:52:00	1.7	2.1	9	39
24/03/2024	00:53:00	1.7	2.1	9	42
24/03/2024	00:54:00	1.7	2.1	9	48
24/03/2024	00:55:00	1.6	2.0	9	50
24/03/2024	00:56:00	1.8	2.3	9	49
24/03/2024	00:57:00	1.7	2.1	9	46
24/03/2024	00:58:00	1.8	2.4	9	52
24/03/2024	00:59:00	1.7	2.0	9	45
24/03/2024	01:00:00	1.9	2.6	9	48
24/03/2024	01:01:00	2.0	2.6	9	48
24/03/2024	01:02:00	2.0	2.4	9	49
24/03/2024	01:03:00	1.8	2.4	9	49
24/03/2024	01:04:00	2.0	2.5	9	51
24/03/2024	01:05:00	1.8	2.4	9	49
24/03/2024	01:06:00	2.0	2.6	9	50
24/03/2024	01:07:00	2.1	2.7	9	52
24/03/2024	01:08:00	2.1	2.6	9	49
24/03/2024	01:09:00	2.0	2.8	9	48
24/03/2024	01:10:00	1.9	2.3	9	59
24/03/2024	01:11:00	2.1	2.6	9	57
24/03/2024	01:12:00	2.1	2.7	10	55
24/03/2024	01:13:00	2.1	2.8	10	50
24/03/2024	01:14:00	2.2	3.0	10	56
24/03/2024	01:15:00	2.2	2.9	10	51

24/03/2024	01:16:00	2.2	2.7	10	47
24/03/2024	01:17:00	2.2	2.7	10	52
24/03/2024	01:18:00	2.2	2.8	10	54
24/03/2024	01:19:00	2.4	3.1	10	49
24/03/2024	01:20:00	2.0	2.7	10	52
24/03/2024	01:21:00	2.3	3.0	10	56
24/03/2024	01:22:00	2.5	3.2	10	47
24/03/2024	01:23:00	2.3	3.3	10	54
24/03/2024	01:24:00	2.4	3.0	10	49
24/03/2024	01:25:00	2.4	3.5	10	52
24/03/2024	01:26:00	2.5	3.0	10	52
24/03/2024	01:27:00	2.8	3.4	10	50
24/03/2024	01:28:00	2.5	3.3	10	51
24/03/2024	01:29:00	2.5	3.5	10	52
24/03/2024	01:30:00	2.5	3.0	10	52
24/03/2024	01:31:00	2.2	2.9	10	49
24/03/2024	01:32:00	2.2	2.9	10	43
24/03/2024	01:33:00	2.1	2.6	10	52
24/03/2024	01:34:00	2.3	2.8	10	49
24/03/2024	01:35:00	2.2	3.1	10	51
24/03/2024	01:36:00	2.1	3.0	10	48
24/03/2024	01:37:00	2.2	2.6	10	49
24/03/2024	01:38:00	2.1	2.6	10	42
24/03/2024	01:39:00	1.8	2.2	10	44
24/03/2024	01:40:00	2.0	2.5	10	51
24/03/2024	01:41:00	1.8	2.2	10	46
24/03/2024	01:42:00	1.8	2.5	10	45
24/03/2024	01:43:00	1.6	2.2	10	44
24/03/2024	01:44:00	1.8	2.6	10	43
24/03/2024	01:45:00	1.9	2.4	10	48
24/03/2024	01:46:00	1.7	2.3	10	49
24/03/2024	01:47:00	1.7	2.4	10	47
24/03/2024	01:48:00	1.8	2.4	10	49
24/03/2024	01:49:00	1.8	2.3	9	47
24/03/2024	01:50:00	1.8	2.1	9	46
24/03/2024	01:51:00	1.8	2.1	9	49
24/03/2024	01:52:00	1.9	2.4	9	47
24/03/2024	01:53:00	1.9	2.6	9	47
24/03/2024	01:54:00	2.3	2.8	9	49
24/03/2024	01:55:00	2.2	2.8	9	49
24/03/2024	01:56:00	2.3	3.2	9	53
24/03/2024	01:57:00	2.4	3.1	9	54
24/03/2024	01:58:00	2.5	3.0	9	50
24/03/2024	01:59:00	2.2	2.9	9	56
24/03/2024	02:00:00	2.3	3.4	9	46
24/03/2024	02:01:00	2.5	3.5	9	58

24/03/2024	02:02:00	2.5	3.1	9	50
24/03/2024	02:03:00	2.3	2.9	9	56
24/03/2024	02:04:00	2.4	3.0	9	54
24/03/2024	02:05:00	2.6	3.1	9	51
24/03/2024	02:06:00	2.8	3.5	9	52
24/03/2024	02:07:00	2.6	3.1	9	52
24/03/2024	02:08:00	2.9	3.6	9	48
24/03/2024	02:09:00	2.6	3.2	9	50
24/03/2024	02:10:00	2.3	3.0	9	54
24/03/2024	02:11:00	2.3	2.9	9	54
24/03/2024	02:12:00	2.2	2.6	9	50
24/03/2024	02:13:00	2.4	3.2	9	56
24/03/2024	02:14:00	2.3	3.0	10	51
24/03/2024	02:15:00	2.3	3.0	10	59
24/03/2024	02:16:00	2.4	3.0	10	52
24/03/2024	02:17:00	2.3	2.9	10	49
24/03/2024	02:18:00	2.2	2.9	10	52
24/03/2024	02:19:00	2.3	2.8	10	49
24/03/2024	02:20:00	2.6	3.4	10	51
24/03/2024	02:21:00	2.2	2.8	10	49
24/03/2024	02:22:00	2.3	2.8	10	48
24/03/2024	02:23:00	2.2	2.7	10	45
24/03/2024	02:24:00	2.2	2.6	10	50
24/03/2024	02:25:00	2.3	2.9	10	51
24/03/2024	02:26:00	2.3	3.3	10	41
24/03/2024	02:27:00	2.2	2.7	10	50
24/03/2024	02:28:00	2.1	2.7	10	44
24/03/2024	02:29:00	2.4	3.7	10	53
24/03/2024	02:30:00	2.2	2.8	10	48
24/03/2024	02:31:00	2.1	2.6	10	51
24/03/2024	02:32:00	1.8	2.8	10	55
24/03/2024	02:33:00	2.0	2.7	10	52
24/03/2024	02:34:00	1.9	2.6	10	52
24/03/2024	02:35:00	2.0	2.7	10	53
24/03/2024	02:36:00	2.0	2.5	9	51
24/03/2024	02:37:00	2.0	2.4	9	50
24/03/2024	02:38:00	2.2	2.6	9	52
24/03/2024	02:39:00	2.1	2.7	9	58
24/03/2024	02:40:00	2.2	2.8	9	50
24/03/2024	02:41:00	2.1	2.9	9	48
24/03/2024	02:42:00	2.0	3.1	9	51
24/03/2024	02:43:00	2.1	2.6	9	49
24/03/2024	02:44:00	2.1	3.0	9	52
24/03/2024	02:45:00	2.2	2.8	9	51
24/03/2024	02:46:00	2.1	3.1	9	56
24/03/2024	02:47:00	2.0	2.5	9	65

24/03/2024	02:48:00	2.1	2.7	9	52
24/03/2024	02:49:00	2.0	2.5	9	50
24/03/2024	02:50:00	2.1	2.7	9	49
24/03/2024	02:51:00	2.1	3.0	9	50
24/03/2024	02:52:00	2.1	3.1	9	54
24/03/2024	02:53:00	2.1	3.2	9	49
24/03/2024	02:54:00	2.3	2.8	9	48
24/03/2024	02:55:00	2.0	2.6	9	57
24/03/2024	02:56:00	1.8	2.2	10	59
24/03/2024	02:57:00	2.0	2.5	9	53
24/03/2024	02:58:00	1.8	2.6	9	58
24/03/2024	02:59:00	2.0	2.7	9	51
24/03/2024	03:00:00	2.0	2.5	9	50
24/03/2024	03:01:00	2.1	2.7	9	52
24/03/2024	03:02:00	2.2	2.8	9	53
24/03/2024	03:03:00	2.2	2.7	9	55
24/03/2024	03:04:00	2.2	2.8	9	54
24/03/2024	03:05:00	2.2	2.7	9	52
24/03/2024	03:06:00	1.9	2.4	9	58
24/03/2024	03:07:00	2.0	2.7	9	54
24/03/2024	03:08:00	2.0	2.5	9	53
24/03/2024	03:09:00	2.0	2.7	9	55
24/03/2024	03:10:00	2.2	2.7	9	54
24/03/2024	03:11:00	2.0	2.6	9	66
24/03/2024	03:12:00	1.9	2.6	9	67
24/03/2024	03:13:00	1.9	2.5	9	52
24/03/2024	03:14:00	1.8	2.4	9	56
24/03/2024	03:15:00	1.9	2.3	9	66
24/03/2024	03:16:00	2.1	2.5	9	76
24/03/2024	03:17:00	1.8	2.4	9	70
24/03/2024	03:18:00	1.9	2.3	9	68
24/03/2024	03:19:00	1.9	2.3	9	67
24/03/2024	03:20:00	2.0	2.5	9	65
24/03/2024	03:21:00	2.0	2.6	9	70
24/03/2024	03:22:00	1.9	2.6	9	71
24/03/2024	03:23:00	1.8	2.4	9	75
24/03/2024	03:24:00	1.9	2.4	9	72
24/03/2024	03:25:00	1.7	2.4	9	75
24/03/2024	03:26:00	1.6	1.9	9	75
24/03/2024	03:27:00	1.7	2.4	9	71
24/03/2024	03:28:00	1.5	1.9	9	76
24/03/2024	03:29:00	1.7	2.3	9	78
24/03/2024	03:30:00	1.6	2.2	9	80
24/03/2024	03:31:00	1.5	2.0	9	78
24/03/2024	03:32:00	1.6	2.0	9	77
24/03/2024	03:33:00	1.7	2.3	8	82

24/03/2024	03:34:00	1.4	1.9	8	85
24/03/2024	03:35:00	1.5	1.8	8	88
24/03/2024	03:36:00	1.8	2.1	8	77
24/03/2024	03:37:00	1.9	2.3	8	73
24/03/2024	03:38:00	1.8	2.2	8	77
24/03/2024	03:39:00	1.9	2.3	8	77
24/03/2024	03:40:00	1.7	2.1	8	77
24/03/2024	03:41:00	1.5	2.0	8	86
24/03/2024	03:42:00	1.6	1.8	8	83
24/03/2024	03:43:00	1.7	2.3	8	79
24/03/2024	03:44:00	1.6	2.1	8	85
24/03/2024	03:45:00	1.6	1.9	8	86
24/03/2024	03:46:00	1.8	2.3	8	82
24/03/2024	03:47:00	1.8	2.2	8	80
24/03/2024	03:48:00	1.9	2.3	8	81
24/03/2024	03:49:00	1.9	2.4	8	79
24/03/2024	03:50:00	2.0	2.6	8	76
24/03/2024	03:51:00	1.8	2.5	8	71
24/03/2024	03:52:00	2.2	2.9	8	74
24/03/2024	03:53:00	1.9	2.6	8	69
24/03/2024	03:54:00	1.9	2.3	8	67
24/03/2024	03:55:00	2.0	2.8	8	60
24/03/2024	03:56:00	2.1	2.4	8	68
24/03/2024	03:57:00	2.0	2.4	8	54
24/03/2024	03:58:00	2.1	2.7	8	55
24/03/2024	03:59:00	2.0	2.3	8	58
24/03/2024	04:00:00	1.9	2.6	8	52
24/03/2024	04:01:00	2.3	2.9	8	49
24/03/2024	04:02:00	2.1	2.6	8	50
24/03/2024	04:03:00	2.0	2.4	8	48
24/03/2024	04:04:00	1.8	2.3	8	46
24/03/2024	04:05:00	1.6	2.3	8	41
24/03/2024	04:06:00	1.5	2.2	8	37
24/03/2024	04:07:00	1.5	2.3	8	23
24/03/2024	04:08:00	1.6	2.1	8	45
24/03/2024	04:09:00	1.7	2.2	8	45
24/03/2024	04:10:00	1.6	2.0	8	45
24/03/2024	04:11:00	1.7	2.2	8	50
24/03/2024	04:12:00	1.8	2.2	8	51
24/03/2024	04:13:00	1.7	2.1	8	55
24/03/2024	04:14:00	1.8	2.3	8	48
24/03/2024	04:15:00	2.0	2.2	8	51
24/03/2024	04:16:00	2.0	2.6	8	49
24/03/2024	04:17:00	1.8	2.4	8	67
24/03/2024	04:18:00	1.8	2.1	8	65
24/03/2024	04:19:00	2.0	2.5	8	50

24/03/2024	04:20:00	1.8	2.3	8	64
24/03/2024	04:21:00	1.7	2.0	8	69
24/03/2024	04:22:00	1.7	2.1	8	62
24/03/2024	04:23:00	1.7	2.2	8	57
24/03/2024	04:24:00	1.6	1.9	8	44
24/03/2024	04:25:00	1.4	1.8	8	66
24/03/2024	04:26:00	1.6	2.1	8	62
24/03/2024	04:27:00	1.7	2.3	8	63
24/03/2024	04:28:00	1.7	2.6	8	62
24/03/2024	04:29:00	1.7	2.3	8	53
24/03/2024	04:30:00	1.6	2.0	8	57
24/03/2024	04:31:00	1.7	2.1	8	54
24/03/2024	04:32:00	1.6	1.9	8	50
24/03/2024	04:33:00	1.8	2.6	8	59
24/03/2024	04:34:00	1.9	2.2	8	48
24/03/2024	04:35:00	1.8	2.1	8	44
24/03/2024	04:36:00	1.7	2.2	8	56
24/03/2024	04:37:00	2.0	2.3	8	48
24/03/2024	04:38:00	1.9	2.2	8	49
24/03/2024	04:39:00	2.0	2.4	8	48
24/03/2024	04:40:00	1.9	2.2	8	50
24/03/2024	04:41:00	1.7	2.0	8	55
24/03/2024	04:42:00	1.8	2.0	8	65
24/03/2024	04:43:00	1.9	2.4	8	69
24/03/2024	04:44:00	1.7	2.4	8	70
24/03/2024	04:45:00	1.6	2.0	8	64
24/03/2024	04:46:00	1.5	2.1	8	66
24/03/2024	04:47:00	1.6	2.1	8	76
24/03/2024	04:48:00	1.6	2.2	8	80
24/03/2024	04:49:00	1.3	1.7	8	84
24/03/2024	04:50:00	1.3	1.6	8	82
24/03/2024	04:51:00	1.4	2.0	8	80
24/03/2024	04:52:00	1.5	1.9	8	71
24/03/2024	04:53:00	1.5	1.9	8	69
24/03/2024	04:54:00	1.6	1.9	8	76
24/03/2024	04:55:00	1.5	1.8	8	76
24/03/2024	04:56:00	1.6	2.0	8	78
24/03/2024	04:57:00	1.7	2.2	8	81
24/03/2024	04:58:00	1.6	2.1	8	80
24/03/2024	04:59:00	1.6	2.6	8	69
24/03/2024	05:00:00	1.7	2.3	8	77
24/03/2024	05:01:00	1.5	1.9	8	70
24/03/2024	05:02:00	1.5	2.0	8	70
24/03/2024	05:03:00	1.5	1.9	8	47
24/03/2024	05:04:00	1.7	2.0	8	49
24/03/2024	05:05:00	1.7	2.3	8	49

24/03/2024	05:06:00	1.7	2.1	8	47
24/03/2024	05:07:00	1.6	2.2	8	51
24/03/2024	05:08:00	1.6	2.0	8	51
24/03/2024	05:09:00	1.3	1.7	8	48
24/03/2024	05:10:00	1.5	1.7	8	46
24/03/2024	05:11:00	1.4	1.7	8	47
24/03/2024	05:12:00	1.4	1.7	8	49
24/03/2024	05:13:00	1.4	1.8	8	45
24/03/2024	05:14:00	1.3	1.8	8	46
24/03/2024	05:15:00	1.4	1.7	8	49
24/03/2024	05:16:00	1.5	2.1	8	50
24/03/2024	05:17:00	1.5	1.8	8	48
24/03/2024	05:18:00	1.6	2.1	8	54
24/03/2024	05:19:00	1.8	2.3	8	47
24/03/2024	05:20:00	1.8	2.3	8	50
24/03/2024	05:21:00	1.9	2.4	8	53
24/03/2024	05:22:00	1.8	2.2	8	48
24/03/2024	05:23:00	1.8	2.4	8	57
24/03/2024	05:24:00	1.8	2.2	8	53
24/03/2024	05:25:00	1.8	2.2	8	48
24/03/2024	05:26:00	1.9	2.3	8	58
24/03/2024	05:27:00	2.0	2.8	8	49
24/03/2024	05:28:00	1.8	2.5	8	54
24/03/2024	05:29:00	1.8	2.5	8	49
24/03/2024	05:30:00	1.9	2.3	8	49
24/03/2024	05:31:00	1.6	2.4	8	60
24/03/2024	05:32:00	1.5	1.9	8	49
24/03/2024	05:33:00	1.6	2.0	8	61
24/03/2024	05:34:00	1.7	2.5	8	52
24/03/2024	05:35:00	1.7	2.1	8	49
24/03/2024	05:36:00	1.8	2.4	8	48
24/03/2024	05:37:00	1.9	2.5	8	50
24/03/2024	05:38:00	2.0	2.6	8	47
24/03/2024	05:39:00	2.1	2.5	8	50
24/03/2024	05:40:00	1.8	2.2	8	48
24/03/2024	05:41:00	1.6	2.2	8	52
24/03/2024	05:42:00	2.2	2.5	8	51
24/03/2024	05:43:00	1.8	2.4	8	45
24/03/2024	05:44:00	1.7	2.2	8	47
24/03/2024	05:45:00	1.8	2.4	8	51
24/03/2024	05:46:00	1.7	2.2	8	49
24/03/2024	05:47:00	1.8	2.3	8	51
24/03/2024	05:48:00	1.5	1.9	8	52
24/03/2024	05:49:00	1.8	2.2	8	51
24/03/2024	05:50:00	1.9	2.3	8	45
24/03/2024	05:51:00	1.8	2.5	8	52

24/03/2024	05:52:00	1.6	2.1	8	56
24/03/2024	05:53:00	1.6	1.9	8	57
24/03/2024	05:54:00	1.6	1.9	8	56
24/03/2024	05:55:00	1.7	2.1	8	51
24/03/2024	05:56:00	1.7	2.3	8	54
24/03/2024	05:57:00	2.0	2.6	8	47
24/03/2024	05:58:00	1.9	2.6	8	52
24/03/2024	05:59:00	1.6	2.1	8	55
24/03/2024	06:00:00	1.7	2.0	8	61
24/03/2024	06:01:00	1.7	2.2	8	57
24/03/2024	06:02:00	1.8	2.6	8	63
24/03/2024	06:03:00	1.9	2.3	8	71
24/03/2024	06:04:00	1.8	2.3	8	63
24/03/2024	06:05:00	1.6	1.9	8	52
24/03/2024	06:06:00	1.6	2.0	8	60
24/03/2024	06:07:00	1.5	1.7	8	70
24/03/2024	06:08:00	1.4	2.2	8	59
24/03/2024	06:09:00	1.3	1.7	8	55
24/03/2024	06:10:00	1.4	1.9	8	55
24/03/2024	06:11:00	1.6	2.2	8	48
24/03/2024	06:12:00	1.5	2.0	8	46
24/03/2024	06:13:00	1.5	1.8	8	44
24/03/2024	06:14:00	1.5	2.1	8	47
24/03/2024	06:15:00	1.4	1.9	8	52
24/03/2024	06:16:00	1.6	2.1	8	47
24/03/2024	06:17:00	1.6	2.1	8	47
24/03/2024	06:18:00	1.6	2.0	8	42
24/03/2024	06:19:00	1.5	1.9	8	42
24/03/2024	06:20:00	1.5	2.0	8	36
24/03/2024	06:21:00	1.5	1.9	8	47
24/03/2024	06:22:00	1.5	1.9	8	45
24/03/2024	06:23:00	1.7	2.1	8	47
24/03/2024	06:24:00	1.6	2.0	8	47
24/03/2024	06:25:00	1.6	2.3	8	45
24/03/2024	06:26:00	1.6	2.2	8	51
24/03/2024	06:27:00	1.5	2.0	8	47
24/03/2024	06:28:00	1.4	1.7	8	38
24/03/2024	06:29:00	1.5	2.4	8	50
24/03/2024	06:30:00	1.7	2.2	8	44
24/03/2024	06:31:00	1.4	1.9	7	31
24/03/2024	06:32:00	1.7	2.3	7	48
24/03/2024	06:33:00	1.6	1.9	7	43
24/03/2024	06:34:00	1.6	2.0	7	38
24/03/2024	06:35:00	1.4	2.1	7	43
24/03/2024	06:36:00	1.5	2.1	7	42
24/03/2024	06:37:00	1.5	1.9	7	41

24/03/2024	06:38:00	1.2	1.7	7	43
24/03/2024	06:39:00	1.3	1.7	7	55
24/03/2024	06:40:00	1.3	2.2	7	60
24/03/2024	06:41:00	1.4	2.0	7	42
24/03/2024	06:42:00	1.3	1.9	7	44
24/03/2024	06:43:00	1.6	2.1	7	54
24/03/2024	06:44:00	1.7	2.1	7	51
24/03/2024	06:45:00	1.6	2.1	7	48
24/03/2024	06:46:00	1.7	2.2	7	47
24/03/2024	06:47:00	1.8	2.2	7	48
24/03/2024	06:48:00	1.7	2.3	7	48
24/03/2024	06:49:00	1.7	2.1	7	48
24/03/2024	06:50:00	1.8	2.3	7	46
24/03/2024	06:51:00	1.7	2.3	7	46
24/03/2024	06:52:00	1.4	2.2	7	33
24/03/2024	06:53:00	1.6	2.0	7	50
24/03/2024	06:54:00	1.5	2.0	7	52
24/03/2024	06:55:00	1.6	2.1	7	39
24/03/2024	06:56:00	1.3	1.9	7	38
24/03/2024	06:57:00	1.3	1.7	7	55
24/03/2024	06:58:00	1.2	1.5	7	57
24/03/2024	06:59:00	1.4	2.0	7	57
24/03/2024	07:00:00	1.5	1.9	7	51
24/03/2024	07:01:00	1.7	2.1	7	46
24/03/2024	07:02:00	1.5	1.9	7	57
24/03/2024	07:03:00	1.6	2.1	7	57
24/03/2024	07:04:00	1.5	2.2	7	56
24/03/2024	07:05:00	1.8	2.5	7	49
24/03/2024	07:06:00	2.0	2.6	7	50
24/03/2024	07:07:00	2.1	2.8	7	43
24/03/2024	07:08:00	2.0	2.6	7	38
24/03/2024	07:09:00	1.9	2.6	7	45
24/03/2024	07:10:00	1.9	2.4	7	44
24/03/2024	07:11:00	2.1	2.6	7	41
24/03/2024	07:12:00	1.9	2.5	7	39
24/03/2024	07:13:00	1.7	2.2	7	52
24/03/2024	07:14:00	2.1	2.6	7	40
24/03/2024	07:15:00	2.1	2.6	7	45
24/03/2024	07:16:00	2.3	3.1	7	30
24/03/2024	07:17:00	2.2	2.8	7	43
24/03/2024	07:18:00	2.3	3.3	7	41
24/03/2024	07:19:00	2.2	2.9	7	50
24/03/2024	07:20:00	2.5	3.1	7	49
24/03/2024	07:21:00	2.4	3.2	7	50
24/03/2024	07:22:00	2.3	3.1	7	50
24/03/2024	07:23:00	2.7	3.6	8	38

24/03/2024	07:24:00	2.5	3.5	8	25
24/03/2024	07:25:00	2.5	3.5	8	46
24/03/2024	07:26:00	2.2	3.1	8	47
24/03/2024	07:27:00	2.1	2.7	8	55
24/03/2024	07:28:00	2.4	2.9	8	52
24/03/2024	07:29:00	2.5	2.9	8	45
24/03/2024	07:30:00	2.7	3.6	8	45
24/03/2024	07:31:00	2.7	3.8	8	48
24/03/2024	07:32:00	2.5	3.3	8	53
24/03/2024	07:33:00	2.3	2.8	8	49
24/03/2024	07:34:00	2.6	3.2	8	47
24/03/2024	07:35:00	2.4	3.0	8	50
24/03/2024	07:36:00	2.7	4.3	8	58
24/03/2024	07:37:00	2.5	3.3	8	52
24/03/2024	07:38:00	2.7	3.3	8	54
24/03/2024	07:39:00	2.6	3.2	8	49
24/03/2024	07:40:00	3.2	4.0	8	47
24/03/2024	07:41:00	2.4	3.0	8	59
24/03/2024	07:42:00	2.4	2.9	8	53
24/03/2024	07:43:00	2.6	3.6	8	63
24/03/2024	07:44:00	2.8	3.8	8	50
24/03/2024	07:45:00	2.9	3.9	8	51
24/03/2024	07:46:00	3.1	4.1	8	52
24/03/2024	07:47:00	3.0	3.7	8	54
24/03/2024	07:48:00	2.7	3.5	8	53
24/03/2024	07:49:00	2.4	3.6	8	60
24/03/2024	07:50:00	2.6	3.5	8	53
24/03/2024	07:51:00	2.7	3.7	8	52
24/03/2024	07:52:00	2.2	3.1	8	62
24/03/2024	07:53:00	2.4	3.0	8	59
24/03/2024	07:54:00	2.4	3.0	8	57
24/03/2024	07:55:00	2.6	3.2	8	49
24/03/2024	07:56:00	2.9	4.0	8	39
24/03/2024	07:57:00	2.8	3.8	8	49
24/03/2024	07:58:00	2.7	3.2	8	49
24/03/2024	07:59:00	2.6	3.2	8	53
24/03/2024	08:00:00	2.6	3.4	8	63
24/03/2024	08:01:00	2.5	3.3	8	77
24/03/2024	08:02:00	2.6	3.3	8	68
24/03/2024	08:03:00	2.9	4.0	8	54
24/03/2024	08:04:00	2.4	3.0	8	65
24/03/2024	08:05:00	2.7	3.4	8	55
24/03/2024	08:06:00	2.9	3.9	9	54
24/03/2024	08:07:00	2.8	3.6	9	60
24/03/2024	08:08:00	2.7	4.0	9	71
24/03/2024	08:09:00	2.5	3.2	9	81

24/03/2024	08:10:00	2.4	3.7	9	81
24/03/2024	08:11:00	2.2	3.1	9	80
24/03/2024	08:12:00	2.8	3.7	9	74
24/03/2024	08:13:00	2.4	3.2	9	58
24/03/2024	08:14:00	2.5	3.8	9	82
24/03/2024	08:15:00	2.6	3.3	9	62
24/03/2024	08:16:00	2.7	4.0	9	48
24/03/2024	08:17:00	2.8	3.7	9	57
24/03/2024	08:18:00	2.9	3.7	9	56
24/03/2024	08:19:00	2.7	4.0	9	61
24/03/2024	08:20:00	3.1	4.1	9	49
24/03/2024	08:21:00	2.7	3.7	10	61
24/03/2024	08:22:00	2.0	2.7	10	76
24/03/2024	08:23:00	2.3	2.9	10	75
24/03/2024	08:24:00	2.4	3.5	10	66
24/03/2024	08:25:00	2.8	3.6	10	76
24/03/2024	08:26:00	3.1	3.9	10	79
24/03/2024	08:27:00	2.6	3.2	10	60
24/03/2024	08:28:00	2.5	3.3	10	74
24/03/2024	08:29:00	2.1	2.8	10	109
24/03/2024	08:30:00	2.1	2.7	10	111
24/03/2024	08:31:00	2.2	2.9	10	109
24/03/2024	08:32:00	2.0	2.9	10	99
24/03/2024	08:33:00	3.6	5.8	10	75
24/03/2024	08:34:00	2.9	3.9	10	78
24/03/2024	08:35:00	2.6	3.9	10	81
24/03/2024	08:36:00	2.3	2.9	10	97
24/03/2024	08:37:00	2.0	2.8	10	105
24/03/2024	08:38:00	1.8	2.5	10	104
24/03/2024	08:39:00	1.7	2.4	10	108
24/03/2024	08:40:00	2.0	2.7	10	97
24/03/2024	08:41:00	1.6	2.2	10	101
24/03/2024	08:42:00	1.8	2.4	10	97
24/03/2024	08:43:00	2.1	2.7	10	96
24/03/2024	08:44:00	2.0	2.5	10	96
24/03/2024	08:45:00	2.5	3.2	10	93
24/03/2024	08:46:00	2.0	2.8	10	97
24/03/2024	08:47:00	1.9	2.5	11	99
24/03/2024	08:48:00	1.7	2.3	11	96
24/03/2024	08:49:00	2.3	2.9	11	95
24/03/2024	08:50:00	1.9	2.4	11	102
24/03/2024	08:51:00	1.8	2.7	11	106
24/03/2024	08:52:00	1.8	2.3	11	98
24/03/2024	08:53:00	1.6	2.1	11	108
24/03/2024	08:54:00	1.9	2.3	11	104
24/03/2024	08:55:00	1.7	2.4	11	103

24/03/2024	08:56:00	1.8	2.5	11	93
24/03/2024	08:57:00	2.1	2.6	11	88
24/03/2024	08:58:00	2.3	3.2	11	88
24/03/2024	08:59:00	2.1	3.0	11	107
24/03/2024	09:00:00	1.7	2.5	11	100
24/03/2024	09:01:00	1.7	2.4	11	102
24/03/2024	09:02:00	1.8	2.3	11	99
24/03/2024	09:03:00	2.3	4.0	11	118
24/03/2024	09:04:00	2.0	2.7	11	101
24/03/2024	09:05:00	1.7	2.4	12	95
24/03/2024	09:06:00	1.9	2.5	12	91
24/03/2024	09:07:00	1.9	3.1	12	99
24/03/2024	09:08:00	1.9	2.5	12	102
24/03/2024	09:09:00	1.5	2.3	12	93
24/03/2024	09:10:00	2.2	2.9	12	87
24/03/2024	09:11:00	2.4	3.0	12	94
24/03/2024	09:12:00	2.3	2.9	12	101
24/03/2024	09:13:00	2.1	2.8	12	96
24/03/2024	09:14:00	1.8	2.3	12	102
24/03/2024	09:15:00	2.0	2.6	12	89
24/03/2024	09:16:00	2.0	2.5	12	102
24/03/2024	09:17:00	1.9	2.5	12	104
24/03/2024	09:18:00	2.0	2.6	12	97
24/03/2024	09:19:00	2.0	2.8	12	98
24/03/2024	09:20:00	2.4	3.0	12	91
24/03/2024	09:21:00	2.1	3.0	12	98
24/03/2024	09:22:00	2.4	2.9	12	88
24/03/2024	09:23:00	1.9	2.4	12	99
24/03/2024	09:24:00	2.4	3.4	12	104
24/03/2024	09:25:00	2.0	2.4	12	93
24/03/2024	09:26:00	1.7	2.1	12	102
24/03/2024	09:27:00	2.0	2.5	12	100
24/03/2024	09:28:00	2.3	3.2	12	90
24/03/2024	09:29:00	2.1	2.5	13	97
24/03/2024	09:30:00	1.7	2.3	13	94
24/03/2024	09:31:00	2.3	3.3	13	89
24/03/2024	09:32:00	2.0	2.7	13	96
24/03/2024	09:33:00	2.4	3.1	13	80
24/03/2024	09:34:00	2.0	2.8	13	88
24/03/2024	09:35:00	2.0	2.7	13	90
24/03/2024	09:36:00	2.0	2.5	13	98
24/03/2024	09:37:00	2.0	2.6	13	99
24/03/2024	09:38:00	2.1	3.0	13	86
24/03/2024	09:39:00	1.9	2.5	13	98
24/03/2024	09:40:00	1.6	2.0	13	95
24/03/2024	09:41:00	1.8	2.8	13	86

24/03/2024	09:42:00	2.7	3.7	13	72
24/03/2024	09:43:00	2.2	2.7	13	93
24/03/2024	09:44:00	2.0	2.6	13	100
24/03/2024	09:45:00	2.0	3.0	13	98
24/03/2024	09:46:00	2.4	3.6	13	90
24/03/2024	09:47:00	2.2	3.5	13	88
24/03/2024	09:48:00	2.1	2.6	13	98
24/03/2024	09:49:00	2.0	2.7	13	98
24/03/2024	09:50:00	2.0	2.6	13	106
24/03/2024	09:51:00	2.1	3.3	13	91
24/03/2024	09:52:00	2.3	3.0	13	90
24/03/2024	09:53:00	2.1	2.8	14	98
24/03/2024	09:54:00	2.2	2.7	14	102
24/03/2024	09:55:00	2.3	3.3	14	82
24/03/2024	09:56:00	2.3	3.1	14	89
24/03/2024	09:57:00	2.3	3.2	14	85
24/03/2024	09:58:00	2.0	2.7	14	91
24/03/2024	09:59:00	2.1	2.8	14	86
24/03/2024	10:00:00	1.9	2.5	14	93
24/03/2024	10:01:00	2.5	3.1	14	88
24/03/2024	10:02:00	2.3	2.6	14	94
24/03/2024	10:03:00	2.1	2.6	14	96
24/03/2024	10:04:00	2.1	2.8	14	94
24/03/2024	10:05:00	2.1	2.9	14	99
24/03/2024	10:06:00	2.1	3.2	14	90
24/03/2024	10:07:00	1.9	2.7	14	86
24/03/2024	10:08:00	1.9	2.5	14	90
24/03/2024	10:09:00	1.8	2.3	14	102
24/03/2024	10:10:00	1.7	2.1	14	94
24/03/2024	10:11:00	1.7	2.5	14	96
24/03/2024	10:12:00	1.5	2.1	14	93
24/03/2024	10:13:00	1.5	1.9	14	100
24/03/2024	10:14:00	1.6	2.1	14	93
24/03/2024	10:15:00	2.0	2.3	14	81
24/03/2024	10:16:00	1.8	2.2	15	89
24/03/2024	10:17:00	2.1	3.2	15	77
24/03/2024	10:18:00	1.9	2.3	15	92
24/03/2024	10:19:00	1.8	2.6	15	94
24/03/2024	10:20:00	1.6	2.0	15	92
24/03/2024	10:21:00	1.6	2.1	15	91
24/03/2024	10:22:00	1.7	2.1	15	96
24/03/2024	10:23:00	1.7	2.2	15	98
24/03/2024	10:24:00	1.8	2.2	15	103
24/03/2024	10:25:00	1.8	2.6	15	101
24/03/2024	10:26:00	2.1	2.7	15	96
24/03/2024	10:27:00	2.1	3.3	15	107

24/03/2024	10:28:00	1.6	2.2	15	107
24/03/2024	10:29:00	1.6	2.2	15	115
24/03/2024	10:30:00	1.5	2.3	15	106
24/03/2024	10:31:00	1.7	2.6	15	113
24/03/2024	10:32:00	1.6	2.4	16	104
24/03/2024	10:33:00	2.0	2.9	16	88
24/03/2024	10:34:00	1.8	2.4	16	106
24/03/2024	10:35:00	1.8	2.4	16	93
24/03/2024	10:36:00	1.6	2.3	16	94
24/03/2024	10:37:00	1.6	2.2	16	100
24/03/2024	10:38:00	2.1	2.7	16	102
24/03/2024	10:39:00	1.6	2.1	16	100
24/03/2024	10:40:00	1.6	2.1	16	95
24/03/2024	10:41:00	1.8	2.4	16	97
24/03/2024	10:42:00	2.0	3.4	16	114
24/03/2024	10:43:00	1.8	2.7	16	100
24/03/2024	10:44:00	1.7	2.1	16	99
24/03/2024	10:45:00	1.7	2.5	16	93
24/03/2024	10:46:00	2.0	2.6	16	87
24/03/2024	10:47:00	1.8	2.5	16	88
24/03/2024	10:48:00	2.1	2.7	17	84
24/03/2024	10:49:00	2.1	2.6	17	90
24/03/2024	10:50:00	1.5	1.9	17	105
24/03/2024	10:51:00	1.3	2.2	17	107

Data for N 6 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/28/2024	8:29:32	58.2	86	78.9	36.8	59.4	44.6
3/28/2024	8:39:32	56.6	84.4	73	41.4	59.2	47.3
3/28/2024	8:49:32	58	85.8	73.9	40.1	61.4	47.7
3/28/2024	8:59:32	58.3	86.1	77.3	41.2	60.6	47.2
3/28/2024	9:09:32	62.2	90	78.2	44.2	66.3	51.4
3/28/2024	9:19:32	60	87.8	82.2	41.2	60.2	46.2
3/28/2024	9:29:32	59.2	87	78.4	40.9	62.1	48.2
3/28/2024	9:39:32	58.8	86.6	73.7	41.3	60.9	46.3
3/28/2024	9:49:32	63.9	91.7	81.2	40.8	67	50
3/28/2024	9:59:32	58.6	86.4	77.6	42.2	60.5	47.9
3/28/2024	10:09:32	57.6	85.4	70.7	42.8	60.9	47.4
3/28/2024	10:19:32	58.5	86.3	78	43	60.8	48.4
3/28/2024	10:29:32	59.3	87.1	75	41.3	61.6	47.1
3/28/2024	10:39:32	60.4	88.2	76.7	41	63.2	46.9
3/28/2024	10:49:32	61.4	89.2	78.8	43.1	65.5	49
3/28/2024	10:59:32	61.6	89.4	79.5	41.9	64.1	47.5
3/28/2024	11:09:32	60.7	88.5	76.6	40	63.9	47.3

3/28/2024	11:19:32	58.6	86.4	78.1	41.5	62.6	46
3/28/2024	11:29:32	58.4	86.2	74.8	39.3	61.4	46.6
3/28/2024	11:39:32	61.5	89.3	76.2	44.4	65.9	50.1
3/28/2024	11:49:32	59.7	87.5	80	40.7	62.5	46
3/28/2024	11:59:32	60.5	88.3	76.4	41.1	65.7	46.4
3/28/2024	12:09:32	59.5	87.3	74.5	42.5	63.7	47.6
3/28/2024	12:19:32	58.2	86	74.8	39.6	61.4	47.5
3/28/2024	12:29:32	59.8	87.6	75.1	44.3	63.5	48.2
3/28/2024	12:39:32	56.2	84	70.4	39.3	59.8	45.4
3/28/2024	12:49:32	58.1	85.9	77.2	42.4	61.2	48.2
3/28/2024	12:59:32	57.6	85.4	74.5	41.9	60.1	46.4
3/28/2024	13:09:32	60.1	87.9	79.7	39.7	64.8	45.1
3/28/2024	13:19:32	60.3	88.1	77.1	40.3	64.5	45.9
3/28/2024	13:29:32	55.4	83.2	70	39.6	58.3	45.1
3/28/2024	13:39:32	61.1	88.9	80.7	40.5	65.2	46.5
3/28/2024	13:49:32	60.9	88.7	81.9	40.5	63.6	47.3
3/28/2024	13:59:32	57.4	85.2	77.1	42.5	59.7	46.4
3/28/2024	14:09:32	60.3	88.1	79	41	61.8	47.7
3/28/2024	14:19:32	60.6	88.4	79.7	39.4	62.5	46.2
3/28/2024	14:29:32	59.9	87.7	77.2	42.1	62	46.9
3/28/2024	14:39:32	61.4	89.2	76.7	42	66.4	47.6
3/28/2024	14:49:32	61.9	89.7	83.5	41.4	64.1	47.5
3/28/2024	14:59:32	62.3	90.1	83.2	41.4	64.7	47.5
3/28/2024	15:09:32	60.2	88	77.6	41	64.1	47.5
3/28/2024	15:19:32	60.7	88.5	80.3	38.9	64	44.8
3/28/2024	15:29:32	58.5	86.3	77.9	38.2	62.3	45.6
3/28/2024	15:39:32	58.8	86.6	74.2	40.3	61.6	46.2
3/28/2024	15:49:32	58.1	85.9	81.1	43.5	60.3	48.8
3/28/2024	15:59:32	57.1	84.9	75.2	39.6	60.8	46.3
3/28/2024	16:09:32	60.1	87.9	79.7	39.5	62.2	44.9
3/28/2024	16:19:32	58	85.8	72.7	41	61.4	48
3/28/2024	16:29:32	59.5	87.3	79.8	38.9	62	45.9
3/28/2024	16:39:32	59.5	87.3	76.1	42.2	63.4	47.5
3/28/2024	16:49:32	60.6	88.4	79	40.5	63.5	45.1
3/28/2024	16:59:32	56.2	84	75.1	36.3	57.8	42.3
3/28/2024	17:09:32	62.1	89.9	78.3	40.9	66.5	46.7
3/28/2024	17:19:32	63.8	91.6	83.2	42.8	64.5	48.9
3/28/2024	17:29:32	58.8	86.6	77.3	41.6	61.2	46.8
3/28/2024	17:39:32	59.1	86.9	78.6	40.5	60.3	46.5
3/28/2024	17:49:32	59.1	86.9	73.9	40.4	63.5	46.4
3/28/2024	17:59:32	57.1	84.9	68.6	40.5	61.2	45.6
3/28/2024	18:09:32	56.1	83.9	71.2	38.2	58.6	44
3/28/2024	18:19:32	58.3	86.1	71.7	41.9	63	47
3/28/2024	18:29:32	57.2	85	71.6	40	60.7	47.4
3/28/2024	18:39:32	57.3	85.1	77.2	41.3	59.8	45.6
3/28/2024	18:49:32	54.6	82.4	66.7	40.3	58.2	45.6

3/28/2024	18:59:32	56.1	83.9	70.9	38.1	60.1	44.7
3/28/2024	19:09:32	58.3	86.1	78.8	35.2	59.9	42.7
3/28/2024	19:19:32	59.1	86.9	79	41.1	61.9	46.2
3/28/2024	19:29:32	55.3	83.1	70.4	37	59.8	42.8
3/28/2024	19:39:32	54.7	82.5	72.4	38.6	57.6	42.7
3/28/2024	19:49:32	55.9	83.7	71.6	32.7	60.7	39.9
3/28/2024	19:59:32	49.8	77.6	64.8	31.6	54.3	37.7
3/28/2024	20:09:32	55.5	83.3	76.5	30.4	55.6	35.6
3/28/2024	20:19:32	54.5	82.3	66.2	39.6	58.8	43.9
3/28/2024	20:29:32	56.8	84.6	74.5	34.3	61	39.2
3/28/2024	20:39:32	64	91.8	90.2	34.9	57.7	42.9
3/28/2024	20:49:32	61.7	89.5	82.9	34.5	62.5	41.5
3/28/2024	20:59:32	67	94.8	88	35.1	65	41.7
3/28/2024	21:09:32	55.3	83.1	72.5	30.2	58.3	35.6
3/28/2024	21:19:32	57	84.8	73.4	37.8	60.3	43.2
3/28/2024	21:29:32	52.9	80.7	70.2	35.4	55	41
3/28/2024	21:39:32	58.6	86.4	78.3	33.3	60.4	39.1
3/28/2024	21:49:32	58.1	85.9	77.6	33.4	62	39.5
3/28/2024	21:59:32	50.7	78.5	64.8	30.9	54.5	38
3/28/2024	22:09:32	56.2	84	73.2	35.8	59.1	40
3/28/2024	22:19:32	56.2	84	74.4	31.6	59.7	38.4
3/28/2024	22:29:32	52.8	80.6	69.6	34.7	54.9	39.3
3/28/2024	22:39:32	56.2	84	73.7	33.5	58	42
3/28/2024	22:49:32	55.7	83.5	74	30.1	58	35.4
3/28/2024	22:59:32	54.9	82.7	68.5	36.7	58.3	41.8
3/28/2024	23:09:32	54.4	82.2	70.5	28.6	57.5	35.7
3/28/2024	23:19:32	58.5	86.3	82.1	36.4	58.4	40.3
3/28/2024	23:29:32	53.7	81.5	71.8	31.9	56.8	37.1
3/28/2024	23:39:32	52.1	79.9	70.8	30.1	55.5	33.9
3/28/2024	23:49:32	51.8	79.6	64.5	30.4	56.6	35.8
3/28/2024	23:59:32	48.7	76.5	64.5	28.5	52.5	34.4
3/29/2024	0:09:32	47.5	75.3	66.3	25.4	51.8	29.8
3/29/2024	0:19:32	60.5	88.3	81.3	26.8	59.5	32
3/29/2024	0:29:32	61.7	89.5	85.1	29	58.7	33
3/29/2024	0:39:32	59.5	87.3	83.2	26.6	60.6	34.2
3/29/2024	0:49:32	54.5	82.3	69.8	28.9	59.8	35.4
3/29/2024	0:59:32	54.1	81.9	71	29.8	57.3	36.5
3/29/2024	1:09:32	57.2	85	76.7	28.6	57.3	35.8
3/29/2024	1:19:32	44	71.8	60.4	21.3	45.8	28.4
3/29/2024	1:29:32	44.9	72.7	61.7	22.6	47.5	27.8
3/29/2024	1:39:32	54.2	82	69.3	33.8	58.9	36.9
3/29/2024	1:49:32	52.4	80.2	68.3	22.1	53.6	28.3
3/29/2024	1:59:32	49.6	77.4	65.1	25.5	53.3	30.4
3/29/2024	2:09:32	45.5	73.3	64.4	24	47.9	30.6
3/29/2024	2:19:32	48.5	76.3	64.7	23.8	49.8	30.6
3/29/2024	2:29:32	51.1	78.9	70.2	23.5	52.2	29.9

3/29/2024	2:39:32	52.8	80.6	70.9	22.8	51.3	26.8
3/29/2024	2:49:32	46.4	74.2	68.4	22.2	47	25.2
3/29/2024	2:59:32	47	74.8	62.8	25	50.1	28.5
3/29/2024	3:09:32	53.6	81.4	75.8	25.7	54.8	30.6
3/29/2024	3:19:32	51.8	79.6	70.8	25.2	48.4	28.6
3/29/2024	3:29:32	56.7	84.5	80.3	25.7	52.5	28.9
3/29/2024	3:39:32	53.9	81.7	77.2	26.1	47.6	28.1
3/29/2024	3:49:32	55.7	83.5	74.5	28.3	54.9	31
3/29/2024	3:59:32	37	64.8	55.3	27.4	38.9	28.8
3/29/2024	4:09:32	40	67.8	55.1	27.2	42.4	29.2
3/29/2024	4:19:32	44	71.8	60.8	25.6	45.8	28.6
3/29/2024	4:29:32	43	70.8	59.3	22.4	45.9	27.1
3/29/2024	4:39:32	40.6	68.4	60.7	22.1	38.1	24.6
3/29/2024	4:49:32	53.9	81.7	74.2	25.5	55.5	28.8
3/29/2024	4:59:32	51	78.8	71.5	24.8	51.5	27.4
3/29/2024	5:09:32	52.9	80.7	69.4	29.9	55.9	33.5
3/29/2024	5:19:32	53.3	81.1	68.1	27.2	55.8	30
3/29/2024	5:29:32	45.6	73.4	62	27.1	49.3	31
3/29/2024	5:39:32	53.4	81.2	73.8	28.2	54.9	33.1
3/29/2024	5:49:32	46.6	74.4	63.7	28.3	49.8	31.8
3/29/2024	5:59:32	51	78.8	67.5	31.3	54	34.2
3/29/2024	6:09:32	49.7	77.5	61.9	27.6	53.6	33.5
3/29/2024	6:19:32	49.9	77.7	63	29.9	54.1	34.5
3/29/2024	6:29:32	59.4	87.2	79.7	30.1	61.2	36.1
3/29/2024	6:39:32	58.6	86.4	79	38.7	61	44.1
3/29/2024	6:49:32	56.4	84.2	74.6	35.7	58.8	41.6
3/29/2024	6:59:32	60.5	88.3	76.3	33.2	62.7	41.6
3/29/2024	7:09:32	60.3	88.1	76.6	36.2	62.1	43
3/29/2024	7:19:32	55.1	82.9	73.8	37.8	58	43.2
3/29/2024	7:29:32	60.6	88.4	81.1	37.7	63.9	46.9
3/29/2024	7:39:32	60.4	88.2	81.3	36.1	61.5	40.5
3/29/2024	7:49:32	57.5	85.3	79.8	41.4	59.6	46.4
3/29/2024	7:59:32	59.7	87.5	76.3	39.1	63.1	46.2
3/29/2024	8:09:32	58.9	86.7	78.4	42.1	61.7	47.1
3/29/2024	8:19:32	59.7	87.5	77	42.2	62.6	48.5
3/29/2024	8:29:32	62.9	90.7	82.1	46.4	63.5	50.5

Data for N 6 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
28/03/2024	08:29:00	1.9	2.8	7	184
28/03/2024	08:30:00	1.9	3.1	7	159
28/03/2024	08:31:00	1.8	3.2	7	165
28/03/2024	08:32:00	2.0	3.5	7	167

28/03/2024	08:33:00	2.3	4.2	7	155
28/03/2024	08:34:00	2.0	3.7	7	187
28/03/2024	08:35:00	1.5	1.9	7	187
28/03/2024	08:36:00	1.8	3.1	7	193
28/03/2024	08:37:00	2.2	3.4	7	184
28/03/2024	08:38:00	2.0	3.0	7	156
28/03/2024	08:39:00	2.2	5.0	8	182
28/03/2024	08:40:00	1.8	2.4	8	193
28/03/2024	08:41:00	2.4	3.9	8	192
28/03/2024	08:42:00	2.0	3.6	8	170
28/03/2024	08:43:00	1.8	4.1	8	154
28/03/2024	08:44:00	2.3	3.4	8	169
28/03/2024	08:45:00	1.9	2.7	8	176
28/03/2024	08:46:00	2.0	3.2	8	158
28/03/2024	08:47:00	2.2	2.9	8	173
28/03/2024	08:48:00	1.9	2.8	8	171
28/03/2024	08:49:00	1.8	3.0	8	176
28/03/2024	08:50:00	2.5	4.0	8	160
28/03/2024	08:51:00	2.5	4.0	8	165
28/03/2024	08:52:00	1.6	3.4	8	159
28/03/2024	08:53:00	2.2	3.8	8	181
28/03/2024	08:54:00	1.7	2.8	8	188
28/03/2024	08:55:00	1.8	2.8	8	182
28/03/2024	08:56:00	1.4	2.0	8	182
28/03/2024	08:57:00	1.6	2.0	8	185
28/03/2024	08:58:00	2.4	5.4	8	192
28/03/2024	08:59:00	2.1	3.4	8	171
28/03/2024	09:00:00	1.6	2.4	8	177
28/03/2024	09:01:00	1.9	3.1	8	164
28/03/2024	09:02:00	2.3	3.4	8	147
28/03/2024	09:03:00	2.3	3.3	8	156
28/03/2024	09:04:00	1.9	2.5	8	170
28/03/2024	09:05:00	2.0	3.0	8	169
28/03/2024	09:06:00	2.2	3.4	8	155
28/03/2024	09:07:00	2.0	3.0	8	194
28/03/2024	09:08:00	2.5	3.5	8	188
28/03/2024	09:09:00	2.0	2.8	8	174
28/03/2024	09:10:00	1.7	3.1	9	165
28/03/2024	09:11:00	1.8	2.8	9	173
28/03/2024	09:12:00	2.2	3.7	9	151
28/03/2024	09:13:00	2.7	3.8	9	154
28/03/2024	09:14:00	1.8	2.5	9	166
28/03/2024	09:15:00	2.1	3.1	9	166
28/03/2024	09:16:00	2.5	3.3	9	157
28/03/2024	09:17:00	2.4	4.1	9	159
28/03/2024	09:18:00	2.0	2.9	9	164

28/03/2024	09:19:00	2.1	4.3	9	165
28/03/2024	09:20:00	2.4	3.3	9	191
28/03/2024	09:21:00	2.3	3.2	10	159
28/03/2024	09:22:00	2.0	2.5	10	154
28/03/2024	09:23:00	1.9	3.1	10	190
28/03/2024	09:24:00	2.3	4.2	10	162
28/03/2024	09:25:00	1.7	2.8	10	153
28/03/2024	09:26:00	1.8	2.8	10	153
28/03/2024	09:27:00	2.2	3.8	10	202
28/03/2024	09:28:00	1.9	3.0	10	186
28/03/2024	09:29:00	2.7	5.2	10	184
28/03/2024	09:30:00	2.0	2.6	10	178
28/03/2024	09:31:00	2.2	3.6	10	183
28/03/2024	09:32:00	1.9	2.5	10	167
28/03/2024	09:33:00	1.9	3.3	10	157
28/03/2024	09:34:00	1.9	3.5	10	160
28/03/2024	09:35:00	2.0	2.9	10	158
28/03/2024	09:36:00	1.7	2.9	10	187
28/03/2024	09:37:00	1.5	2.1	10	183
28/03/2024	09:38:00	1.5	2.3	10	179
28/03/2024	09:39:00	1.9	4.2	10	191
28/03/2024	09:40:00	2.1	3.3	10	194
28/03/2024	09:41:00	2.2	3.4	10	160
28/03/2024	09:42:00	2.0	3.1	10	158
28/03/2024	09:43:00	1.8	2.5	10	173
28/03/2024	09:44:00	1.9	3.1	10	175
28/03/2024	09:45:00	2.1	3.9	11	187
28/03/2024	09:46:00	2.0	2.9	11	186
28/03/2024	09:47:00	2.1	3.3	11	171
28/03/2024	09:48:00	1.8	2.8	11	170
28/03/2024	09:49:00	2.2	3.3	11	157
28/03/2024	09:50:00	2.3	3.4	11	157
28/03/2024	09:51:00	2.3	4.0	11	169
28/03/2024	09:52:00	2.0	2.8	11	187
28/03/2024	09:53:00	1.8	3.5	11	186
28/03/2024	09:54:00	1.9	3.1	11	194
28/03/2024	09:55:00	2.1	4.1	11	186
28/03/2024	09:56:00	2.2	3.5	11	155
28/03/2024	09:57:00	2.1	4.1	11	167
28/03/2024	09:58:00	2.1	3.3	11	160
28/03/2024	09:59:00	2.5	4.0	11	155
28/03/2024	10:00:00	2.3	3.7	11	164
28/03/2024	10:01:00	2.1	3.0	11	168
28/03/2024	10:02:00	2.2	3.2	11	176
28/03/2024	10:03:00	2.5	3.7	11	165
28/03/2024	10:04:00	2.0	3.9	11	179

28/03/2024	10:05:00	2.6	3.8	11	154
28/03/2024	10:06:00	2.2	3.5	11	177
28/03/2024	10:07:00	2.4	4.1	11	191
28/03/2024	10:08:00	2.8	4.1	11	177
28/03/2024	10:09:00	2.0	3.8	11	163
28/03/2024	10:10:00	2.5	4.3	11	149
28/03/2024	10:11:00	2.9	5.2	11	156
28/03/2024	10:12:00	2.1	3.4	11	169
28/03/2024	10:13:00	2.3	3.0	11	178
28/03/2024	10:14:00	1.5	2.9	12	180
28/03/2024	10:15:00	2.4	4.0	12	162
28/03/2024	10:16:00	3.0	5.2	12	175
28/03/2024	10:17:00	2.4	3.5	12	168
28/03/2024	10:18:00	2.2	3.2	12	177
28/03/2024	10:19:00	2.1	4.0	12	180
28/03/2024	10:20:00	2.7	3.9	12	179
28/03/2024	10:21:00	1.9	2.8	12	146
28/03/2024	10:22:00	2.4	3.4	12	155
28/03/2024	10:23:00	2.5	4.9	12	168
28/03/2024	10:24:00	2.8	4.9	12	146
28/03/2024	10:25:00	3.0	4.8	12	148
28/03/2024	10:26:00	2.2	3.6	12	164
28/03/2024	10:27:00	2.0	3.8	12	156
28/03/2024	10:28:00	2.8	5.3	12	147
28/03/2024	10:29:00	2.5	3.8	12	155
28/03/2024	10:30:00	2.6	3.5	12	158
28/03/2024	10:31:00	2.3	4.5	12	157
28/03/2024	10:32:00	2.0	3.0	12	161
28/03/2024	10:33:00	2.4	4.9	12	164
28/03/2024	10:34:00	2.5	3.7	12	174
28/03/2024	10:35:00	2.4	3.5	12	167
28/03/2024	10:36:00	2.6	3.7	12	150
28/03/2024	10:37:00	2.2	3.4	12	160
28/03/2024	10:38:00	2.0	3.5	12	162
28/03/2024	10:39:00	3.0	5.2	12	161
28/03/2024	10:40:00	2.3	4.0	12	151
28/03/2024	10:41:00	2.8	4.4	12	156
28/03/2024	10:42:00	2.3	3.3	12	170
28/03/2024	10:43:00	2.4	4.2	12	153
28/03/2024	10:44:00	2.2	3.6	12	154
28/03/2024	10:45:00	2.6	3.7	12	153
28/03/2024	10:46:00	2.8	4.7	12	156
28/03/2024	10:47:00	3.5	5.0	12	155
28/03/2024	10:48:00	2.1	3.8	12	160
28/03/2024	10:49:00	2.2	4.0	12	173
28/03/2024	10:50:00	2.4	6.3	12	141

28/03/2024	10:51:00	3.4	5.8	12	165
28/03/2024	10:52:00	2.8	3.7	12	170
28/03/2024	10:53:00	3.1	4.2	12	153
28/03/2024	10:54:00	2.2	3.6	13	175
28/03/2024	10:55:00	2.1	3.5	13	177
28/03/2024	10:56:00	2.8	4.8	13	152
28/03/2024	10:57:00	2.8	6.0	13	160
28/03/2024	10:58:00	3.4	5.0	13	153
28/03/2024	10:59:00	1.8	3.3	13	153
28/03/2024	11:00:00	2.5	4.2	13	178
28/03/2024	11:01:00	2.4	3.6	13	161
28/03/2024	11:02:00	3.0	5.4	13	165
28/03/2024	11:03:00	2.1	3.0	13	165
28/03/2024	11:04:00	2.6	4.6	13	159
28/03/2024	11:05:00	2.2	3.2	13	169
28/03/2024	11:06:00	2.7	3.8	13	149
28/03/2024	11:07:00	2.4	3.6	13	171
28/03/2024	11:08:00	2.3	4.1	13	172
28/03/2024	11:09:00	2.4	4.3	13	166
28/03/2024	11:10:00	3.1	6.0	13	191
28/03/2024	11:11:00	2.5	4.0	13	154
28/03/2024	11:12:00	2.7	3.7	13	152
28/03/2024	11:13:00	2.2	3.7	13	167
28/03/2024	11:14:00	2.4	4.5	13	170
28/03/2024	11:15:00	2.3	4.2	13	179
28/03/2024	11:16:00	1.8	2.5	13	157
28/03/2024	11:17:00	1.8	2.6	13	167
28/03/2024	11:18:00	2.0	3.1	13	168
28/03/2024	11:19:00	2.5	5.3	13	162
28/03/2024	11:20:00	2.2	3.6	13	187
28/03/2024	11:21:00	2.6	4.2	13	195
28/03/2024	11:22:00	2.6	3.8	13	178
28/03/2024	11:23:00	2.4	3.8	13	171
28/03/2024	11:24:00	1.9	3.0	13	181
28/03/2024	11:25:00	2.4	3.3	13	181
28/03/2024	11:26:00	2.6	4.0	13	183
28/03/2024	11:27:00	2.3	3.7	13	161
28/03/2024	11:28:00	2.6	4.5	13	173
28/03/2024	11:29:00	2.6	4.0	13	164
28/03/2024	11:30:00	2.8	5.0	13	167
28/03/2024	11:31:00	2.8	4.6	13	172
28/03/2024	11:32:00	2.6	4.2	13	162
28/03/2024	11:33:00	2.7	5.9	13	156
28/03/2024	11:34:00	2.1	3.1	13	181
28/03/2024	11:35:00	2.1	3.8	14	172
28/03/2024	11:36:00	2.4	3.9	14	182

28/03/2024	11:37:00	3.0	4.2	14	154
28/03/2024	11:38:00	3.1	5.1	14	170
28/03/2024	11:39:00	2.2	3.1	14	181
28/03/2024	11:40:00	2.9	4.3	14	180
28/03/2024	11:41:00	2.8	3.8	14	177
28/03/2024	11:42:00	3.0	5.0	14	189
28/03/2024	11:43:00	3.0	4.7	14	157
28/03/2024	11:44:00	2.3	3.4	14	186
28/03/2024	11:45:00	2.4	4.0	14	190
28/03/2024	11:46:00	2.2	4.5	14	158
28/03/2024	11:47:00	2.5	4.1	14	161
28/03/2024	11:48:00	2.8	5.0	14	165
28/03/2024	11:49:00	2.3	3.8	14	173
28/03/2024	11:50:00	2.4	4.6	14	156
28/03/2024	11:51:00	2.4	3.6	14	176
28/03/2024	11:52:00	2.1	3.3	14	187
28/03/2024	11:53:00	2.9	4.5	14	171
28/03/2024	11:54:00	2.5	4.3	14	160
28/03/2024	11:55:00	2.3	3.4	14	189
28/03/2024	11:56:00	2.6	4.0	14	189
28/03/2024	11:57:00	2.2	4.1	14	182
28/03/2024	11:58:00	2.5	3.6	14	182
28/03/2024	11:59:00	2.4	5.0	14	187
28/03/2024	12:00:00	2.2	3.3	14	179
28/03/2024	12:01:00	2.7	3.8	14	181
28/03/2024	12:02:00	1.9	2.9	14	171
28/03/2024	12:03:00	2.4	4.1	14	177
28/03/2024	12:04:00	2.2	3.1	14	175
28/03/2024	12:05:00	1.9	3.2	14	186
28/03/2024	12:06:00	2.5	3.8	14	168
28/03/2024	12:07:00	2.5	3.9	14	176
28/03/2024	12:08:00	2.7	4.3	14	163
28/03/2024	12:09:00	2.2	3.3	14	163
28/03/2024	12:10:00	2.9	4.4	14	148
28/03/2024	12:11:00	3.5	5.5	14	166
28/03/2024	12:12:00	2.7	4.3	14	183
28/03/2024	12:13:00	3.0	4.7	14	175
28/03/2024	12:14:00	2.3	3.3	14	176
28/03/2024	12:15:00	2.3	3.7	14	186
28/03/2024	12:16:00	3.2	5.3	14	199
28/03/2024	12:17:00	3.5	5.1	14	200
28/03/2024	12:18:00	2.2	3.4	14	193
28/03/2024	12:19:00	2.5	4.1	14	191
28/03/2024	12:20:00	2.4	5.0	14	191
28/03/2024	12:21:00	2.3	3.3	14	187
28/03/2024	12:22:00	2.8	5.4	14	181

28/03/2024	12:23:00	2.6	4.3	14	186
28/03/2024	12:24:00	2.1	3.2	14	192
28/03/2024	12:25:00	2.7	4.5	14	199
28/03/2024	12:26:00	2.3	4.5	14	195
28/03/2024	12:27:00	2.1	3.0	14	171
28/03/2024	12:28:00	2.5	3.8	14	162
28/03/2024	12:29:00	2.8	4.2	14	171
28/03/2024	12:30:00	2.4	4.5	14	169
28/03/2024	12:31:00	2.7	4.6	14	187
28/03/2024	12:32:00	2.7	3.9	14	163
28/03/2024	12:33:00	3.7	5.5	14	203
28/03/2024	12:34:00	2.2	3.7	14	185
28/03/2024	12:35:00	2.8	4.4	14	198
28/03/2024	12:36:00	2.7	3.8	14	180
28/03/2024	12:37:00	1.8	4.0	14	184
28/03/2024	12:38:00	2.6	4.6	14	180
28/03/2024	12:39:00	2.8	4.7	14	190
28/03/2024	12:40:00	2.2	3.6	14	188
28/03/2024	12:41:00	2.5	4.4	14	179
28/03/2024	12:42:00	2.9	4.7	14	166
28/03/2024	12:43:00	3.0	4.5	14	190
28/03/2024	12:44:00	2.3	3.6	14	164
28/03/2024	12:45:00	2.3	3.5	14	181
28/03/2024	12:46:00	2.5	4.1	14	158
28/03/2024	12:47:00	2.6	4.1	14	196
28/03/2024	12:48:00	2.3	4.0	14	193
28/03/2024	12:49:00	2.3	4.1	14	188
28/03/2024	12:50:00	2.7	3.7	14	190
28/03/2024	12:51:00	2.2	3.7	14	197
28/03/2024	12:52:00	2.8	4.3	14	197
28/03/2024	12:53:00	3.1	5.5	14	196
28/03/2024	12:54:00	2.9	4.1	14	180
28/03/2024	12:55:00	2.6	3.8	14	167
28/03/2024	12:56:00	2.1	3.3	14	181
28/03/2024	12:57:00	2.4	3.5	14	176
28/03/2024	12:58:00	1.8	3.3	14	188
28/03/2024	12:59:00	2.8	4.8	14	201
28/03/2024	13:00:00	3.2	5.4	14	204
28/03/2024	13:01:00	2.1	4.2	14	194
28/03/2024	13:02:00	2.0	3.0	14	190
28/03/2024	13:03:00	2.4	4.0	14	203
28/03/2024	13:04:00	2.5	3.7	14	198
28/03/2024	13:05:00	2.1	3.0	14	182
28/03/2024	13:06:00	3.1	6.0	14	191
28/03/2024	13:07:00	2.9	4.3	15	195
28/03/2024	13:08:00	2.1	3.6	15	198

28/03/2024	13:09:00	2.0	2.9	15	166
28/03/2024	13:10:00	2.6	4.0	15	177
28/03/2024	13:11:00	2.4	3.8	15	196
28/03/2024	13:12:00	2.1	3.0	15	201
28/03/2024	13:13:00	2.4	3.5	15	192
28/03/2024	13:14:00	2.4	3.4	15	196
28/03/2024	13:15:00	2.0	3.0	15	182
28/03/2024	13:16:00	2.5	4.2	15	196
28/03/2024	13:17:00	3.3	5.7	15	199
28/03/2024	13:18:00	2.6	3.8	15	187
28/03/2024	13:19:00	2.8	4.7	15	199
28/03/2024	13:20:00	2.0	2.8	15	185
28/03/2024	13:21:00	2.4	3.9	15	190
28/03/2024	13:22:00	3.2	4.5	15	189
28/03/2024	13:23:00	2.8	4.0	16	179
28/03/2024	13:24:00	2.8	5.2	16	181
28/03/2024	13:25:00	2.6	4.2	16	191
28/03/2024	13:26:00	2.2	3.4	16	192
28/03/2024	13:27:00	2.1	3.6	16	199
28/03/2024	13:28:00	2.0	3.5	16	203
28/03/2024	13:29:00	1.9	2.9	16	192
28/03/2024	13:30:00	2.8	4.5	16	197
28/03/2024	13:31:00	2.6	5.4	16	193
28/03/2024	13:32:00	2.7	5.7	16	168
28/03/2024	13:33:00	2.1	3.4	16	168
28/03/2024	13:34:00	2.1	3.1	16	157
28/03/2024	13:35:00	2.7	4.4	16	163
28/03/2024	13:36:00	2.5	4.1	16	181
28/03/2024	13:37:00	2.5	3.6	16	158
28/03/2024	13:38:00	3.2	5.2	16	203
28/03/2024	13:39:00	2.6	3.4	16	195
28/03/2024	13:40:00	2.4	4.1	16	179
28/03/2024	13:41:00	2.5	4.1	16	173
28/03/2024	13:42:00	2.3	4.4	16	184
28/03/2024	13:43:00	2.4	3.6	15	198
28/03/2024	13:44:00	3.2	6.9	15	193
28/03/2024	13:45:00	2.7	4.9	15	197
28/03/2024	13:46:00	2.4	3.4	15	178
28/03/2024	13:47:00	2.7	3.9	16	167
28/03/2024	13:48:00	2.1	3.6	16	160
28/03/2024	13:49:00	1.9	3.0	16	177
28/03/2024	13:50:00	2.2	5.0	16	173
28/03/2024	13:51:00	2.9	4.5	16	161
28/03/2024	13:52:00	3.2	5.6	16	174
28/03/2024	13:53:00	3.1	6.5	16	188
28/03/2024	13:54:00	2.2	3.8	16	184

28/03/2024	13:55:00	2.7	4.4	16	207
28/03/2024	13:56:00	2.4	3.4	16	187
28/03/2024	13:57:00	2.3	3.3	16	172
28/03/2024	13:58:00	2.6	3.8	16	157
28/03/2024	13:59:00	2.5	4.2	16	176
28/03/2024	14:00:00	2.5	3.4	16	207
28/03/2024	14:01:00	3.5	5.1	16	203
28/03/2024	14:02:00	3.0	5.3	16	203
28/03/2024	14:03:00	2.2	3.4	16	184
28/03/2024	14:04:00	1.8	2.8	16	184
28/03/2024	14:05:00	1.7	2.4	16	185
28/03/2024	14:06:00	3.1	4.3	16	209
28/03/2024	14:07:00	2.4	4.1	16	187
28/03/2024	14:08:00	2.0	3.7	16	197
28/03/2024	14:09:00	2.9	4.5	16	200
28/03/2024	14:10:00	2.1	3.5	16	190
28/03/2024	14:11:00	2.3	3.2	16	184
28/03/2024	14:12:00	1.8	2.8	16	177
28/03/2024	14:13:00	2.3	3.2	16	157
28/03/2024	14:14:00	1.9	4.1	16	159
28/03/2024	14:15:00	2.4	4.2	16	161
28/03/2024	14:16:00	2.2	3.5	16	163
28/03/2024	14:17:00	2.4	4.2	15	146
28/03/2024	14:18:00	1.7	2.6	15	161
28/03/2024	14:19:00	1.7	3.4	15	179
28/03/2024	14:20:00	2.1	3.3	15	187
28/03/2024	14:21:00	1.8	3.2	15	154
28/03/2024	14:22:00	2.1	3.1	15	176
28/03/2024	14:23:00	2.4	4.0	15	190
28/03/2024	14:24:00	2.7	3.8	15	170
28/03/2024	14:25:00	3.2	5.4	15	198
28/03/2024	14:26:00	1.9	3.4	15	184
28/03/2024	14:27:00	3.4	4.5	15	193
28/03/2024	14:28:00	1.7	2.3	15	171
28/03/2024	14:29:00	3.0	4.7	15	146
28/03/2024	14:30:00	1.9	2.8	15	165
28/03/2024	14:31:00	2.1	3.4	16	157
28/03/2024	14:32:00	2.3	3.8	16	165
28/03/2024	14:33:00	2.7	4.0	16	154
28/03/2024	14:34:00	2.4	4.0	16	166
28/03/2024	14:35:00	3.0	4.8	16	181
28/03/2024	14:36:00	2.2	3.5	16	166
28/03/2024	14:37:00	2.2	4.4	16	183
28/03/2024	14:38:00	2.0	3.5	16	176
28/03/2024	14:39:00	2.0	3.0	16	183
28/03/2024	14:40:00	2.2	3.2	16	188

28/03/2024	14:41:00	2.0	3.5	16	183
28/03/2024	14:42:00	1.8	2.3	16	185
28/03/2024	14:43:00	2.3	3.6	16	177
28/03/2024	14:44:00	2.1	3.0	16	157
28/03/2024	14:45:00	3.1	4.2	16	177
28/03/2024	14:46:00	2.9	4.5	16	160
28/03/2024	14:47:00	2.4	4.0	16	158
28/03/2024	14:48:00	2.0	3.4	16	171
28/03/2024	14:49:00	2.2	3.6	16	176
28/03/2024	14:50:00	2.5	3.9	16	163
28/03/2024	14:51:00	1.8	2.4	16	161
28/03/2024	14:52:00	2.0	3.5	16	172
28/03/2024	14:53:00	2.2	3.9	16	182
28/03/2024	14:54:00	2.4	4.3	16	181
28/03/2024	14:55:00	2.8	4.9	16	189
28/03/2024	14:56:00	2.2	3.5	16	173
28/03/2024	14:57:00	2.4	3.5	16	166
28/03/2024	14:58:00	2.8	4.0	16	162
28/03/2024	14:59:00	2.4	4.3	16	165
28/03/2024	15:00:00	1.8	3.1	16	186
28/03/2024	15:01:00	3.0	5.1	16	191
28/03/2024	15:02:00	2.5	4.8	16	184
28/03/2024	15:03:00	2.7	4.6	16	173
28/03/2024	15:04:00	2.7	4.1	16	187
28/03/2024	15:05:00	2.0	3.6	16	157
28/03/2024	15:06:00	2.3	3.7	16	157
28/03/2024	15:07:00	2.4	3.6	16	176
28/03/2024	15:08:00	2.0	4.0	17	166
28/03/2024	15:09:00	2.4	4.1	17	184
28/03/2024	15:10:00	2.3	3.8	17	188
28/03/2024	15:11:00	2.3	3.3	17	178
28/03/2024	15:12:00	2.3	3.8	17	169
28/03/2024	15:13:00	1.6	2.5	17	178
28/03/2024	15:14:00	2.1	3.2	17	192
28/03/2024	15:15:00	1.8	3.4	17	198
28/03/2024	15:16:00	2.5	3.9	17	196
28/03/2024	15:17:00	2.4	3.3	17	176
28/03/2024	15:18:00	3.2	5.6	17	206
28/03/2024	15:19:00	2.7	4.1	17	161
28/03/2024	15:20:00	2.8	4.1	17	152
28/03/2024	15:21:00	1.8	2.7	17	180
28/03/2024	15:22:00	1.9	3.7	17	160
28/03/2024	15:23:00	2.3	4.1	17	173
28/03/2024	15:24:00	2.0	3.2	17	164
28/03/2024	15:25:00	2.4	3.1	17	164
28/03/2024	15:26:00	2.5	3.5	17	189

28/03/2024	15:27:00	2.1	3.6	17	181
28/03/2024	15:28:00	2.0	3.4	17	156
28/03/2024	15:29:00	1.7	3.3	17	158
28/03/2024	15:30:00	2.2	3.2	17	162
28/03/2024	15:31:00	2.8	4.1	17	144
28/03/2024	15:32:00	2.1	3.2	17	154
28/03/2024	15:33:00	2.1	3.2	17	157
28/03/2024	15:34:00	2.2	3.3	17	174
28/03/2024	15:35:00	2.6	4.4	17	194
28/03/2024	15:36:00	2.4	4.3	17	187
28/03/2024	15:37:00	3.0	5.3	17	196
28/03/2024	15:38:00	2.1	4.2	17	181
28/03/2024	15:39:00	2.7	4.9	17	198
28/03/2024	15:40:00	1.8	3.4	17	183
28/03/2024	15:41:00	2.3	3.7	17	177
28/03/2024	15:42:00	1.9	3.0	17	191
28/03/2024	15:43:00	1.4	1.9	17	177
28/03/2024	15:44:00	2.7	4.6	17	149
28/03/2024	15:45:00	2.4	3.3	17	144
28/03/2024	15:46:00	2.6	3.7	17	152
28/03/2024	15:47:00	2.5	3.9	17	146
28/03/2024	15:48:00	2.1	3.6	17	168
28/03/2024	15:49:00	2.0	3.5	17	164
28/03/2024	15:50:00	1.9	2.9	17	156
28/03/2024	15:51:00	1.8	2.7	17	165
28/03/2024	15:52:00	2.2	3.4	17	166
28/03/2024	15:53:00	2.7	5.2	17	157
28/03/2024	15:54:00	2.2	3.4	17	164
28/03/2024	15:55:00	2.5	3.6	17	170
28/03/2024	15:56:00	2.3	4.0	17	166
28/03/2024	15:57:00	2.1	3.2	17	164
28/03/2024	15:58:00	2.2	3.3	17	154
28/03/2024	15:59:00	1.9	3.1	17	157
28/03/2024	16:00:00	1.7	2.4	17	148
28/03/2024	16:01:00	2.2	3.6	17	155
28/03/2024	16:02:00	2.4	4.1	17	151
28/03/2024	16:03:00	2.0	3.0	17	157
28/03/2024	16:04:00	1.9	3.4	17	173
28/03/2024	16:05:00	2.1	3.4	17	161
28/03/2024	16:06:00	2.2	3.3	17	153
28/03/2024	16:07:00	2.2	3.7	17	169
28/03/2024	16:08:00	2.3	4.3	17	141
28/03/2024	16:09:00	2.9	4.8	17	161
28/03/2024	16:10:00	2.8	4.7	17	181
28/03/2024	16:11:00	2.3	3.8	17	179
28/03/2024	16:12:00	2.3	3.1	17	173

28/03/2024	16:13:00	2.4	4.5	17	193
28/03/2024	16:14:00	2.4	4.5	17	189
28/03/2024	16:15:00	2.4	3.7	17	153
28/03/2024	16:16:00	2.1	3.5	17	180
28/03/2024	16:17:00	2.4	3.9	17	196
28/03/2024	16:18:00	2.2	4.3	17	171
28/03/2024	16:19:00	2.6	3.8	17	186
28/03/2024	16:20:00	2.1	3.1	17	194
28/03/2024	16:21:00	2.4	4.5	17	167
28/03/2024	16:22:00	2.0	2.9	17	160
28/03/2024	16:23:00	1.8	3.3	17	164
28/03/2024	16:24:00	2.0	3.8	17	184
28/03/2024	16:25:00	1.5	2.1	17	193
28/03/2024	16:26:00	1.5	2.4	17	167
28/03/2024	16:27:00	2.2	3.1	17	194
28/03/2024	16:28:00	1.7	2.6	17	180
28/03/2024	16:29:00	1.7	3.3	17	202
28/03/2024	16:30:00	2.0	2.9	17	173
28/03/2024	16:31:00	2.0	4.3	17	184
28/03/2024	16:32:00	2.5	4.1	17	200
28/03/2024	16:33:00	1.9	2.7	17	175
28/03/2024	16:34:00	1.7	2.4	17	178
28/03/2024	16:35:00	1.8	3.2	17	179
28/03/2024	16:36:00	2.2	3.4	17	197
28/03/2024	16:37:00	2.6	3.6	17	198
28/03/2024	16:38:00	2.8	5.3	17	194
28/03/2024	16:39:00	2.4	3.5	17	177
28/03/2024	16:40:00	2.9	5.3	17	193
28/03/2024	16:41:00	2.3	3.9	17	169
28/03/2024	16:42:00	1.9	3.4	17	166
28/03/2024	16:43:00	1.8	3.1	17	195
28/03/2024	16:44:00	1.3	1.7	17	184
28/03/2024	16:45:00	1.8	4.2	17	177
28/03/2024	16:46:00	2.5	3.6	17	177
28/03/2024	16:47:00	2.2	3.6	17	192
28/03/2024	16:48:00	1.8	2.6	17	184
28/03/2024	16:49:00	2.3	3.7	17	168
28/03/2024	16:50:00	2.1	3.4	17	162
28/03/2024	16:51:00	1.9	2.5	17	191
28/03/2024	16:52:00	1.9	2.8	17	169
28/03/2024	16:53:00	1.8	3.9	17	166
28/03/2024	16:54:00	2.1	3.7	17	181
28/03/2024	16:55:00	2.8	5.6	17	193
28/03/2024	16:56:00	2.4	3.3	17	168
28/03/2024	16:57:00	2.1	2.9	17	171
28/03/2024	16:58:00	2.2	3.1	17	176

28/03/2024	16:59:00	2.2	3.8	17	180
28/03/2024	17:00:00	2.3	3.4	17	188
28/03/2024	17:01:00	2.4	3.4	17	190
28/03/2024	17:02:00	1.6	3.0	17	185
28/03/2024	17:03:00	1.9	3.7	17	198
28/03/2024	17:04:00	2.0	2.7	17	161
28/03/2024	17:05:00	1.7	2.4	17	168
28/03/2024	17:06:00	1.7	2.8	17	161
28/03/2024	17:07:00	2.0	2.8	17	189
28/03/2024	17:08:00	2.0	2.8	17	173
28/03/2024	17:09:00	2.0	2.8	17	180
28/03/2024	17:10:00	2.2	4.0	17	190
28/03/2024	17:11:00	1.4	2.1	17	171
28/03/2024	17:12:00	1.5	2.1	17	175
28/03/2024	17:13:00	2.2	3.7	17	187
28/03/2024	17:14:00	1.6	3.5	17	184
28/03/2024	17:15:00	2.5	4.4	17	187
28/03/2024	17:16:00	2.6	5.3	17	193
28/03/2024	17:17:00	2.2	4.0	17	164
28/03/2024	17:18:00	2.2	3.8	17	167
28/03/2024	17:19:00	1.5	2.0	17	186
28/03/2024	17:20:00	2.1	3.4	17	177
28/03/2024	17:21:00	2.4	4.4	17	181
28/03/2024	17:22:00	2.0	3.0	17	157
28/03/2024	17:23:00	2.7	3.9	17	150
28/03/2024	17:24:00	2.2	4.3	17	157
28/03/2024	17:25:00	2.0	3.2	17	149
28/03/2024	17:26:00	2.4	3.9	17	147
28/03/2024	17:27:00	2.4	3.5	17	159
28/03/2024	17:28:00	2.3	4.3	17	154
28/03/2024	17:29:00	2.1	3.2	17	162
28/03/2024	17:30:00	2.1	4.1	17	154
28/03/2024	17:31:00	1.8	2.9	17	163
28/03/2024	17:32:00	1.4	2.3	17	179
28/03/2024	17:33:00	1.6	2.3	17	173
28/03/2024	17:34:00	1.9	2.7	17	194
28/03/2024	17:35:00	2.2	3.3	17	160
28/03/2024	17:36:00	2.0	3.5	17	166
28/03/2024	17:37:00	2.4	3.7	17	162
28/03/2024	17:38:00	3.3	5.5	17	144
28/03/2024	17:39:00	2.1	4.5	17	154
28/03/2024	17:40:00	2.0	3.6	17	159
28/03/2024	17:41:00	2.5	3.7	16	163
28/03/2024	17:42:00	2.3	3.5	16	147
28/03/2024	17:43:00	2.0	3.0	16	174
28/03/2024	17:44:00	1.9	3.3	16	163

28/03/2024	17:45:00	2.4	3.6	16	169
28/03/2024	17:46:00	2.1	3.0	16	172
28/03/2024	17:47:00	2.3	3.3	16	163
28/03/2024	17:48:00	2.7	3.9	16	152
28/03/2024	17:49:00	1.8	2.7	16	164
28/03/2024	17:50:00	2.2	3.3	16	161
28/03/2024	17:51:00	1.6	3.0	16	171
28/03/2024	17:52:00	2.3	3.2	16	182
28/03/2024	17:53:00	1.5	2.5	16	175
28/03/2024	17:54:00	1.5	1.8	16	174
28/03/2024	17:55:00	1.8	2.7	16	158
28/03/2024	17:56:00	2.2	3.2	16	151
28/03/2024	17:57:00	2.3	3.6	16	144
28/03/2024	17:58:00	2.5	3.8	16	153
28/03/2024	17:59:00	2.5	4.0	16	150
28/03/2024	18:00:00	2.4	3.6	16	151
28/03/2024	18:01:00	1.7	3.2	16	161
28/03/2024	18:02:00	2.5	3.9	16	138
28/03/2024	18:03:00	1.8	3.0	16	152
28/03/2024	18:04:00	2.5	3.5	16	149
28/03/2024	18:05:00	2.1	3.2	16	150
28/03/2024	18:06:00	1.9	2.8	16	141
28/03/2024	18:07:00	2.2	4.0	16	144
28/03/2024	18:08:00	2.5	4.4	16	148
28/03/2024	18:09:00	1.8	2.6	16	155
28/03/2024	18:10:00	1.7	3.1	16	151
28/03/2024	18:11:00	1.7	2.6	16	148
28/03/2024	18:12:00	2.0	3.1	16	148
28/03/2024	18:13:00	1.8	2.5	15	164
28/03/2024	18:14:00	2.1	3.1	15	157
28/03/2024	18:15:00	1.6	2.6	15	169
28/03/2024	18:16:00	2.0	3.1	15	155
28/03/2024	18:17:00	1.1	1.6	15	172
28/03/2024	18:18:00	1.5	2.9	15	158
28/03/2024	18:19:00	1.7	3.0	15	153
28/03/2024	18:20:00	1.5	2.4	15	163
28/03/2024	18:21:00	1.5	2.1	15	186
28/03/2024	18:22:00	1.4	2.2	15	186
28/03/2024	18:23:00	1.4	2.3	15	168
28/03/2024	18:24:00	1.2	1.9	15	168
28/03/2024	18:25:00	0.7	1.1	15	164
28/03/2024	18:26:00	1.2	1.9	15	163
28/03/2024	18:27:00	1.7	3.5	15	186
28/03/2024	18:28:00	1.5	2.1	15	184
28/03/2024	18:29:00	1.2	1.8	15	180
28/03/2024	18:30:00	1.3	2.0	15	177

28/03/2024	18:31:00	1.4	2.0	15	167
28/03/2024	18:32:00	1.3	2.1	14	174
28/03/2024	18:33:00	1.6	2.0	14	158
28/03/2024	18:34:00	1.6	2.6	14	153
28/03/2024	18:35:00	1.7	2.9	14	153
28/03/2024	18:36:00	1.6	3.0	14	153
28/03/2024	18:37:00	1.7	2.7	14	174
28/03/2024	18:38:00	1.6	2.0	14	175
28/03/2024	18:39:00	1.9	3.3	14	153
28/03/2024	18:40:00	2.4	3.6	14	148
28/03/2024	18:41:00	1.5	2.3	14	178
28/03/2024	18:42:00	1.7	3.6	14	166
28/03/2024	18:43:00	1.6	2.0	14	165
28/03/2024	18:44:00	1.6	2.9	14	165
28/03/2024	18:45:00	1.3	1.9	14	158
28/03/2024	18:46:00	1.5	2.3	14	169
28/03/2024	18:47:00	1.5	2.2	14	166
28/03/2024	18:48:00	1.5	2.2	14	158
28/03/2024	18:49:00	1.9	2.7	14	154
28/03/2024	18:50:00	2.0	3.1	14	161
28/03/2024	18:51:00	1.5	2.2	14	159
28/03/2024	18:52:00	1.6	2.3	14	156
28/03/2024	18:53:00	1.7	2.7	14	155
28/03/2024	18:54:00	1.8	3.0	14	151
28/03/2024	18:55:00	1.3	1.8	14	149
28/03/2024	18:56:00	1.1	1.7	14	155
28/03/2024	18:57:00	1.3	2.5	14	154
28/03/2024	18:58:00	1.1	1.6	14	149
28/03/2024	18:59:00	1.9	3.0	14	148
28/03/2024	19:00:00	1.4	2.4	14	152
28/03/2024	19:01:00	1.6	2.4	14	153
28/03/2024	19:02:00	1.8	2.7	14	155
28/03/2024	19:03:00	1.5	2.2	14	155
28/03/2024	19:04:00	1.5	2.2	14	158
28/03/2024	19:05:00	1.6	2.3	14	157
28/03/2024	19:06:00	1.4	2.0	14	158
28/03/2024	19:07:00	1.3	1.9	14	159
28/03/2024	19:08:00	1.3	2.1	14	159
28/03/2024	19:09:00	1.4	1.9	14	150
28/03/2024	19:10:00	1.4	2.2	14	154
28/03/2024	19:11:00	1.4	2.0	13	155
28/03/2024	19:12:00	0.9	1.6	13	155
28/03/2024	19:13:00	1.4	2.1	13	155
28/03/2024	19:14:00	1.3	1.9	13	151
28/03/2024	19:15:00	1.5	2.1	13	148
28/03/2024	19:16:00	1.4	2.2	13	153

28/03/2024	19:17:00	1.0	1.7	13	154
28/03/2024	19:18:00	1.9	2.9	13	147
28/03/2024	19:19:00	1.3	1.7	13	152
28/03/2024	19:20:00	1.6	2.3	13	153
28/03/2024	19:21:00	1.3	2.0	13	155
28/03/2024	19:22:00	1.2	1.9	13	156
28/03/2024	19:23:00	1.1	1.5	13	155
28/03/2024	19:24:00	1.3	1.9	13	156
28/03/2024	19:25:00	1.5	2.0	13	156
28/03/2024	19:26:00	1.3	2.1	13	162
28/03/2024	19:27:00	1.4	2.0	13	156
28/03/2024	19:28:00	1.1	1.4	13	155
28/03/2024	19:29:00	1.4	1.9	13	158
28/03/2024	19:30:00	1.3	2.0	13	156
28/03/2024	19:31:00	0.9	1.4	13	155
28/03/2024	19:32:00	0.6	1.1	13	157
28/03/2024	19:33:00	1.0	1.6	13	155
28/03/2024	19:34:00	1.3	2.0	13	159
28/03/2024	19:35:00	1.1	1.7	13	155
28/03/2024	19:36:00	1.1	1.6	13	156
28/03/2024	19:37:00	1.3	2.0	13	155
28/03/2024	19:38:00	1.2	1.5	13	155
28/03/2024	19:39:00	1.2	1.7	13	155
28/03/2024	19:40:00	0.9	1.3	13	155
28/03/2024	19:41:00	0.9	1.1	12	156
28/03/2024	19:42:00	1.0	1.4	12	155
28/03/2024	19:43:00	0.9	1.7	12	155
28/03/2024	19:44:00	0.8	1.2	12	155
28/03/2024	19:45:00	0.9	1.3	12	155
28/03/2024	19:46:00	0.8	1.3	12	155
28/03/2024	19:47:00	0.8	1.0	12	156
28/03/2024	19:48:00	0.5	1.1	12	156
28/03/2024	19:49:00	0.6	1.1	12	156
28/03/2024	19:50:00	0.9	1.2	12	156
28/03/2024	19:51:00	0.4	0.9	12	156
28/03/2024	19:52:00	0.7	1.0	12	156
28/03/2024	19:53:00	0.5	0.9	12	156
28/03/2024	19:54:00	0.3	0.7	12	156
28/03/2024	19:55:00	0.7	0.9	12	156
28/03/2024	19:56:00	0.4	1.0	12	156
28/03/2024	19:57:00	1.1	2.0	12	155
28/03/2024	19:58:00	0.9	1.2	12	155
28/03/2024	19:59:00	0.6	1.2	12	155
28/03/2024	20:00:00	0.9	1.2	12	155
28/03/2024	20:01:00	0.8	1.2	12	152
28/03/2024	20:02:00	0.9	1.4	11	148

28/03/2024	20:03:00	0.9	1.2	11	150
28/03/2024	20:04:00	0.9	1.5	11	138
28/03/2024	20:05:00	0.8	1.2	11	141
28/03/2024	20:06:00	1.1	1.6	11	141
28/03/2024	20:07:00	1.1	1.6	11	140
28/03/2024	20:08:00	0.9	1.2	11	142
28/03/2024	20:09:00	1.1	1.6	11	138
28/03/2024	20:10:00	1.1	1.7	11	134
28/03/2024	20:11:00	1.0	1.5	11	142
28/03/2024	20:12:00	0.9	1.3	11	141
28/03/2024	20:13:00	1.0	1.3	11	141
28/03/2024	20:14:00	0.9	1.2	11	131
28/03/2024	20:15:00	0.9	1.3	11	142
28/03/2024	20:16:00	0.8	1.2	11	142
28/03/2024	20:17:00	0.8	1.3	11	140
28/03/2024	20:18:00	1.0	1.9	11	134
28/03/2024	20:19:00	1.0	1.5	11	140
28/03/2024	20:20:00	1.1	1.5	11	139
28/03/2024	20:21:00	0.9	1.3	11	140
28/03/2024	20:22:00	1.1	1.5	11	137
28/03/2024	20:23:00	1.2	1.8	11	140
28/03/2024	20:24:00	0.9	1.3	11	139
28/03/2024	20:25:00	1.0	1.5	11	124
28/03/2024	20:26:00	0.8	1.3	11	120
28/03/2024	20:27:00	1.3	2.1	11	132
28/03/2024	20:28:00	1.2	1.7	11	139
28/03/2024	20:29:00	0.9	1.5	11	126
28/03/2024	20:30:00	0.9	1.5	11	132
28/03/2024	20:31:00	0.9	1.4	11	130
28/03/2024	20:32:00	0.8	1.2	11	127
28/03/2024	20:33:00	0.7	1.2	11	132
28/03/2024	20:34:00	0.7	1.0	11	133
28/03/2024	20:35:00	0.8	0.9	11	133
28/03/2024	20:36:00	0.8	1.6	11	121
28/03/2024	20:37:00	1.1	1.7	11	139
28/03/2024	20:38:00	0.9	1.3	11	131
28/03/2024	20:39:00	1.1	1.5	11	133
28/03/2024	20:40:00	1.1	1.8	11	136
28/03/2024	20:41:00	1.0	1.3	11	132
28/03/2024	20:42:00	1.3	1.8	11	137
28/03/2024	20:43:00	1.0	1.6	11	128
28/03/2024	20:44:00	0.9	1.3	11	133
28/03/2024	20:45:00	1.1	1.4	11	132
28/03/2024	20:46:00	1.4	2.0	11	130
28/03/2024	20:47:00	1.0	1.4	11	135
28/03/2024	20:48:00	1.0	1.5	11	132

28/03/2024	20:49:00	0.9	1.2	11	129
28/03/2024	20:50:00	1.2	1.8	11	135
28/03/2024	20:51:00	1.2	1.7	11	132
28/03/2024	20:52:00	0.9	1.4	11	137
28/03/2024	20:53:00	0.7	1.1	11	139
28/03/2024	20:54:00	0.9	1.5	11	138
28/03/2024	20:55:00	1.2	1.6	11	136
28/03/2024	20:56:00	0.9	1.5	11	135
28/03/2024	20:57:00	0.9	1.7	11	140
28/03/2024	20:58:00	1.1	1.7	11	139
28/03/2024	20:59:00	1.0	1.5	11	138
28/03/2024	21:00:00	0.9	1.2	11	137
28/03/2024	21:01:00	0.9	1.5	11	139
28/03/2024	21:02:00	0.9	1.5	11	139
28/03/2024	21:03:00	0.9	1.6	11	139
28/03/2024	21:04:00	0.9	1.3	11	139
28/03/2024	21:05:00	1.1	2.2	11	129
28/03/2024	21:06:00	1.1	1.5	11	111
28/03/2024	21:07:00	0.8	1.1	11	104
28/03/2024	21:08:00	0.7	1.1	11	103
28/03/2024	21:09:00	0.8	1.1	11	90
28/03/2024	21:10:00	0.8	1.4	11	91
28/03/2024	21:11:00	1.1	1.8	11	77
28/03/2024	21:12:00	0.9	1.6	11	93
28/03/2024	21:13:00	0.9	1.3	11	103
28/03/2024	21:14:00	1.2	1.8	10	103
28/03/2024	21:15:00	1.2	1.9	10	97
28/03/2024	21:16:00	0.8	1.1	10	103
28/03/2024	21:17:00	0.8	1.1	10	103
28/03/2024	21:18:00	0.9	1.2	10	103
28/03/2024	21:19:00	0.7	1.0	10	103
28/03/2024	21:20:00	1.0	1.4	10	104
28/03/2024	21:21:00	0.9	1.2	10	103
28/03/2024	21:22:00	0.6	1.0	10	102
28/03/2024	21:23:00	0.8	1.2	10	103
28/03/2024	21:24:00	1.2	1.9	10	135
28/03/2024	21:25:00	0.7	1.1	10	139
28/03/2024	21:26:00	0.8	1.2	10	140
28/03/2024	21:27:00	0.8	1.3	10	141
28/03/2024	21:28:00	0.9	1.3	10	135
28/03/2024	21:29:00	0.8	1.2	10	137
28/03/2024	21:30:00	0.9	1.6	10	139
28/03/2024	21:31:00	1.0	1.5	10	132
28/03/2024	21:32:00	1.0	1.3	10	133
28/03/2024	21:33:00	0.6	0.9	10	140
28/03/2024	21:34:00	0.7	1.2	10	139

28/03/2024	21:35:00	0.8	1.5	10	129
28/03/2024	21:36:00	0.8	1.4	10	132
28/03/2024	21:37:00	0.8	1.0	10	139
28/03/2024	21:38:00	0.9	1.2	10	140
28/03/2024	21:39:00	1.2	1.8	10	128
28/03/2024	21:40:00	0.8	1.4	10	109
28/03/2024	21:41:00	0.8	1.1	10	108
28/03/2024	21:42:00	0.8	1.1	10	109
28/03/2024	21:43:00	0.6	1.2	10	108
28/03/2024	21:44:00	0.8	1.1	10	109
28/03/2024	21:45:00	0.8	1.2	10	109
28/03/2024	21:46:00	0.7	0.8	10	109
28/03/2024	21:47:00	0.9	1.8	10	107
28/03/2024	21:48:00	1.0	1.3	10	108
28/03/2024	21:49:00	1.0	1.4	10	121
28/03/2024	21:50:00	1.0	1.5	10	119
28/03/2024	21:51:00	1.2	1.5	10	132
28/03/2024	21:52:00	0.9	1.2	10	142
28/03/2024	21:53:00	0.8	1.3	10	130
28/03/2024	21:54:00	0.8	1.2	10	119
28/03/2024	21:55:00	0.8	1.4	10	108
28/03/2024	21:56:00	1.0	1.4	10	127
28/03/2024	21:57:00	1.0	1.8	10	131
28/03/2024	21:58:00	0.9	1.5	10	135
28/03/2024	21:59:00	0.8	1.2	10	133
28/03/2024	22:00:00	0.8	1.3	10	129
28/03/2024	22:01:00	0.8	1.2	10	140
28/03/2024	22:02:00	1.0	1.7	10	135
28/03/2024	22:03:00	1.1	1.5	10	132
28/03/2024	22:04:00	1.1	1.7	10	134
28/03/2024	22:05:00	1.1	1.6	10	140
28/03/2024	22:06:00	1.2	1.7	10	129
28/03/2024	22:07:00	1.0	1.6	10	128
28/03/2024	22:08:00	1.1	1.5	10	131
28/03/2024	22:09:00	1.2	2.0	10	134
28/03/2024	22:10:00	1.3	2.0	10	139
28/03/2024	22:11:00	1.0	1.6	10	131
28/03/2024	22:12:00	1.2	1.6	10	137
28/03/2024	22:13:00	1.2	2.3	10	134
28/03/2024	22:14:00	1.1	1.6	10	113
28/03/2024	22:15:00	1.0	1.5	10	111
28/03/2024	22:16:00	0.9	1.4	10	123
28/03/2024	22:17:00	1.1	1.8	10	125
28/03/2024	22:18:00	1.2	1.8	10	126
28/03/2024	22:19:00	1.3	2.1	10	133
28/03/2024	22:20:00	1.2	1.8	10	132

28/03/2024	22:21:00	1.4	2.1	10	124
28/03/2024	22:22:00	1.2	1.7	10	133
28/03/2024	22:23:00	1.3	2.3	10	107
28/03/2024	22:24:00	1.3	2.0	10	135
28/03/2024	22:25:00	1.2	1.8	10	113
28/03/2024	22:26:00	1.1	1.8	10	118
28/03/2024	22:27:00	1.3	2.1	10	138
28/03/2024	22:28:00	1.1	1.6	10	136
28/03/2024	22:29:00	1.2	2.4	10	132
28/03/2024	22:30:00	1.3	1.9	10	138
28/03/2024	22:31:00	1.1	1.6	10	111
28/03/2024	22:32:00	1.0	1.5	10	119
28/03/2024	22:33:00	0.9	1.5	10	125
28/03/2024	22:34:00	1.1	1.7	10	119
28/03/2024	22:35:00	1.1	1.7	10	124
28/03/2024	22:36:00	1.3	2.0	10	140
28/03/2024	22:37:00	1.2	1.8	10	140
28/03/2024	22:38:00	1.2	1.6	10	140
28/03/2024	22:39:00	1.2	1.7	10	140
28/03/2024	22:40:00	1.2	1.6	10	138
28/03/2024	22:41:00	2.3	5.5	11	118
28/03/2024	22:42:00	2.4	5.5	11	163
28/03/2024	22:43:00	1.9	3.1	11	155
28/03/2024	22:44:00	1.6	3.3	11	182
28/03/2024	22:45:00	2.7	5.5	11	148
28/03/2024	22:46:00	1.7	2.4	11	163
28/03/2024	22:47:00	2.1	3.6	11	173
28/03/2024	22:48:00	1.5	2.0	11	174
28/03/2024	22:49:00	1.8	2.3	11	154
28/03/2024	22:50:00	1.9	3.2	11	162
28/03/2024	22:51:00	1.4	2.0	11	163
28/03/2024	22:52:00	1.6	2.7	11	173
28/03/2024	22:53:00	1.6	2.2	11	163
28/03/2024	22:54:00	1.6	2.6	11	162
28/03/2024	22:55:00	1.6	2.6	11	192
28/03/2024	22:56:00	1.2	1.5	11	187
28/03/2024	22:57:00	1.2	1.7	11	187
28/03/2024	22:58:00	1.7	2.4	11	184
28/03/2024	22:59:00	1.2	1.8	11	187
28/03/2024	23:00:00	0.8	1.2	11	185
28/03/2024	23:01:00	1.4	1.9	11	185
28/03/2024	23:02:00	1.4	2.7	11	189
28/03/2024	23:03:00	0.8	1.4	11	212
28/03/2024	23:04:00	1.0	1.7	11	212
28/03/2024	23:05:00	0.9	1.3	11	212
28/03/2024	23:06:00	1.0	1.4	11	212

28/03/2024	23:07:00	1.4	2.1	11	174
28/03/2024	23:08:00	1.2	1.8	11	178
28/03/2024	23:09:00	1.0	1.3	11	178
28/03/2024	23:10:00	1.4	2.4	11	199
28/03/2024	23:11:00	1.4	2.1	11	208
28/03/2024	23:12:00	0.9	1.4	11	196
28/03/2024	23:13:00	1.0	1.5	11	194
28/03/2024	23:14:00	1.0	1.9	11	206
28/03/2024	23:15:00	1.8	2.7	11	203
28/03/2024	23:16:00	1.5	2.2	11	192
28/03/2024	23:17:00	1.7	2.4	11	205
28/03/2024	23:18:00	1.4	2.0	11	208
28/03/2024	23:19:00	1.6	3.0	11	190
28/03/2024	23:20:00	1.2	1.7	11	208
28/03/2024	23:21:00	1.2	1.8	11	204
28/03/2024	23:22:00	2.0	2.9	11	203
28/03/2024	23:23:00	1.7	3.3	11	192
28/03/2024	23:24:00	1.6	2.2	11	192
28/03/2024	23:25:00	1.4	2.3	11	205
28/03/2024	23:26:00	1.4	1.9	11	196
28/03/2024	23:27:00	1.5	2.1	11	190
28/03/2024	23:28:00	1.5	2.1	11	200
28/03/2024	23:29:00	1.7	2.6	11	203
28/03/2024	23:30:00	1.4	2.5	11	205
28/03/2024	23:31:00	1.9	2.6	11	190
28/03/2024	23:32:00	1.6	2.3	11	193
28/03/2024	23:33:00	1.8	3.4	11	208
28/03/2024	23:34:00	2.3	3.4	11	208
28/03/2024	23:35:00	1.9	3.0	11	195
28/03/2024	23:36:00	1.6	2.6	11	194
28/03/2024	23:37:00	1.8	2.5	11	182
28/03/2024	23:38:00	1.9	2.9	11	193
28/03/2024	23:39:00	1.4	1.9	11	199
28/03/2024	23:40:00	1.9	3.1	11	198
28/03/2024	23:41:00	1.6	2.7	11	199
28/03/2024	23:42:00	1.5	2.5	11	198
28/03/2024	23:43:00	1.8	3.3	11	189
28/03/2024	23:44:00	1.9	2.6	11	182
28/03/2024	23:45:00	1.8	2.4	11	187
28/03/2024	23:46:00	2.2	3.6	11	205
28/03/2024	23:47:00	2.0	3.3	11	199
28/03/2024	23:48:00	1.6	2.2	11	196
28/03/2024	23:49:00	1.5	2.3	11	212
28/03/2024	23:50:00	1.5	2.1	11	200
28/03/2024	23:51:00	1.5	2.3	11	203
28/03/2024	23:52:00	1.5	4.2	11	208

28/03/2024	23:53:00	1.8	3.4	11	214
28/03/2024	23:54:00	1.1	1.4	11	202
28/03/2024	23:55:00	1.1	1.9	11	210
28/03/2024	23:56:00	1.3	1.9	11	202
28/03/2024	23:57:00	1.4	2.0	11	217
28/03/2024	23:58:00	1.4	2.2	11	184
28/03/2024	23:59:00	1.6	2.8	10	185
29/03/2024	00:00:00	1.8	2.7	10	204
29/03/2024	00:01:00	1.4	1.9	10	194
29/03/2024	00:02:00	1.5	2.3	10	194
29/03/2024	00:03:00	1.6	2.6	10	200
29/03/2024	00:04:00	1.8	2.9	10	204
29/03/2024	00:05:00	1.3	2.0	10	183
29/03/2024	00:06:00	1.2	1.5	10	184
29/03/2024	00:07:00	1.1	1.7	10	185
29/03/2024	00:08:00	1.0	1.5	10	186
29/03/2024	00:09:00	1.1	1.6	10	186
29/03/2024	00:10:00	1.3	1.8	10	184
29/03/2024	00:11:00	1.1	1.6	10	187
29/03/2024	00:12:00	1.5	2.9	10	193
29/03/2024	00:13:00	1.4	2.1	10	213
29/03/2024	00:14:00	0.9	1.2	10	208
29/03/2024	00:15:00	1.0	1.3	10	207
29/03/2024	00:16:00	0.9	1.2	10	207
29/03/2024	00:17:00	1.5	2.4	10	203
29/03/2024	00:18:00	1.1	1.5	10	200
29/03/2024	00:19:00	0.7	1.0	10	199
29/03/2024	00:20:00	1.2	2.1	10	205
29/03/2024	00:21:00	1.1	1.7	10	200
29/03/2024	00:22:00	1.1	1.5	10	200
29/03/2024	00:23:00	1.0	1.4	10	210
29/03/2024	00:24:00	1.1	1.6	10	210
29/03/2024	00:25:00	1.1	1.4	10	208
29/03/2024	00:26:00	0.8	1.2	10	210
29/03/2024	00:27:00	1.0	1.3	10	210
29/03/2024	00:28:00	1.0	1.6	10	211
29/03/2024	00:29:00	0.9	1.4	10	211
29/03/2024	00:30:00	1.4	2.0	10	213
29/03/2024	00:31:00	1.7	2.6	10	213
29/03/2024	00:32:00	1.1	1.7	10	207
29/03/2024	00:33:00	1.4	2.1	10	200
29/03/2024	00:34:00	1.4	1.9	10	198
29/03/2024	00:35:00	1.6	2.3	10	215
29/03/2024	00:36:00	1.2	2.0	10	199
29/03/2024	00:37:00	1.0	1.4	10	206
29/03/2024	00:38:00	1.6	2.7	10	208

29/03/2024	00:39:00	1.4	3.0	10	202
29/03/2024	00:40:00	1.1	1.4	10	201
29/03/2024	00:41:00	0.9	1.1	10	199
29/03/2024	00:42:00	1.0	1.8	10	200
29/03/2024	00:43:00	1.1	1.4	10	203
29/03/2024	00:44:00	1.1	1.7	10	203
29/03/2024	00:45:00	0.8	1.2	10	199
29/03/2024	00:46:00	1.0	1.4	10	200
29/03/2024	00:47:00	0.8	1.2	10	201
29/03/2024	00:48:00	0.6	0.9	10	208
29/03/2024	00:49:00	0.6	1.4	10	205
29/03/2024	00:50:00	1.0	1.2	10	198
29/03/2024	00:51:00	0.9	1.6	10	201
29/03/2024	00:52:00	1.1	2.4	10	206
29/03/2024	00:53:00	0.9	1.3	10	198
29/03/2024	00:54:00	0.9	1.3	10	198
29/03/2024	00:55:00	1.1	1.8	10	203
29/03/2024	00:56:00	1.1	1.8	10	198
29/03/2024	00:57:00	1.0	1.4	10	198
29/03/2024	00:58:00	1.0	1.5	10	199
29/03/2024	00:59:00	1.0	1.5	10	209
29/03/2024	01:00:00	0.8	1.0	10	209
29/03/2024	01:01:00	0.9	1.2	10	206
29/03/2024	01:02:00	0.9	1.3	10	198
29/03/2024	01:03:00	1.1	1.5	10	207
29/03/2024	01:04:00	0.9	1.6	10	209
29/03/2024	01:05:00	0.9	1.2	10	202
29/03/2024	01:06:00	1.1	1.6	10	200
29/03/2024	01:07:00	0.8	1.1	10	202
29/03/2024	01:08:00	0.9	1.2	10	202
29/03/2024	01:09:00	0.5	1.2	10	202
29/03/2024	01:10:00	0.6	0.8	10	202
29/03/2024	01:11:00	0.8	1.0	10	202
29/03/2024	01:12:00	0.7	1.0	10	202
29/03/2024	01:13:00	0.8	1.0	10	201
29/03/2024	01:14:00	0.6	0.9	10	201
29/03/2024	01:15:00	0.6	0.9	10	202
29/03/2024	01:16:00	0.7	0.8	10	202
29/03/2024	01:17:00	0.8	0.9	10	201
29/03/2024	01:18:00	1.1	1.6	10	198
29/03/2024	01:19:00	1.0	1.4	10	198
29/03/2024	01:20:00	1.1	1.8	10	197
29/03/2024	01:21:00	1.0	1.3	10	198
29/03/2024	01:22:00	0.9	1.3	10	198
29/03/2024	01:23:00	0.9	1.2	10	198
29/03/2024	01:24:00	1.0	1.6	10	198

29/03/2024	01:25:00	1.2	1.4	10	197
29/03/2024	01:26:00	1.2	1.6	10	197
29/03/2024	01:27:00	1.1	1.7	10	196
29/03/2024	01:28:00	0.3	1.0	10	198
29/03/2024	01:29:00	0.8	1.2	10	198
29/03/2024	01:30:00	1.1	1.5	10	198
29/03/2024	01:31:00	1.1	1.4	10	198
29/03/2024	01:32:00	0.9	1.2	10	198
29/03/2024	01:33:00	1.0	1.4	10	198
29/03/2024	01:34:00	1.2	1.6	10	197
29/03/2024	01:35:00	0.9	1.3	10	197
29/03/2024	01:36:00	0.9	1.3	10	198
29/03/2024	01:37:00	1.2	1.6	10	197
29/03/2024	01:38:00	0.8	1.3	10	198
29/03/2024	01:39:00	0.8	1.1	10	198
29/03/2024	01:40:00	1.0	1.3	10	197
29/03/2024	01:41:00	1.0	1.7	9	172
29/03/2024	01:42:00	1.0	1.5	9	112
29/03/2024	01:43:00	0.7	1.4	9	109
29/03/2024	01:44:00	1.1	1.6	9	109
29/03/2024	01:45:00	1.1	1.4	9	112
29/03/2024	01:46:00	0.9	1.2	9	105
29/03/2024	01:47:00	1.1	1.4	9	104
29/03/2024	01:48:00	1.0	1.3	9	108
29/03/2024	01:49:00	0.9	1.2	9	112
29/03/2024	01:50:00	0.9	1.3	9	111
29/03/2024	01:51:00	0.8	1.2	9	108
29/03/2024	01:52:00	0.9	1.4	9	113
29/03/2024	01:53:00	1.0	1.6	9	124
29/03/2024	01:54:00	0.8	1.1	9	110
29/03/2024	01:55:00	1.0	1.3	9	121
29/03/2024	01:56:00	0.9	1.3	9	125
29/03/2024	01:57:00	0.9	1.5	9	118
29/03/2024	01:58:00	1.0	1.2	9	107
29/03/2024	01:59:00	0.7	1.1	9	109
29/03/2024	02:00:00	0.7	1.1	9	111
29/03/2024	02:01:00	1.0	1.3	9	111
29/03/2024	02:02:00	1.0	1.4	9	122
29/03/2024	02:03:00	0.9	1.2	9	125
29/03/2024	02:04:00	0.9	1.1	9	113
29/03/2024	02:05:00	0.8	1.2	9	112
29/03/2024	02:06:00	0.9	1.6	9	114
29/03/2024	02:07:00	0.9	1.7	9	129
29/03/2024	02:08:00	1.0	1.7	9	126
29/03/2024	02:09:00	1.0	1.5	9	125
29/03/2024	02:10:00	1.1	1.5	8	128

29/03/2024	02:11:00	0.9	1.1	8	123
29/03/2024	02:12:00	1.0	1.4	8	126
29/03/2024	02:13:00	0.9	1.2	8	125
29/03/2024	02:14:00	0.9	1.5	8	120
29/03/2024	02:15:00	1.0	1.3	8	127
29/03/2024	02:16:00	1.3	1.9	8	130
29/03/2024	02:17:00	1.2	1.9	8	132
29/03/2024	02:18:00	1.1	1.4	8	126
29/03/2024	02:19:00	0.8	1.2	8	128
29/03/2024	02:20:00	1.0	1.4	8	127
29/03/2024	02:21:00	1.3	1.9	8	119
29/03/2024	02:22:00	0.9	1.2	8	112
29/03/2024	02:23:00	1.1	1.8	8	131
29/03/2024	02:24:00	1.0	1.5	8	124
29/03/2024	02:25:00	1.0	1.4	8	112
29/03/2024	02:26:00	0.6	1.3	8	116
29/03/2024	02:27:00	1.1	1.8	8	131
29/03/2024	02:28:00	0.9	1.4	8	131
29/03/2024	02:29:00	0.9	1.3	8	119
29/03/2024	02:30:00	1.0	1.4	8	127
29/03/2024	02:31:00	1.1	1.7	8	131
29/03/2024	02:32:00	0.9	1.2	8	130
29/03/2024	02:33:00	0.9	1.4	8	130
29/03/2024	02:34:00	0.9	1.2	8	130
29/03/2024	02:35:00	0.8	1.1	8	130
29/03/2024	02:36:00	1.1	1.6	8	130
29/03/2024	02:37:00	0.9	1.5	8	130
29/03/2024	02:38:00	1.1	1.6	8	130
29/03/2024	02:39:00	1.0	1.4	8	131
29/03/2024	02:40:00	1.3	1.9	8	130
29/03/2024	02:41:00	1.3	1.7	8	132
29/03/2024	02:42:00	1.2	1.9	8	129
29/03/2024	02:43:00	1.3	2.0	8	128
29/03/2024	02:44:00	1.4	2.1	8	127
29/03/2024	02:45:00	1.3	2.2	8	128
29/03/2024	02:46:00	1.3	1.8	8	131
29/03/2024	02:47:00	1.1	1.5	8	123
29/03/2024	02:48:00	1.3	2.2	8	126
29/03/2024	02:49:00	1.4	2.1	8	132
29/03/2024	02:50:00	1.5	2.0	8	133
29/03/2024	02:51:00	1.3	2.1	8	125
29/03/2024	02:52:00	1.3	1.8	8	126
29/03/2024	02:53:00	1.1	2.2	8	132
29/03/2024	02:54:00	1.4	2.8	8	117
29/03/2024	02:55:00	1.4	2.2	8	142
29/03/2024	02:56:00	1.5	2.9	8	144

29/03/2024	02:57:00	1.2	1.9	8	142
29/03/2024	02:58:00	1.4	2.2	8	122
29/03/2024	02:59:00	1.1	1.7	8	121
29/03/2024	03:00:00	1.3	2.1	8	121
29/03/2024	03:01:00	1.2	1.8	8	114
29/03/2024	03:02:00	1.2	1.8	8	121
29/03/2024	03:03:00	1.4	2.2	8	108
29/03/2024	03:04:00	1.3	2.0	8	110
29/03/2024	03:05:00	1.5	2.1	8	122
29/03/2024	03:06:00	1.4	1.9	8	113
29/03/2024	03:07:00	1.5	2.1	8	129
29/03/2024	03:08:00	1.4	2.2	8	130
29/03/2024	03:09:00	1.6	2.5	8	132
29/03/2024	03:10:00	1.5	2.4	8	128
29/03/2024	03:11:00	1.2	2.0	8	144
29/03/2024	03:12:00	1.4	3.2	8	130
29/03/2024	03:13:00	1.5	2.7	8	119
29/03/2024	03:14:00	1.5	2.5	8	116
29/03/2024	03:15:00	1.7	2.4	8	124
29/03/2024	03:16:00	1.7	2.6	8	134
29/03/2024	03:17:00	1.6	3.3	8	133
29/03/2024	03:18:00	1.7	3.0	8	141
29/03/2024	03:19:00	1.6	3.2	8	109
29/03/2024	03:20:00	1.4	2.3	8	119
29/03/2024	03:21:00	1.7	2.4	8	137
29/03/2024	03:22:00	1.5	2.2	8	116
29/03/2024	03:23:00	1.8	2.9	8	126
29/03/2024	03:24:00	1.2	1.7	8	135
29/03/2024	03:25:00	1.8	2.9	8	140
29/03/2024	03:26:00	1.4	3.2	8	106
29/03/2024	03:27:00	1.8	3.2	8	119
29/03/2024	03:28:00	1.9	4.1	8	139
29/03/2024	03:29:00	1.9	2.8	8	125
29/03/2024	03:30:00	1.6	3.3	8	143
29/03/2024	03:31:00	1.4	2.4	8	136
29/03/2024	03:32:00	1.5	2.3	8	140
29/03/2024	03:33:00	1.5	2.3	8	127
29/03/2024	03:34:00	1.6	2.8	8	131
29/03/2024	03:35:00	1.4	2.0	8	135
29/03/2024	03:36:00	1.7	2.2	8	127
29/03/2024	03:37:00	1.6	2.2	8	142
29/03/2024	03:38:00	1.4	1.9	8	148
29/03/2024	03:39:00	1.5	3.2	8	151
29/03/2024	03:40:00	1.7	3.0	8	141
29/03/2024	03:41:00	2.0	3.1	8	144
29/03/2024	03:42:00	1.6	2.2	8	143

29/03/2024	03:43:00	1.2	2.2	8	147
29/03/2024	03:44:00	1.6	2.4	8	139
29/03/2024	03:45:00	1.7	3.1	8	121
29/03/2024	03:46:00	1.9	2.3	8	148
29/03/2024	03:47:00	1.8	2.2	8	147
29/03/2024	03:48:00	1.3	2.1	8	148
29/03/2024	03:49:00	1.7	2.4	8	152
29/03/2024	03:50:00	1.5	2.3	8	152
29/03/2024	03:51:00	1.7	3.2	8	150
29/03/2024	03:52:00	1.5	2.4	8	148
29/03/2024	03:53:00	1.8	3.0	8	151
29/03/2024	03:54:00	2.0	3.1	8	152
29/03/2024	03:55:00	1.7	2.6	8	147
29/03/2024	03:56:00	1.5	2.0	8	149
29/03/2024	03:57:00	1.3	1.8	8	149
29/03/2024	03:58:00	1.3	2.2	8	148
29/03/2024	03:59:00	1.6	2.3	8	147
29/03/2024	04:00:00	1.3	1.8	8	149
29/03/2024	04:01:00	1.3	1.8	8	151
29/03/2024	04:02:00	1.4	2.5	8	151
29/03/2024	04:03:00	1.4	2.4	8	149
29/03/2024	04:04:00	1.2	1.8	8	149
29/03/2024	04:05:00	1.3	1.9	8	150
29/03/2024	04:06:00	1.2	1.5	8	148
29/03/2024	04:07:00	1.4	2.1	8	150
29/03/2024	04:08:00	1.6	2.3	8	151
29/03/2024	04:09:00	1.3	1.9	8	151
29/03/2024	04:10:00	1.4	2.3	8	140
29/03/2024	04:11:00	1.2	1.6	8	132
29/03/2024	04:12:00	1.5	2.1	8	141
29/03/2024	04:13:00	1.6	2.3	8	142
29/03/2024	04:14:00	1.3	2.0	8	138
29/03/2024	04:15:00	1.2	1.7	8	142
29/03/2024	04:16:00	1.5	2.6	8	140
29/03/2024	04:17:00	1.4	2.3	8	139
29/03/2024	04:18:00	1.1	1.6	8	139
29/03/2024	04:19:00	1.2	2.2	8	138
29/03/2024	04:20:00	1.4	1.8	8	137
29/03/2024	04:21:00	1.2	1.8	8	140
29/03/2024	04:22:00	1.4	1.9	8	139
29/03/2024	04:23:00	1.2	1.8	8	137
29/03/2024	04:24:00	1.3	1.8	8	137
29/03/2024	04:25:00	1.6	2.2	8	131
29/03/2024	04:26:00	1.4	2.3	8	136
29/03/2024	04:27:00	1.3	2.0	8	139
29/03/2024	04:28:00	1.5	2.0	8	136

29/03/2024	04:29:00	1.4	2.0	8	140
29/03/2024	04:30:00	1.7	2.3	8	138
29/03/2024	04:31:00	1.6	2.2	8	140
29/03/2024	04:32:00	1.4	2.1	8	145
29/03/2024	04:33:00	1.3	1.9	8	142
29/03/2024	04:34:00	1.3	1.9	8	141
29/03/2024	04:35:00	1.5	2.1	8	147
29/03/2024	04:36:00	1.4	1.9	8	146
29/03/2024	04:37:00	1.2	1.7	8	148
29/03/2024	04:38:00	1.3	1.8	8	154
29/03/2024	04:39:00	1.2	1.7	8	157
29/03/2024	04:40:00	1.5	2.5	8	160
29/03/2024	04:41:00	1.2	1.8	8	164
29/03/2024	04:42:00	1.1	1.6	8	160
29/03/2024	04:43:00	1.3	1.6	8	156
29/03/2024	04:44:00	1.8	2.5	8	155
29/03/2024	04:45:00	1.6	1.9	8	154
29/03/2024	04:46:00	1.7	3.1	8	156
29/03/2024	04:47:00	1.8	3.0	8	161
29/03/2024	04:48:00	1.8	2.6	8	163
29/03/2024	04:49:00	1.5	2.1	8	155
29/03/2024	04:50:00	1.3	2.2	8	184
29/03/2024	04:51:00	1.5	2.6	8	160
29/03/2024	04:52:00	1.5	2.1	8	157
29/03/2024	04:53:00	1.6	2.5	8	154
29/03/2024	04:54:00	1.6	2.3	8	152
29/03/2024	04:55:00	1.3	2.0	8	159
29/03/2024	04:56:00	1.7	2.2	8	158
29/03/2024	04:57:00	1.5	2.4	8	155
29/03/2024	04:58:00	1.3	1.8	8	166
29/03/2024	04:59:00	1.4	2.4	8	185
29/03/2024	05:00:00	1.4	1.9	8	184
29/03/2024	05:01:00	1.6	2.3	8	186
29/03/2024	05:02:00	1.4	2.3	8	184
29/03/2024	05:03:00	1.6	2.3	8	161
29/03/2024	05:04:00	1.3	1.8	8	160
29/03/2024	05:05:00	1.4	2.3	8	179
29/03/2024	05:06:00	1.8	2.8	8	176
29/03/2024	05:07:00	1.2	2.1	8	167
29/03/2024	05:08:00	1.5	2.2	8	174
29/03/2024	05:09:00	1.2	1.6	8	171
29/03/2024	05:10:00	1.5	2.6	8	163
29/03/2024	05:11:00	1.7	2.3	8	177
29/03/2024	05:12:00	1.8	3.1	8	173
29/03/2024	05:13:00	1.3	2.2	8	160
29/03/2024	05:14:00	1.3	2.0	8	171

29/03/2024	05:15:00	1.6	3.3	8	167
29/03/2024	05:16:00	1.5	2.6	8	186
29/03/2024	05:17:00	1.3	2.2	8	190
29/03/2024	05:18:00	1.2	1.7	8	176
29/03/2024	05:19:00	1.4	1.9	8	177
29/03/2024	05:20:00	1.8	3.3	8	188
29/03/2024	05:21:00	1.3	1.9	8	180
29/03/2024	05:22:00	1.5	2.7	8	183
29/03/2024	05:23:00	1.9	4.0	8	198
29/03/2024	05:24:00	1.6	2.1	8	188
29/03/2024	05:25:00	1.9	2.7	8	194
29/03/2024	05:26:00	1.5	2.1	8	192
29/03/2024	05:27:00	1.4	2.0	8	181
29/03/2024	05:28:00	1.7	2.4	8	176
29/03/2024	05:29:00	2.0	3.3	8	191
29/03/2024	05:30:00	1.8	2.6	8	192
29/03/2024	05:31:00	1.9	3.7	8	190
29/03/2024	05:32:00	1.4	2.0	8	186
29/03/2024	05:33:00	1.6	3.9	8	196
29/03/2024	05:34:00	1.7	3.1	8	184
29/03/2024	05:35:00	1.9	3.5	8	200
29/03/2024	05:36:00	1.3	2.1	8	190
29/03/2024	05:37:00	1.7	2.5	8	180
29/03/2024	05:38:00	2.3	3.3	8	202
29/03/2024	05:39:00	1.4	2.0	8	181
29/03/2024	05:40:00	1.5	2.5	8	184
29/03/2024	05:41:00	1.5	2.3	8	174
29/03/2024	05:42:00	1.7	2.4	8	186
29/03/2024	05:43:00	1.9	3.3	8	185
29/03/2024	05:44:00	1.7	2.8	8	200
29/03/2024	05:45:00	1.5	2.4	8	201
29/03/2024	05:46:00	1.4	2.3	8	197
29/03/2024	05:47:00	1.9	2.5	7	191
29/03/2024	05:48:00	2.1	3.2	7	202
29/03/2024	05:49:00	1.6	2.2	7	202
29/03/2024	05:50:00	1.7	2.6	7	202
29/03/2024	05:51:00	1.6	2.4	7	178
29/03/2024	05:52:00	1.6	2.3	7	185
29/03/2024	05:53:00	2.1	4.1	7	198
29/03/2024	05:54:00	2.3	3.0	7	201
29/03/2024	05:55:00	1.9	3.0	7	187
29/03/2024	05:56:00	2.2	3.8	7	204
29/03/2024	05:57:00	2.3	4.1	7	204
29/03/2024	05:58:00	2.2	3.6	7	198
29/03/2024	05:59:00	1.6	2.5	7	190
29/03/2024	06:00:00	2.2	3.0	7	201

29/03/2024	06:01:00	1.8	2.6	7	190
29/03/2024	06:02:00	2.2	3.2	7	193
29/03/2024	06:03:00	2.2	3.0	7	196
29/03/2024	06:04:00	2.2	3.6	7	183
29/03/2024	06:05:00	2.5	3.2	7	201
29/03/2024	06:06:00	1.5	3.0	7	210
29/03/2024	06:07:00	2.2	3.7	7	200
29/03/2024	06:08:00	1.5	2.0	7	200
29/03/2024	06:09:00	1.3	1.8	7	196
29/03/2024	06:10:00	1.7	3.2	7	196
29/03/2024	06:11:00	2.3	3.8	7	197
29/03/2024	06:12:00	1.4	2.1	7	191
29/03/2024	06:13:00	1.7	3.3	7	198
29/03/2024	06:14:00	2.4	3.5	7	198
29/03/2024	06:15:00	2.0	2.8	7	195
29/03/2024	06:16:00	1.7	3.3	7	194
29/03/2024	06:17:00	1.5	2.3	7	193
29/03/2024	06:18:00	1.9	3.4	7	194
29/03/2024	06:19:00	1.5	2.5	7	196
29/03/2024	06:20:00	1.4	2.1	7	194
29/03/2024	06:21:00	1.6	2.2	7	183
29/03/2024	06:22:00	2.0	2.9	7	203
29/03/2024	06:23:00	1.6	3.1	7	200
29/03/2024	06:24:00	1.4	1.7	7	191
29/03/2024	06:25:00	1.2	1.7	7	196
29/03/2024	06:26:00	1.7	2.6	7	201
29/03/2024	06:27:00	1.8	2.7	7	201
29/03/2024	06:28:00	1.2	1.5	7	195
29/03/2024	06:29:00	1.2	1.8	7	192
29/03/2024	06:30:00	1.3	1.9	7	195
29/03/2024	06:31:00	1.5	2.2	7	193
29/03/2024	06:32:00	1.4	2.0	7	192
29/03/2024	06:33:00	1.8	4.0	7	197
29/03/2024	06:34:00	1.6	3.5	7	196
29/03/2024	06:35:00	1.9	2.7	7	203
29/03/2024	06:36:00	2.0	3.2	7	206
29/03/2024	06:37:00	1.8	3.4	7	198
29/03/2024	06:38:00	2.0	2.8	7	199
29/03/2024	06:39:00	1.4	1.8	7	190
29/03/2024	06:40:00	1.6	2.0	7	189
29/03/2024	06:41:00	1.6	2.0	7	187
29/03/2024	06:42:00	1.4	2.2	7	188
29/03/2024	06:43:00	1.2	2.1	7	197
29/03/2024	06:44:00	1.6	3.2	7	200
29/03/2024	06:45:00	1.3	2.1	7	191
29/03/2024	06:46:00	2.1	2.8	7	193

29/03/2024	06:47:00	1.5	2.0	7	190
29/03/2024	06:48:00	1.8	3.0	7	187
29/03/2024	06:49:00	1.8	2.7	6	184
29/03/2024	06:50:00	2.1	3.0	6	197
29/03/2024	06:51:00	1.7	2.3	6	197
29/03/2024	06:52:00	1.9	2.8	6	199
29/03/2024	06:53:00	2.1	2.9	6	197
29/03/2024	06:54:00	2.1	3.0	6	190
29/03/2024	06:55:00	2.0	2.9	6	188
29/03/2024	06:56:00	1.8	3.5	6	195
29/03/2024	06:57:00	1.8	2.8	6	181
29/03/2024	06:58:00	1.6	2.8	6	200
29/03/2024	06:59:00	1.5	2.9	6	195
29/03/2024	07:00:00	1.3	2.1	6	197
29/03/2024	07:01:00	1.6	2.6	6	185
29/03/2024	07:02:00	2.2	3.2	6	158
29/03/2024	07:03:00	1.4	1.8	6	168
29/03/2024	07:04:00	1.1	1.6	6	171
29/03/2024	07:05:00	1.6	3.5	6	171
29/03/2024	07:06:00	1.5	2.3	6	174
29/03/2024	07:07:00	1.7	2.6	6	182
29/03/2024	07:08:00	1.9	4.0	6	198
29/03/2024	07:09:00	2.1	3.1	6	185
29/03/2024	07:10:00	1.6	2.9	6	175
29/03/2024	07:11:00	2.0	2.8	6	189
29/03/2024	07:12:00	1.7	2.8	6	185
29/03/2024	07:13:00	1.7	2.6	6	175
29/03/2024	07:14:00	1.8	3.9	6	188
29/03/2024	07:15:00	1.9	3.1	6	189
29/03/2024	07:16:00	1.9	3.1	6	188
29/03/2024	07:17:00	1.9	3.0	6	182
29/03/2024	07:18:00	1.6	2.7	6	157
29/03/2024	07:19:00	1.5	2.3	6	162
29/03/2024	07:20:00	1.5	2.5	6	180
29/03/2024	07:21:00	1.9	3.5	6	168
29/03/2024	07:22:00	1.5	1.9	6	172
29/03/2024	07:23:00	1.6	2.5	6	193
29/03/2024	07:24:00	1.4	2.5	6	196
29/03/2024	07:25:00	1.5	2.1	6	160
29/03/2024	07:26:00	1.4	2.1	6	158
29/03/2024	07:27:00	1.5	2.2	6	183
29/03/2024	07:28:00	1.9	2.9	6	197
29/03/2024	07:29:00	1.8	2.8	6	193
29/03/2024	07:30:00	2.0	3.4	6	182
29/03/2024	07:31:00	1.5	4.1	6	195
29/03/2024	07:32:00	1.7	2.5	6	199

29/03/2024	07:33:00	2.0	2.9	6	184
29/03/2024	07:34:00	2.1	3.7	6	196
29/03/2024	07:35:00	1.8	2.4	6	178
29/03/2024	07:36:00	2.4	3.5	6	175
29/03/2024	07:37:00	2.2	3.2	6	175
29/03/2024	07:38:00	1.6	2.2	6	182
29/03/2024	07:39:00	1.9	2.5	6	187
29/03/2024	07:40:00	2.0	3.1	6	185
29/03/2024	07:41:00	2.1	3.1	6	188
29/03/2024	07:42:00	1.7	2.6	6	182
29/03/2024	07:43:00	1.8	3.1	6	186
29/03/2024	07:44:00	1.6	2.7	6	185
29/03/2024	07:45:00	1.8	3.3	6	181
29/03/2024	07:46:00	2.1	3.4	6	175
29/03/2024	07:47:00	2.5	4.2	6	201
29/03/2024	07:48:00	2.1	3.1	6	194
29/03/2024	07:49:00	1.1	1.8	6	184
29/03/2024	07:50:00	1.3	2.1	6	182
29/03/2024	07:51:00	2.2	2.9	6	175
29/03/2024	07:52:00	2.5	4.1	6	207
29/03/2024	07:53:00	1.8	2.6	6	190
29/03/2024	07:54:00	2.4	3.7	6	187
29/03/2024	07:55:00	2.8	4.9	6	196
29/03/2024	07:56:00	2.2	3.5	6	198
29/03/2024	07:57:00	1.5	2.6	6	188
29/03/2024	07:58:00	1.9	5.2	6	197
29/03/2024	07:59:00	2.2	4.7	6	198
29/03/2024	08:00:00	1.5	2.2	6	187
29/03/2024	08:01:00	1.4	2.0	6	198
29/03/2024	08:02:00	1.7	2.9	6	190
29/03/2024	08:03:00	2.2	3.8	6	193
29/03/2024	08:04:00	2.0	4.0	6	197
29/03/2024	08:05:00	1.9	2.7	6	184
29/03/2024	08:06:00	1.9	3.9	6	190
29/03/2024	08:07:00	1.6	2.1	6	177
29/03/2024	08:08:00	2.2	3.7	6	178
29/03/2024	08:09:00	2.1	3.3	6	186
29/03/2024	08:10:00	2.0	3.1	6	164
29/03/2024	08:11:00	2.0	3.6	6	170
29/03/2024	08:12:00	2.1	3.5	7	185
29/03/2024	08:13:00	1.9	2.6	7	188
29/03/2024	08:14:00	2.2	3.0	7	187
29/03/2024	08:15:00	1.8	2.4	7	185
29/03/2024	08:16:00	2.3	3.1	7	200
29/03/2024	08:17:00	2.3	3.4	7	196
29/03/2024	08:18:00	2.2	3.5	7	191

29/03/2024	08:19:00	2.2	3.5	7	180
29/03/2024	08:20:00	1.7	3.2	7	188
29/03/2024	08:21:00	2.0	3.2	7	199
29/03/2024	08:22:00	1.7	4.1	7	199
29/03/2024	08:23:00	1.9	3.5	7	205
29/03/2024	08:24:00	2.0	2.8	7	206
29/03/2024	08:25:00	2.7	5.5	7	202
29/03/2024	08:26:00	2.0	3.2	7	208
29/03/2024	08:27:00	2.0	5.1	7	204
29/03/2024	08:28:00	2.6	3.8	7	192
29/03/2024	08:29:00	1.9	3.6	7	207

Data for N 7 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/28/2024	8:40:33	59.2	87	78.7	39.3	62.1	46.7
3/28/2024	8:50:33	61.2	89	80.8	39.5	64.2	46.1
3/28/2024	9:00:33	63.6	91.4	89.9	40.1	64.2	45
3/28/2024	9:10:33	64.6	92.4	84.9	41.4	65.4	48
3/28/2024	9:20:33	63.3	91.1	87.6	40.9	63.5	44.9
3/28/2024	9:30:33	62.3	90.1	84.7	38.8	63.8	45
3/28/2024	9:40:33	62.5	90.3	80.6	39.6	64	44.5
3/28/2024	9:50:33	67.2	95	87.5	41.5	69.3	47.5
3/28/2024	10:00:33	61	88.8	83.9	39.4	61.6	45.4
3/28/2024	10:10:33	60.1	87.9	76.9	42	63.1	46
3/28/2024	10:20:33	61.6	89.4	82.5	41.4	63.4	46.4
3/28/2024	10:30:33	62.6	90.4	81	38.7	64.2	46
3/28/2024	10:40:33	63.3	91.1	84.3	40.4	65.1	45.5
3/28/2024	10:50:33	64.9	92.7	85.2	42.3	68.8	48.7
3/28/2024	11:00:33	63.8	91.6	85.9	40.5	63.1	44.4
3/28/2024	11:10:33	64.4	92.2	84.1	38.9	67.2	46.8
3/28/2024	11:20:33	59.6	87.4	74.7	40.9	63.4	43.9
3/28/2024	11:30:33	62.5	90.3	80.8	37.6	64.6	44.9
3/28/2024	11:40:33	63.9	91.7	80.8	42.7	67.8	48
3/28/2024	11:50:33	63.3	91.1	86.6	38	64.9	43.7
3/28/2024	12:00:33	63.2	91	84	40.9	66.3	44.9
3/28/2024	12:10:33	62.7	90.5	82.3	41.3	66.3	46.9
3/28/2024	12:20:33	62.4	90.2	80.9	38.2	65.1	45.9
3/28/2024	12:30:33	61	88.8	78	40.3	64.7	46.4
3/28/2024	12:40:33	58.8	86.6	74.9	37.6	62	43.6
3/28/2024	12:50:33	61.1	88.9	82.2	41.4	63.1	46.6
3/28/2024	13:00:33	59.4	87.2	78.9	39.7	61.8	44.8
3/28/2024	13:10:33	62	89.8	79.7	38.7	65.3	44.8
3/28/2024	13:20:33	63.8	91.6	83.8	38.3	66.3	44.6
3/28/2024	13:30:33	57.7	85.5	74	38.1	60.6	42.7

3/28/2024	13:40:33	63.9	91.7	85.7	39.4	66.2	45
3/28/2024	13:50:33	64.2	92	88.4	40.3	65.9	45.1
3/28/2024	14:00:33	60	87.8	84.7	40.9	61.1	44.1
3/28/2024	14:10:33	63.9	91.7	85.4	39.6	64.4	45.4
3/28/2024	14:20:33	64.4	92.2	86.6	39.1	63.6	43.9
3/28/2024	14:30:33	64.5	92.3	84	39.5	66.2	45.6
3/28/2024	14:40:33	64	91.8	83.7	39.6	67.8	45.6
3/28/2024	14:50:33	65.9	93.7	89.3	39.5	65.1	45.2
3/28/2024	15:00:33	66	93.8	89.9	39.2	66.2	45.7
3/28/2024	15:10:33	62.6	90.4	82.2	40.1	64.3	45.8
3/28/2024	15:20:33	64.1	91.9	87.4	38.3	65.5	44
3/28/2024	15:30:33	60.9	88.7	76.6	35.4	64.1	43.2
3/28/2024	15:40:33	62	89.8	79.8	37.9	64.5	45.5
3/28/2024	15:50:33	61.7	89.5	89.7	40.3	63.1	46.7
3/28/2024	16:00:33	59.3	87.1	76.5	38.9	62.9	44.6
3/28/2024	16:10:33	63.2	91	85.7	37.8	64.2	42.3
3/28/2024	16:20:33	60.1	87.9	78	35.9	62.6	44.4
3/28/2024	16:30:33	63.6	91.4	87.8	39.9	64.1	44.8
3/28/2024	16:40:33	62.3	90.1	84.2	39.2	65.3	44.4
3/28/2024	16:50:33	63.7	91.5	86.2	38.5	64.3	43.3
3/28/2024	17:00:33	59.6	87.4	83.1	35	61.2	40.8
3/28/2024	17:10:33	65.9	93.7	86.5	41.5	68	44.8
3/28/2024	17:20:33	66.4	94.2	89.2	39.9	64.8	46.9
3/28/2024	17:30:33	61.9	89.7	84	40	63	44.2
3/28/2024	17:40:33	62.2	90	84.9	38.7	63.7	44.7
3/28/2024	17:50:33	61.2	89	80.8	38.4	63.3	44.2
3/28/2024	18:00:33	59.2	87	73.1	37.9	63.7	42.9
3/28/2024	18:10:33	58.5	86.3	75	35.7	60.8	42.1
3/28/2024	18:20:33	61.5	89.3	75.7	41.7	66	46.2
3/28/2024	18:30:33	58.8	86.6	74.5	37.9	62.2	44.1
3/28/2024	18:40:33	57.7	85.5	72.5	39.7	61.4	43.5
3/28/2024	18:50:33	57.2	85	71.1	38.4	61.4	43
3/28/2024	19:00:33	58.8	86.6	75.9	36.9	61.8	42.3
3/28/2024	19:10:33	61.4	89.2	85.8	34.2	61.5	41.2
3/28/2024	19:20:33	62.1	89.9	86.1	38.4	64.1	43.4
3/28/2024	19:30:33	57.9	85.7	73.9	35.1	61	40.4
3/28/2024	19:40:33	58.8	86.6	79.2	36.1	60.9	41.2
3/28/2024	19:50:33	57.3	85.1	70.2	37.4	61.1	41.1
3/28/2024	20:00:33	51.8	79.6	69.1	31	56.4	36.8
3/28/2024	20:10:33	58.2	86	83	29.4	57.5	35.2
3/28/2024	20:20:33	56.9	84.7	70.8	36.8	61.2	42.3
3/28/2024	20:30:33	58.6	86.4	77.8	32.7	61.8	38
3/28/2024	20:40:33	55.9	83.7	74.6	34.7	57.9	39.8
3/28/2024	20:50:33	60.1	87.9	82.3	36.4	62.7	41.4
3/28/2024	21:00:33	59.2	87	84.4	35.1	61.7	40.8
3/28/2024	21:10:33	58.3	86.1	75.5	33.9	61.2	39.5

3/28/2024	21:20:33	58.7	86.5	75.8	36.4	61	41.2
3/28/2024	21:30:33	54.8	82.6	75.7	34.8	56.6	40
3/28/2024	21:40:33	62.1	89.9	84.2	38.8	63	42.4
3/28/2024	21:50:33	60.6	88.4	81.5	31.2	60.7	38.1
3/28/2024	22:00:33	54.7	82.5	70.1	30.3	57.5	37.3
3/28/2024	22:10:33	57.8	85.6	78	33.4	60	38.3
3/28/2024	22:20:33	58.1	85.9	76.6	29.8	58.9	36.8
3/28/2024	22:30:33	55.3	83.1	75.3	34	57.2	38.7
3/28/2024	22:40:33	59.3	87.1	81.1	32.3	60.3	39.5
3/28/2024	22:50:33	58.7	86.5	80	30.2	58.6	34.4
3/28/2024	23:00:33	57.9	85.7	74	32.4	60.6	40.1
3/28/2024	23:10:33	57.6	85.4	75.1	28.6	58.9	35
3/28/2024	23:20:33	62.3	90.1	89	31.8	60	38.8
3/28/2024	23:30:33	56.6	84.4	75.7	30.7	59.2	36.7
3/28/2024	23:40:33	53.7	81.5	74.3	28.6	56	33.4
3/28/2024	23:50:33	54.6	82.4	69	29.4	59.4	35.1
3/29/2024	0:00:33	51.5	79.3	70.5	28.1	53.6	33.5
3/29/2024	0:10:33	49.9	77.7	69.3	25.3	51.5	29.8
3/29/2024	0:20:33	57.8	85.6	77.4	28	59	32.9
3/29/2024	0:30:33	55.8	83.6	76.4	28.9	55.9	32.4
3/29/2024	0:40:33	57.2	85	73	25.4	61.5	33.6
3/29/2024	0:50:33	58.2	86	75.6	28.7	60.5	34.5
3/29/2024	1:00:33	56.7	84.5	76.1	28.7	59	35
3/29/2024	1:10:33	60	87.8	83.4	28.2	55.4	32.9
3/29/2024	1:20:33	46.5	74.3	66.3	21.3	43.9	27.9
3/29/2024	1:30:33	47.1	74.9	67.6	22.4	46.3	27.7
3/29/2024	1:40:33	57	84.8	73.4	27.6	59.3	35.3
3/29/2024	1:50:33	54.9	82.7	74.2	21.8	52.9	27.5
3/29/2024	2:00:33	52.2	80	70.1	23.7	52.4	29.7
3/29/2024	2:10:33	48.2	76	68.9	23	46.9	29.9
3/29/2024	2:20:33	50.2	78	69.9	24.3	47.8	29.1
3/29/2024	2:30:33	54.5	82.3	76.9	22.8	51	27.8
3/29/2024	2:40:33	56	83.8	76.2	23	50.8	26.1
3/29/2024	2:50:33	48.2	76	72.5	22.4	44.1	25.2
3/29/2024	3:00:33	49.7	77.5	68	25.2	47.8	27.9
3/29/2024	3:10:33	56.7	84.5	81.3	26.6	53.8	31
3/29/2024	3:20:33	55.6	83.4	79	25.1	46.5	28.1
3/29/2024	3:30:33	61	88.8	87.8	25.2	50.4	28
3/29/2024	3:40:33	60.4	88.2	83.8	25.2	52.1	28
3/29/2024	3:50:33	53.8	81.6	74.2	29.3	49.9	32.7
3/29/2024	4:00:33	41.9	69.7	59.7	37.5	40.9	38.6
3/29/2024	4:10:33	44	71.8	60.3	37.8	43.8	39.3
3/29/2024	4:20:33	46.7	74.5	66.1	27.3	44.6	30.4
3/29/2024	4:30:33	42.5	70.3	60.3	22.4	43.4	25.9
3/29/2024	4:40:33	42.1	69.9	65.7	22.6	36.5	24.7
3/29/2024	4:50:33	56.1	83.9	78.5	25.1	56.5	28.4

3/29/2024	5:00:33	54.2	82	78.3	25.3	48.6	27.4
3/29/2024	5:10:33	56.2	84	76.1	28.7	55.6	33.6
3/29/2024	5:20:33	56.5	84.3	74.8	27	54.5	29.5
3/29/2024	5:30:33	48.2	76	68.6	28.2	48.7	31.1
3/29/2024	5:40:33	56.5	84.3	77.8	29.2	56.3	32.8
3/29/2024	5:50:33	49	76.8	68.8	27.5	49	30.5
3/29/2024	6:00:33	54	81.8	75.7	31.2	54.9	33.9
3/29/2024	6:10:33	51.4	79.2	67.8	25.5	53	32.5
3/29/2024	6:20:33	52.2	80	68.9	28	54.1	39
3/29/2024	6:30:33	62.7	90.5	83.5	38.4	63.9	41.4
3/29/2024	6:40:33	62.9	90.7	82.4	41.9	63.9	44.2
3/29/2024	6:50:33	56.7	84.5	75.7	40.4	59.3	42.6
3/29/2024	7:00:33	64.8	92.6	83	37.8	65	42.5
3/29/2024	7:10:33	62.2	90	80.5	33	63.2	40.8
3/29/2024	7:20:33	58.4	86.2	81.1	38.1	60.7	41.9
3/29/2024	7:30:33	63.7	91.5	86.2	36.5	65.3	41.1
3/29/2024	7:40:33	64.6	92.4	89.3	34.6	64	39.7
3/29/2024	7:50:33	61.1	88.9	88	39.6	61.5	43.6
3/29/2024	8:00:33	62.9	90.7	81.1	36.7	65.7	44.2
3/29/2024	8:10:33	62.8	90.6	85.7	41.1	64.8	45.7
3/29/2024	8:20:33	61.6	89.4	82.1	38.1	63.2	45.9
3/29/2024	8:30:33	66.3	94.1	87.6	43.6	66.1	48.4
3/29/2024	8:40:33	60	87.8	76.9	37.6	63.1	43.5

Data for N 7 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
28/03/2024	8:40:00	2.6	3.8	8	235
28/03/2024	8:41:00	1.6	2.3	8	207
28/03/2024	8:42:00	1.7	2.8	8	211
28/03/2024	8:43:00	2.7	4.9	8	215
28/03/2024	8:44:00	2.2	3.5	8	236
28/03/2024	8:45:00	2.5	3.3	8	208
28/03/2024	8:46:00	2.2	3.6	8	222
28/03/2024	8:47:00	2.4	4.3	8	213
28/03/2024	8:48:00	2.2	3.9	8	210
28/03/2024	8:49:00	2.8	4.2	8	224
28/03/2024	8:50:00	2.5	4.6	8	233
28/03/2024	8:51:00	1.7	2.8	8	184
28/03/2024	8:52:00	1.7	3	8	228
28/03/2024	8:53:00	2.1	3.6	8	219
28/03/2024	8:54:00	2.7	4.1	8	220
28/03/2024	8:55:00	1.8	2.7	8	226
28/03/2024	8:56:00	1.8	2.6	8	230

28/03/2024	8:57:00	1.1	2.1	8	188
28/03/2024	8:58:00	1.9	3.6	8	210
28/03/2024	8:59:00	2	2.8	8	207
28/03/2024	9:00:00	1.6	2.5	8	220
28/03/2024	9:01:00	1.6	3.4	8	182
28/03/2024	9:02:00	2.4	3.6	8	229
28/03/2024	9:03:00	1.7	3.6	8	219
28/03/2024	9:04:00	2.5	3.6	8	230
28/03/2024	9:05:00	2	3.2	8	210
28/03/2024	9:06:00	2.1	3.4	8	201
28/03/2024	9:07:00	1.6	2.3	8	232
28/03/2024	9:08:00	2	4.2	8	235
28/03/2024	9:09:00	1.9	3	8	190
28/03/2024	9:10:00	2.2	3.6	8	220
28/03/2024	9:11:00	1.3	2.7	8	198
28/03/2024	9:12:00	2.2	3.3	8	204
28/03/2024	9:13:00	2.3	3.9	8	184
28/03/2024	9:14:00	1.8	3	8	207
28/03/2024	9:15:00	2.8	4.7	8	231
28/03/2024	9:16:00	2.2	3.6	8	205
28/03/2024	9:17:00	1.9	4.1	8	211
28/03/2024	9:18:00	1.5	2.6	8	207
28/03/2024	9:19:00	2.4	4.5	8	221
28/03/2024	9:20:00	1.9	3.2	8	214
28/03/2024	9:21:00	2.2	3.4	8	204
28/03/2024	9:22:00	1.7	2.4	8	201
28/03/2024	9:23:00	1.6	3.4	9	210
28/03/2024	9:24:00	2	3.5	9	193
28/03/2024	9:25:00	1.7	2.7	9	207
28/03/2024	9:26:00	1.7	2.6	9	200
28/03/2024	9:27:00	1.9	3	9	233
28/03/2024	9:28:00	2.3	3	9	227
28/03/2024	9:29:00	2.7	3.8	9	240
28/03/2024	9:30:00	2.8	4.9	9	213
28/03/2024	9:31:00	2.2	4	9	242
28/03/2024	9:32:00	2.1	3.4	9	221
28/03/2024	9:33:00	2.1	3.7	9	222
28/03/2024	9:34:00	1.6	3.1	9	208
28/03/2024	9:35:00	1.7	2.7	9	199
28/03/2024	9:36:00	1.5	2.3	10	199
28/03/2024	9:37:00	2.1	3.5	10	245
28/03/2024	9:38:00	2.1	4.5	10	242
28/03/2024	9:39:00	2.1	3.4	10	239
28/03/2024	9:40:00	1.7	3.7	10	219
28/03/2024	9:41:00	2.1	4.3	10	232
28/03/2024	9:42:00	3	4.4	10	215

28/03/2024	9:43:00	2.3	3.9	10	214
28/03/2024	9:44:00	1.8	2.8	10	223
28/03/2024	9:45:00	2.1	3.5	10	221
28/03/2024	9:46:00	1.9	4.1	10	223
28/03/2024	9:47:00	2.8	6.1	10	233
28/03/2024	9:48:00	2	3	10	220
28/03/2024	9:49:00	1.9	3	10	197
28/03/2024	9:50:00	2	3.5	10	220
28/03/2024	9:51:00	2.8	5	10	232
28/03/2024	9:52:00	1.9	3	10	247
28/03/2024	9:53:00	1.9	3.1	10	222
28/03/2024	9:54:00	1.2	2.5	10	220
28/03/2024	9:55:00	2.3	3.4	10	230
28/03/2024	9:56:00	1.6	2.6	10	182
28/03/2024	9:57:00	2.1	4.2	10	219
28/03/2024	9:58:00	2	3.4	10	208
28/03/2024	9:59:00	2.1	4.2	10	209
28/03/2024	10:00:00	1.8	3	10	188
28/03/2024	10:01:00	2.1	3.7	10	213
28/03/2024	10:02:00	2.1	2.9	10	207
28/03/2024	10:03:00	3	4.8	10	230
28/03/2024	10:04:00	3.1	5.7	10	230
28/03/2024	10:05:00	3	4.3	10	227
28/03/2024	10:06:00	2	2.8	10	231
28/03/2024	10:07:00	2.1	3.3	10	242
28/03/2024	10:08:00	2.8	4.7	10	229
28/03/2024	10:09:00	2.4	4.8	10	188
28/03/2024	10:10:00	2.7	4.9	10	203
28/03/2024	10:11:00	3	4.4	11	217
28/03/2024	10:12:00	1.9	3.1	11	213
28/03/2024	10:13:00	2.3	4	11	215
28/03/2024	10:14:00	2.6	5.8	11	228
28/03/2024	10:15:00	2.8	4.4	11	229
28/03/2024	10:16:00	3	4.5	11	224
28/03/2024	10:17:00	2.3	4.4	11	198
28/03/2024	10:18:00	3.6	6.3	11	234
28/03/2024	10:19:00	3.5	4.6	11	231
28/03/2024	10:20:00	2.3	4	11	183
28/03/2024	10:21:00	1.9	3.2	11	200
28/03/2024	10:22:00	2.7	4.4	11	224
28/03/2024	10:23:00	2.6	4.9	11	192
28/03/2024	10:24:00	2.7	4.7	11	192
28/03/2024	10:25:00	2.1	3.2	11	204
28/03/2024	10:26:00	1.4	2.2	11	195
28/03/2024	10:27:00	2.3	4.5	11	188
28/03/2024	10:28:00	2	3.2	11	182

28/03/2024	10:29:00	2.5	4.2	11	188
28/03/2024	10:30:00	1.8	2.9	11	195
28/03/2024	10:31:00	2.9	4.5	11	219
28/03/2024	10:32:00	2.3	4.5	11	204
28/03/2024	10:33:00	2.9	5.4	11	213
28/03/2024	10:34:00	2.2	4.1	11	206
28/03/2024	10:35:00	2.1	5	11	201
28/03/2024	10:36:00	2.1	3.8	11	177
28/03/2024	10:37:00	3.3	5.2	11	222
28/03/2024	10:38:00	2.2	4.2	11	212
28/03/2024	10:39:00	2.2	4.4	11	200
28/03/2024	10:40:00	2.3	3.9	11	199
28/03/2024	10:41:00	2.2	3.5	11	187
28/03/2024	10:42:00	2.1	3.8	11	194
28/03/2024	10:43:00	2.1	3.8	11	180
28/03/2024	10:44:00	2.2	3.4	11	208
28/03/2024	10:45:00	2.1	4.2	11	193
28/03/2024	10:46:00	3.7	6.2	11	188
28/03/2024	10:47:00	2.1	4	11	196
28/03/2024	10:48:00	2.6	5.6	12	187
28/03/2024	10:49:00	2.1	3.6	12	179
28/03/2024	10:50:00	2.8	4.6	12	181
28/03/2024	10:51:00	2.9	3.9	12	216
28/03/2024	10:52:00	2.8	5.9	12	209
28/03/2024	10:53:00	2.4	4.5	12	194
28/03/2024	10:54:00	3.1	5.1	12	230
28/03/2024	10:55:00	2.7	3.9	12	217
28/03/2024	10:56:00	2.5	3.7	12	186
28/03/2024	10:57:00	2.2	4.3	12	192
28/03/2024	10:58:00	2.2	3.5	12	202
28/03/2024	10:59:00	1.6	2.5	12	170
28/03/2024	11:00:00	2.3	5	12	231
28/03/2024	11:01:00	2.4	4.9	12	210
28/03/2024	11:02:00	2.3	3.9	12	228
28/03/2024	11:03:00	2.2	3.3	12	227
28/03/2024	11:04:00	1.4	2	12	211
28/03/2024	11:05:00	1.9	4.4	12	172
28/03/2024	11:06:00	1.7	2.6	12	199
28/03/2024	11:07:00	2.2	3.5	12	234
28/03/2024	11:08:00	2	3.4	12	207
28/03/2024	11:09:00	2.2	3.2	12	208
28/03/2024	11:10:00	2.4	3.8	13	219
28/03/2024	11:11:00	2	3.1	13	180
28/03/2024	11:12:00	2.2	3	13	178
28/03/2024	11:13:00	2.4	4.4	13	210
28/03/2024	11:14:00	3	4.6	13	222

28/03/2024	11:15:00	2	3.9	13	211
28/03/2024	11:16:00	2	4.2	13	190
28/03/2024	11:17:00	3.3	5.2	13	230
28/03/2024	11:18:00	2	3.8	13	190
28/03/2024	11:19:00	2.7	5.9	13	228
28/03/2024	11:20:00	2.1	2.9	13	222
28/03/2024	11:21:00	2.6	4	13	224
28/03/2024	11:22:00	2.8	6.8	13	222
28/03/2024	11:23:00	2.3	4.2	13	198
28/03/2024	11:24:00	2.8	5	13	221
28/03/2024	11:25:00	3.1	5.7	13	251
28/03/2024	11:26:00	2.9	4.2	13	246
28/03/2024	11:27:00	3	4.3	13	233
28/03/2024	11:28:00	3	5.4	13	233
28/03/2024	11:29:00	3.2	6	13	216
28/03/2024	11:30:00	3.2	5.6	13	225
28/03/2024	11:31:00	3.2	6.1	13	226
28/03/2024	11:32:00	3.2	4.8	13	215
28/03/2024	11:33:00	2.7	4.7	13	210
28/03/2024	11:34:00	2.4	4	13	232
28/03/2024	11:35:00	2.2	3.8	13	231
28/03/2024	11:36:00	2.6	4.4	13	223
28/03/2024	11:37:00	2.5	3.6	13	223
28/03/2024	11:38:00	3.8	6.1	13	237
28/03/2024	11:39:00	2.5	3.8	13	227
28/03/2024	11:40:00	3.3	4.9	13	237
28/03/2024	11:41:00	3.1	5.1	13	247
28/03/2024	11:42:00	2.2	4.8	13	219
28/03/2024	11:43:00	2.9	4.8	13	229
28/03/2024	11:44:00	2.6	3.7	13	240
28/03/2024	11:45:00	2.5	4.4	13	235
28/03/2024	11:46:00	2.3	3.8	13	211
28/03/2024	11:47:00	2.7	4.2	13	197
28/03/2024	11:48:00	2.9	4.2	13	212
28/03/2024	11:49:00	3.1	5	13	206
28/03/2024	11:50:00	2.4	3.9	13	205
28/03/2024	11:51:00	2	3.1	13	206
28/03/2024	11:52:00	3	4.7	13	235
28/03/2024	11:53:00	3.7	6.4	13	238
28/03/2024	11:54:00	2.7	4.4	13	237
28/03/2024	11:55:00	2.3	4.3	13	247
28/03/2024	11:56:00	2.2	3.3	13	241
28/03/2024	11:57:00	3.1	4.8	13	238
28/03/2024	11:58:00	3.4	5.1	13	237
28/03/2024	11:59:00	2.8	3.7	13	232
28/03/2024	12:00:00	3.7	5.8	13	229

28/03/2024	12:01:00	2	3.7	13	232
28/03/2024	12:02:00	2.1	5.6	13	228
28/03/2024	12:03:00	2.7	4.6	14	227
28/03/2024	12:04:00	2.6	4.2	14	222
28/03/2024	12:05:00	1.5	2.1	14	199
28/03/2024	12:06:00	3.1	4.8	14	232
28/03/2024	12:07:00	2.7	4	14	237
28/03/2024	12:08:00	2.9	5.3	14	214
28/03/2024	12:09:00	2.3	4.8	14	213
28/03/2024	12:10:00	2.7	4.6	14	211
28/03/2024	12:11:00	3.3	5.4	14	236
28/03/2024	12:12:00	3.2	5.4	14	242
28/03/2024	12:13:00	3.7	5.4	14	239
28/03/2024	12:14:00	2.4	4.4	14	229
28/03/2024	12:15:00	2.4	4.1	14	234
28/03/2024	12:16:00	2.4	3.7	14	252
28/03/2024	12:17:00	2.6	4.9	14	245
28/03/2024	12:18:00	2.5	3.9	14	247
28/03/2024	12:19:00	1.7	2.5	14	226
28/03/2024	12:20:00	2	3.9	14	237
28/03/2024	12:21:00	2.2	3.7	14	234
28/03/2024	12:22:00	2.9	4.5	14	236
28/03/2024	12:23:00	2.3	3.5	14	252
28/03/2024	12:24:00	3	5.2	14	262
28/03/2024	12:25:00	3.2	4.9	14	243
28/03/2024	12:26:00	2.4	3.8	14	237
28/03/2024	12:27:00	1.6	2.4	14	210
28/03/2024	12:28:00	2.9	5.5	14	222
28/03/2024	12:29:00	2.9	4.7	14	225
28/03/2024	12:30:00	2.1	4.7	14	211
28/03/2024	12:31:00	2.1	4.1	14	229
28/03/2024	12:32:00	2.8	4.4	14	240
28/03/2024	12:33:00	3	4.9	14	256
28/03/2024	12:34:00	2.5	4.5	14	242
28/03/2024	12:35:00	2.8	4.6	14	228
28/03/2024	12:36:00	2.8	4	14	240
28/03/2024	12:37:00	2.8	3.9	14	232
28/03/2024	12:38:00	2.5	4.6	14	255
28/03/2024	12:39:00	3.1	4.9	14	262
28/03/2024	12:40:00	2.8	4.4	14	259
28/03/2024	12:41:00	2.8	4.6	14	221
28/03/2024	12:42:00	4	6	14	234
28/03/2024	12:43:00	2.9	5.5	14	242
28/03/2024	12:44:00	2.5	3.4	14	221
28/03/2024	12:45:00	2.9	4.7	14	238
28/03/2024	12:46:00	2.8	4.4	14	239

28/03/2024	12:47:00	2.1	3.4	14	241
28/03/2024	12:48:00	2.1	3.8	14	249
28/03/2024	12:49:00	2.9	4.5	14	260
28/03/2024	12:50:00	3	4.4	14	258
28/03/2024	12:51:00	3.2	6	14	258
28/03/2024	12:52:00	3.3	5.1	14	271
28/03/2024	12:53:00	2.6	4	14	228
28/03/2024	12:54:00	3.1	5.3	14	244
28/03/2024	12:55:00	3.1	4.4	14	241
28/03/2024	12:56:00	2.6	4	14	236
28/03/2024	12:57:00	2.7	4	14	257
28/03/2024	12:58:00	2.9	4.7	14	237
28/03/2024	12:59:00	2.9	4.3	14	247
28/03/2024	13:00:00	2.3	3.6	14	258
28/03/2024	13:01:00	2	3.4	14	260
28/03/2024	13:02:00	3	4.7	14	237
28/03/2024	13:03:00	3	4.3	14	256
28/03/2024	13:04:00	3	4.6	14	267
28/03/2024	13:05:00	2.9	5.6	14	251
28/03/2024	13:06:00	2.6	4.8	14	242
28/03/2024	13:07:00	2.4	4.2	14	241
28/03/2024	13:08:00	2.3	5.1	14	225
28/03/2024	13:09:00	2.7	4.4	14	240
28/03/2024	13:10:00	2.3	5	14	247
28/03/2024	13:11:00	3	5	14	248
28/03/2024	13:12:00	2.5	5	14	262
28/03/2024	13:13:00	3.5	5.6	14	268
28/03/2024	13:14:00	2.5	4.2	14	229
28/03/2024	13:15:00	2.1	3.3	14	238
28/03/2024	13:16:00	2.6	4	14	271
28/03/2024	13:17:00	3.1	4.6	14	271
28/03/2024	13:18:00	3	4.1	14	252
28/03/2024	13:19:00	2.4	5.9	14	240
28/03/2024	13:20:00	3	4.5	14	225
28/03/2024	13:21:00	3.2	4.9	14	246
28/03/2024	13:22:00	3.6	5.4	15	242
28/03/2024	13:23:00	3	5.5	15	241
28/03/2024	13:24:00	3.2	4.6	15	224
28/03/2024	13:25:00	3.1	5.2	15	260
28/03/2024	13:26:00	3	4.6	15	272
28/03/2024	13:27:00	2.2	3.9	15	259
28/03/2024	13:28:00	2.4	3.8	15	246
28/03/2024	13:29:00	2.1	2.8	15	245
28/03/2024	13:30:00	2.2	3.4	15	234
28/03/2024	13:31:00	1.8	3.1	15	240
28/03/2024	13:32:00	2.8	5.5	15	214

28/03/2024	13:33:00	1.9	4.2	15	218
28/03/2024	13:34:00	3	4.6	15	235
28/03/2024	13:35:00	2.7	4.1	15	237
28/03/2024	13:36:00	2.8	5	15	230
28/03/2024	13:37:00	2	3.3	15	239
28/03/2024	13:38:00	2.5	3.9	15	274
28/03/2024	13:39:00	2.2	4.1	15	228
28/03/2024	13:40:00	3	4.7	15	234
28/03/2024	13:41:00	2.8	4.7	15	249
28/03/2024	13:42:00	2.7	4.4	15	244
28/03/2024	13:43:00	2.4	4	15	259
28/03/2024	13:44:00	2	3	15	243
28/03/2024	13:45:00	2.3	4.8	15	250
28/03/2024	13:46:00	2.9	5.4	15	248
28/03/2024	13:47:00	2.8	4.1	15	214
28/03/2024	13:48:00	2.3	4.6	15	202
28/03/2024	13:49:00	3.5	4.4	15	232
28/03/2024	13:50:00	3.9	5.9	15	233
28/03/2024	13:51:00	3	6.3	15	214
28/03/2024	13:52:00	2.3	4.2	15	225
28/03/2024	13:53:00	2.4	3.9	15	238
28/03/2024	13:54:00	2.4	4.3	15	242
28/03/2024	13:55:00	2.6	4.1	15	248
28/03/2024	13:56:00	2.2	4.6	16	255
28/03/2024	13:57:00	2.8	4.4	16	242
28/03/2024	13:58:00	3	6.9	16	238
28/03/2024	13:59:00	2.1	3.9	16	249
28/03/2024	14:00:00	1.8	2.9	16	236
28/03/2024	14:01:00	2.2	3.3	16	228
28/03/2024	14:02:00	2.6	4.5	16	242
28/03/2024	14:03:00	2.6	4	16	245
28/03/2024	14:04:00	2.1	3.3	16	230
28/03/2024	14:05:00	1.9	3.1	16	230
28/03/2024	14:06:00	2	4.3	16	260
28/03/2024	14:07:00	2.5	4	16	253
28/03/2024	14:08:00	2.3	3.2	16	269
28/03/2024	14:09:00	2	3.3	16	241
28/03/2024	14:10:00	1.9	3.3	16	243
28/03/2024	14:11:00	1.6	3.6	16	228
28/03/2024	14:12:00	1.5	2.4	16	202
28/03/2024	14:13:00	1.8	3.7	16	206
28/03/2024	14:14:00	2.2	3.6	16	213
28/03/2024	14:15:00	3.2	5	16	229
28/03/2024	14:16:00	2.2	3.9	16	192
28/03/2024	14:17:00	1.9	2.8	15	194
28/03/2024	14:18:00	1.6	2.3	15	218

28/03/2024	14:19:00	1.9	3.3	15	234
28/03/2024	14:20:00	2.2	3.4	15	207
28/03/2024	14:21:00	2.5	4.5	15	227
28/03/2024	14:22:00	3	5.1	15	230
28/03/2024	14:23:00	2.6	4.1	15	241
28/03/2024	14:24:00	2.8	4	15	242
28/03/2024	14:25:00	1.8	2.8	15	257
28/03/2024	14:26:00	3.3	4.5	15	230
28/03/2024	14:27:00	2.1	3.6	15	214
28/03/2024	14:28:00	2.2	4.1	15	185
28/03/2024	14:29:00	1.9	3.8	15	204
28/03/2024	14:30:00	2.2	3.7	15	203
28/03/2024	14:31:00	1.4	2.1	16	212
28/03/2024	14:32:00	2.6	4.2	16	215
28/03/2024	14:33:00	2.9	5	16	243
28/03/2024	14:34:00	2.8	5.9	16	219
28/03/2024	14:35:00	2.2	3.6	16	231
28/03/2024	14:36:00	1.9	4.1	16	235
28/03/2024	14:37:00	1.7	3.8	16	214
28/03/2024	14:38:00	1.8	2.4	16	226
28/03/2024	14:39:00	2.1	3.1	16	243
28/03/2024	14:40:00	2.3	4	16	247
28/03/2024	14:41:00	1.8	3.3	16	265
28/03/2024	14:42:00	2.1	3.2	16	231
28/03/2024	14:43:00	2.4	4.1	16	241
28/03/2024	14:44:00	2	3.3	16	205
28/03/2024	14:45:00	3.4	6.3	16	228
28/03/2024	14:46:00	3.2	6.5	16	222
28/03/2024	14:47:00	2.3	3.8	16	216
28/03/2024	14:48:00	2.6	5.6	16	244
28/03/2024	14:49:00	3.1	5.3	16	230
28/03/2024	14:50:00	2.2	3.2	16	216
28/03/2024	14:51:00	1.3	2.2	16	203
28/03/2024	14:52:00	1.6	3.5	16	238
28/03/2024	14:53:00	2.5	4.6	16	244
28/03/2024	14:54:00	2.5	4.8	16	250
28/03/2024	14:55:00	2.1	3.7	16	236
28/03/2024	14:56:00	1.6	2.6	16	231
28/03/2024	14:57:00	2.4	5.3	16	208
28/03/2024	14:58:00	3	4.2	16	232
28/03/2024	14:59:00	2.4	3.9	16	218
28/03/2024	15:00:00	1.8	3.2	16	250
28/03/2024	15:01:00	2.2	3.4	16	274
28/03/2024	15:02:00	2.7	5.2	16	235
28/03/2024	15:03:00	2.9	4.7	16	229
28/03/2024	15:04:00	2.9	4.7	16	243

28/03/2024	15:05:00	2.6	4	16	234
28/03/2024	15:06:00	2.2	4	16	229
28/03/2024	15:07:00	2.3	4.7	16	239
28/03/2024	15:08:00	2.6	4.2	17	231
28/03/2024	15:09:00	2.3	3.8	17	257
28/03/2024	15:10:00	2	3.3	17	246
28/03/2024	15:11:00	2.8	4.2	17	243
28/03/2024	15:12:00	2.8	5.5	17	232
28/03/2024	15:13:00	1.4	2.3	17	250
28/03/2024	15:14:00	2	2.9	17	235
28/03/2024	15:15:00	2.1	3.4	17	243
28/03/2024	15:16:00	2.9	4.9	17	263
28/03/2024	15:17:00	2.3	3.7	17	253
28/03/2024	15:18:00	3.4	5.3	17	240
28/03/2024	15:19:00	2.7	5.5	17	229
28/03/2024	15:20:00	3.3	5.8	17	234
28/03/2024	15:21:00	2.2	3.5	17	198
28/03/2024	15:22:00	2.7	4.6	17	195
28/03/2024	15:23:00	1.9	2.9	17	233
28/03/2024	15:24:00	2.6	4	17	224
28/03/2024	15:25:00	1.9	3.1	17	218
28/03/2024	15:26:00	1.7	2.8	17	231
28/03/2024	15:27:00	2.3	4.1	17	213
28/03/2024	15:28:00	1.9	3	17	198
28/03/2024	15:29:00	1.8	3	17	224
28/03/2024	15:30:00	2.1	3.7	17	200
28/03/2024	15:31:00	2.1	3	17	214
28/03/2024	15:32:00	1.2	2.6	17	216
28/03/2024	15:33:00	2.9	5	17	235
28/03/2024	15:34:00	2.4	3.9	17	253
28/03/2024	15:35:00	2.4	3.6	17	240
28/03/2024	15:36:00	2.7	5.3	17	241
28/03/2024	15:37:00	2.2	3.8	17	242
28/03/2024	15:38:00	2.6	4.4	17	245
28/03/2024	15:39:00	2.5	3.6	17	257
28/03/2024	15:40:00	2.9	5.2	17	232
28/03/2024	15:41:00	2.5	5	17	246
28/03/2024	15:42:00	2.1	3	17	229
28/03/2024	15:43:00	1.8	2.7	17	222
28/03/2024	15:44:00	2.8	3.8	17	162
28/03/2024	15:45:00	2.5	3.8	17	173
28/03/2024	15:46:00	2.4	4.6	17	175
28/03/2024	15:47:00	2.2	4.9	17	198
28/03/2024	15:48:00	1.9	3.4	17	223
28/03/2024	15:49:00	2.1	3.6	17	215
28/03/2024	15:50:00	1.6	3.7	17	202

28/03/2024	15:51:00	2.6	4	17	219
28/03/2024	15:52:00	2.3	4.3	17	212
28/03/2024	15:53:00	3	4.7	17	211
28/03/2024	15:54:00	1.9	2.9	17	192
28/03/2024	15:55:00	3	5.7	17	226
28/03/2024	15:56:00	2.3	5.3	17	220
28/03/2024	15:57:00	2.4	4	17	205
28/03/2024	15:58:00	2.1	3.6	17	201
28/03/2024	15:59:00	2	4.2	17	181
28/03/2024	16:00:00	2.4	4	17	169
28/03/2024	16:01:00	2.1	2.6	17	184
28/03/2024	16:02:00	1.7	2.6	17	214
28/03/2024	16:03:00	1.6	3.6	17	186
28/03/2024	16:04:00	2.2	3.3	17	235
28/03/2024	16:05:00	1.8	2.4	17	190
28/03/2024	16:06:00	1.8	3.8	17	203
28/03/2024	16:07:00	2	3.3	17	201
28/03/2024	16:08:00	2.6	4.2	17	186
28/03/2024	16:09:00	2.5	5.6	17	222
28/03/2024	16:10:00	2.8	5.8	17	234
28/03/2024	16:11:00	3.3	5.9	17	246
28/03/2024	16:12:00	1.9	2.9	17	215
28/03/2024	16:13:00	2.5	4	17	235
28/03/2024	16:14:00	2.4	4.3	17	235
28/03/2024	16:15:00	2.7	3.8	17	232
28/03/2024	16:16:00	1.4	1.9	17	239
28/03/2024	16:17:00	2.8	4.6	17	253
28/03/2024	16:18:00	2.7	4	17	249
28/03/2024	16:19:00	2.5	3.2	17	234
28/03/2024	16:20:00	2	3.6	17	224
28/03/2024	16:21:00	2.6	3.8	17	217
28/03/2024	16:22:00	2.4	3.4	17	229
28/03/2024	16:23:00	2	3.3	17	239
28/03/2024	16:24:00	2.1	2.9	17	221
28/03/2024	16:25:00	1.8	2.8	17	238
28/03/2024	16:26:00	2	2.7	17	200
28/03/2024	16:27:00	1.6	2.6	17	208
28/03/2024	16:28:00	1.3	1.9	17	218
28/03/2024	16:29:00	1.5	2.7	17	269
28/03/2024	16:30:00	2	4.5	17	206
28/03/2024	16:31:00	2.4	5	17	255
28/03/2024	16:32:00	1.8	2.9	17	254
28/03/2024	16:33:00	1.6	2.6	17	214
28/03/2024	16:34:00	1.9	2.8	17	225
28/03/2024	16:35:00	2.4	4.1	17	217
28/03/2024	16:36:00	1.8	3	17	238

28/03/2024	16:37:00	2.7	6	17	247
28/03/2024	16:38:00	2.9	4.6	17	234
28/03/2024	16:39:00	2.3	4.8	17	231
28/03/2024	16:40:00	3.3	5.4	17	231
28/03/2024	16:41:00	2.9	4.7	17	226
28/03/2024	16:42:00	2	3.8	17	233
28/03/2024	16:43:00	2.1	3.5	17	231
28/03/2024	16:44:00	2.3	4.1	17	237
28/03/2024	16:45:00	2.9	4.5	17	246
28/03/2024	16:46:00	2.9	4.3	17	240
28/03/2024	16:47:00	2.2	3.5	17	252
28/03/2024	16:48:00	3	4.9	17	231
28/03/2024	16:49:00	2.8	4.1	17	226
28/03/2024	16:50:00	1.3	2.4	17	206
28/03/2024	16:51:00	1.8	3.1	17	217
28/03/2024	16:52:00	1.4	2.2	17	192
28/03/2024	16:53:00	1.8	3.8	17	198
28/03/2024	16:54:00	2.1	3.9	17	255
28/03/2024	16:55:00	1.7	3.3	17	210
28/03/2024	16:56:00	2.9	4.7	17	230
28/03/2024	16:57:00	2.5	4.4	17	215
28/03/2024	16:58:00	2.3	3.5	17	227
28/03/2024	16:59:00	3.2	4.8	17	239
28/03/2024	17:00:00	2.4	3.6	17	246
28/03/2024	17:01:00	2.4	3.4	17	237
28/03/2024	17:02:00	1.7	2.4	17	222
28/03/2024	17:03:00	2.3	4.2	17	233
28/03/2024	17:04:00	2.4	3.6	17	225
28/03/2024	17:05:00	2.4	3.3	17	248
28/03/2024	17:06:00	1.9	2.9	17	191
28/03/2024	17:07:00	2	3.5	17	235
28/03/2024	17:08:00	1.9	3.2	17	216
28/03/2024	17:09:00	2.1	4.4	17	239
28/03/2024	17:10:00	2.1	4	17	227
28/03/2024	17:11:00	1.9	2.4	17	211
28/03/2024	17:12:00	1.8	4.4	17	194
28/03/2024	17:13:00	2.5	4.3	17	220
28/03/2024	17:14:00	1.8	2.9	17	246
28/03/2024	17:15:00	2.7	5.1	17	248
28/03/2024	17:16:00	2.9	5.2	17	235
28/03/2024	17:17:00	3.1	5.9	17	236
28/03/2024	17:18:00	2.2	3.6	17	229
28/03/2024	17:19:00	2	3.5	17	229
28/03/2024	17:20:00	3.3	5.5	17	239
28/03/2024	17:21:00	2.1	3.7	17	227
28/03/2024	17:22:00	2.3	3.5	17	233

28/03/2024	17:23:00	1.8	3.7	17	190
28/03/2024	17:24:00	1.9	3.1	17	188
28/03/2024	17:25:00	2	2.9	17	197
28/03/2024	17:26:00	1.8	3.5	17	185
28/03/2024	17:27:00	2.1	4.1	17	192
28/03/2024	17:28:00	2.4	4	17	196
28/03/2024	17:29:00	2	3.1	17	216
28/03/2024	17:30:00	2	3.5	17	222
28/03/2024	17:31:00	1.9	3.1	17	231
28/03/2024	17:32:00	2.7	4.4	17	231
28/03/2024	17:33:00	1.8	3	17	242
28/03/2024	17:34:00	1.4	2	17	210
28/03/2024	17:35:00	2.3	4.4	17	218
28/03/2024	17:36:00	1.8	3.4	17	230
28/03/2024	17:37:00	1.8	3.3	17	206
28/03/2024	17:38:00	2.5	4	17	193
28/03/2024	17:39:00	2.2	3.8	17	222
28/03/2024	17:40:00	1.6	2.7	17	199
28/03/2024	17:41:00	2.3	3.9	17	192
28/03/2024	17:42:00	1.9	2.9	17	200
28/03/2024	17:43:00	2.1	3.8	17	201
28/03/2024	17:44:00	2	4.4	17	224
28/03/2024	17:45:00	3.3	4.7	17	238
28/03/2024	17:46:00	2.3	3.5	17	232
28/03/2024	17:47:00	2.2	3.9	17	207
28/03/2024	17:48:00	1.7	3	17	169
28/03/2024	17:49:00	1.8	4.1	17	202
28/03/2024	17:50:00	1.8	3.8	17	198
28/03/2024	17:51:00	1.5	2.2	17	223
28/03/2024	17:52:00	1.8	2.5	17	224
28/03/2024	17:53:00	1.5	2.3	16	165
28/03/2024	17:54:00	1.4	2.3	16	189
28/03/2024	17:55:00	1.5	3.2	16	203
28/03/2024	17:56:00	2.1	3.5	16	186
28/03/2024	17:57:00	1.6	2.6	16	211
28/03/2024	17:58:00	2.6	4.7	16	184
28/03/2024	17:59:00	1.9	3.4	16	182
28/03/2024	18:00:00	1.7	2.4	16	191
28/03/2024	18:01:00	1.8	3.2	16	175
28/03/2024	18:02:00	2.6	4.1	16	178
28/03/2024	18:03:00	2.2	3.9	16	192
28/03/2024	18:04:00	2.2	3.2	16	170
28/03/2024	18:05:00	1.8	4	16	174
28/03/2024	18:06:00	2.4	3.6	16	165
28/03/2024	18:07:00	1.6	3.4	16	179
28/03/2024	18:08:00	2.1	4.6	16	190

28/03/2024	18:09:00	1.6	2.8	16	171
28/03/2024	18:10:00	1.8	2.7	16	175
28/03/2024	18:11:00	1.7	2.2	16	174
28/03/2024	18:12:00	1.7	3	16	170
28/03/2024	18:13:00	1.4	2.3	16	190
28/03/2024	18:14:00	1.8	2.5	15	213
28/03/2024	18:15:00	1.7	3.6	15	203
28/03/2024	18:16:00	2	3.2	15	233
28/03/2024	18:17:00	1.6	2.6	15	230
28/03/2024	18:18:00	2.4	4.2	15	230
28/03/2024	18:19:00	2	3.4	15	240
28/03/2024	18:20:00	1.9	3.6	15	235
28/03/2024	18:21:00	1.6	2.4	15	219
28/03/2024	18:22:00	2.2	3.1	15	228
28/03/2024	18:23:00	1.5	2.4	15	236
28/03/2024	18:24:00	1.1	1.8	15	197
28/03/2024	18:25:00	1.4	2.3	15	217
28/03/2024	18:26:00	1.3	1.8	15	225
28/03/2024	18:27:00	1.5	2.2	15	229
28/03/2024	18:28:00	1.3	2.1	15	232
28/03/2024	18:29:00	1.7	2.2	15	223
28/03/2024	18:30:00	1.6	2.2	15	215
28/03/2024	18:31:00	1.6	3.1	15	232
28/03/2024	18:32:00	1.6	2.8	15	207
28/03/2024	18:33:00	1.6	2.7	14	199
28/03/2024	18:34:00	1.7	3.2	14	218
28/03/2024	18:35:00	1.3	2.1	14	182
28/03/2024	18:36:00	1.3	2.1	14	226
28/03/2024	18:37:00	1.3	1.7	14	211
28/03/2024	18:38:00	1	1.4	14	188
28/03/2024	18:39:00	2.2	3.9	14	217
28/03/2024	18:40:00	1.9	2.8	14	204
28/03/2024	18:41:00	1.4	2.1	14	238
28/03/2024	18:42:00	1.7	3.3	14	209
28/03/2024	18:43:00	1.3	2	14	215
28/03/2024	18:44:00	1.6	3.5	14	193
28/03/2024	18:45:00	1.3	1.9	14	195
28/03/2024	18:46:00	1.2	1.9	14	165
28/03/2024	18:47:00	0.9	1.7	14	183
28/03/2024	18:48:00	1.4	1.9	14	194
28/03/2024	18:49:00	1.8	2.5	14	214
28/03/2024	18:50:00	1.1	1.7	14	154
28/03/2024	18:51:00	1.4	2.1	14	204
28/03/2024	18:52:00	1.6	2.3	14	180
28/03/2024	18:53:00	1.4	2.2	14	217
28/03/2024	18:54:00	1.7	2.9	14	173

28/03/2024	18:55:00	1.5	2	14	168
28/03/2024	18:56:00	1.5	2.2	14	175
28/03/2024	18:57:00	1.3	2.8	14	167
28/03/2024	18:58:00	1.7	2.5	14	184
28/03/2024	18:59:00	1.4	1.9	14	175
28/03/2024	19:00:00	1.2	2	14	179
28/03/2024	19:01:00	1.4	1.9	14	190
28/03/2024	19:02:00	1.5	2.1	14	167
28/03/2024	19:03:00	1.4	2.4	14	175
28/03/2024	19:04:00	1.2	2.4	14	182
28/03/2024	19:05:00	1.1	1.5	13	172
28/03/2024	19:06:00	1.5	2.2	13	168
28/03/2024	19:07:00	1.4	2.3	13	166
28/03/2024	19:08:00	1.6	3.2	13	182
28/03/2024	19:09:00	1.3	2.4	13	164
28/03/2024	19:10:00	1.3	2.1	13	174
28/03/2024	19:11:00	1	1.5	13	146
28/03/2024	19:12:00	1.5	2	13	172
28/03/2024	19:13:00	1.2	1.9	13	173
28/03/2024	19:14:00	1.4	2.5	13	169
28/03/2024	19:15:00	1.3	3	13	182
28/03/2024	19:16:00	1.3	1.9	13	186
28/03/2024	19:17:00	1.1	1.4	13	177
28/03/2024	19:18:00	1.2	2.2	13	169
28/03/2024	19:19:00	1.5	2.4	13	156
28/03/2024	19:20:00	1.3	2.1	13	152
28/03/2024	19:21:00	1.3	2.1	13	202
28/03/2024	19:22:00	1.1	1.5	13	158
28/03/2024	19:23:00	1.3	2	13	158
28/03/2024	19:24:00	1.1	1.6	13	175
28/03/2024	19:25:00	1.3	2.2	13	157
28/03/2024	19:26:00	1.2	1.7	13	168
28/03/2024	19:27:00	1.2	1.9	13	166
28/03/2024	19:28:00	1.5	2.1	13	168
28/03/2024	19:29:00	1.1	2	13	167
28/03/2024	19:30:00	1.3	1.9	13	164
28/03/2024	19:31:00	1.4	2.5	13	169
28/03/2024	19:32:00	1.5	2.1	13	164
28/03/2024	19:33:00	1.2	2	13	178
28/03/2024	19:34:00	1.5	2.3	12	184
28/03/2024	19:35:00	1.2	1.8	12	163
28/03/2024	19:36:00	1.3	2.2	12	176
28/03/2024	19:37:00	1.3	1.7	12	173
28/03/2024	19:38:00	1	1.4	12	158
28/03/2024	19:39:00	1.3	1.9	12	165
28/03/2024	19:40:00	1.3	1.9	12	168

28/03/2024	19:41:00	1.1	1.6	12	165
28/03/2024	19:42:00	1.2	1.8	12	166
28/03/2024	19:43:00	1.2	1.7	12	163
28/03/2024	19:44:00	1.1	1.6	12	171
28/03/2024	19:45:00	1	1.4	12	168
28/03/2024	19:46:00	1	1.5	12	161
28/03/2024	19:47:00	0.9	1.4	12	160
28/03/2024	19:48:00	1	1.6	12	168
28/03/2024	19:49:00	0.9	1.5	12	171
28/03/2024	19:50:00	0.8	1.1	12	159
28/03/2024	19:51:00	0.8	1.3	12	162
28/03/2024	19:52:00	0.9	1.5	12	153
28/03/2024	19:53:00	0.8	1.1	12	156
28/03/2024	19:54:00	0.9	1.6	12	169
28/03/2024	19:55:00	0.8	1.1	12	156
28/03/2024	19:56:00	1	1.4	12	177
28/03/2024	19:57:00	1	1.3	12	162
28/03/2024	19:58:00	0.7	0.9	12	165
28/03/2024	19:59:00	1	1.5	11	159
28/03/2024	20:00:00	0.9	1.4	11	167
28/03/2024	20:01:00	0.9	1.5	11	160
28/03/2024	20:02:00	0.9	1.3	11	155
28/03/2024	20:03:00	1	1.5	11	153
28/03/2024	20:04:00	0.9	1.3	11	162
28/03/2024	20:05:00	1	1.4	11	152
28/03/2024	20:06:00	1.2	1.6	11	178
28/03/2024	20:07:00	1.1	1.7	11	161
28/03/2024	20:08:00	1.2	1.7	11	166
28/03/2024	20:09:00	1.1	1.8	11	165
28/03/2024	20:10:00	0.8	1.2	11	153
28/03/2024	20:11:00	1.1	1.4	11	168
28/03/2024	20:12:00	1	1.6	11	164
28/03/2024	20:13:00	0.9	1.2	11	158
28/03/2024	20:14:00	1.1	1.7	11	171
28/03/2024	20:15:00	0.8	1.1	11	159
28/03/2024	20:16:00	1.1	1.8	11	163
28/03/2024	20:17:00	1.2	1.6	11	146
28/03/2024	20:18:00	1.4	1.8	11	179
28/03/2024	20:19:00	1.4	2.9	11	168
28/03/2024	20:20:00	1.2	1.8	11	171
28/03/2024	20:21:00	0.9	1.3	11	155
28/03/2024	20:22:00	1.1	2	11	178
28/03/2024	20:23:00	1.3	2.5	11	170
28/03/2024	20:24:00	0.9	1.2	11	152
28/03/2024	20:25:00	1.2	1.7	11	174
28/03/2024	20:26:00	1.1	1.7	11	156

28/03/2024	20:27:00	1.3	2.2	11	169
28/03/2024	20:28:00	1	1.3	11	152
28/03/2024	20:29:00	0.9	1.5	11	163
28/03/2024	20:30:00	0.9	1.4	11	157
28/03/2024	20:31:00	1.2	1.8	11	158
28/03/2024	20:32:00	0.8	1.2	11	157
28/03/2024	20:33:00	0.8	1.1	11	169
28/03/2024	20:34:00	1	1.5	11	174
28/03/2024	20:35:00	0.9	1.3	11	164
28/03/2024	20:36:00	1.2	2.1	11	164
28/03/2024	20:37:00	1.1	1.7	11	171
28/03/2024	20:38:00	1.3	2	11	169
28/03/2024	20:39:00	1.3	1.8	11	158
28/03/2024	20:40:00	1.1	1.9	11	166
28/03/2024	20:41:00	1.4	2	11	169
28/03/2024	20:42:00	1	1.5	11	150
28/03/2024	20:43:00	1.2	1.8	11	162
28/03/2024	20:44:00	1.2	1.9	11	164
28/03/2024	20:45:00	1.5	2.1	11	167
28/03/2024	20:46:00	1.3	1.9	11	168
28/03/2024	20:47:00	1.3	2.1	11	171
28/03/2024	20:48:00	1.1	1.4	11	155
28/03/2024	20:49:00	1.1	1.7	11	170
28/03/2024	20:50:00	1.4	2	11	181
28/03/2024	20:51:00	1.1	1.7	11	170
28/03/2024	20:52:00	1	1.8	11	163
28/03/2024	20:53:00	1.2	1.7	11	164
28/03/2024	20:54:00	1.4	2.1	11	176
28/03/2024	20:55:00	1	1.5	11	159
28/03/2024	20:56:00	1.1	1.6	11	158
28/03/2024	20:57:00	1.2	1.9	11	178
28/03/2024	20:58:00	1.1	1.6	11	175
28/03/2024	20:59:00	1.2	1.9	11	166
28/03/2024	21:00:00	1	1.4	11	158
28/03/2024	21:01:00	1.1	2	11	171
28/03/2024	21:02:00	1	1.6	11	162
28/03/2024	21:03:00	1.2	1.7	11	170
28/03/2024	21:04:00	1.1	1.8	11	167
28/03/2024	21:05:00	1	1.3	11	166
28/03/2024	21:06:00	1.1	1.5	11	154
28/03/2024	21:07:00	1	1.4	11	159
28/03/2024	21:08:00	0.9	1.2	11	169
28/03/2024	21:09:00	0.9	1.2	11	154
28/03/2024	21:10:00	0.9	1.3	11	152
28/03/2024	21:11:00	0.9	1.6	10	157
28/03/2024	21:12:00	1	1.4	10	156

28/03/2024	21:13:00	1.1	1.6	10	158
28/03/2024	21:14:00	1.4	1.9	10	157
28/03/2024	21:15:00	0.9	1.2	10	153
28/03/2024	21:16:00	1	1.4	10	156
28/03/2024	21:17:00	1	1.6	10	158
28/03/2024	21:18:00	0.8	1.1	10	151
28/03/2024	21:19:00	1	1.5	10	165
28/03/2024	21:20:00	1.1	1.8	10	168
28/03/2024	21:21:00	0.8	1.1	10	149
28/03/2024	21:22:00	1	1.4	10	149
28/03/2024	21:23:00	0.8	1.4	10	161
28/03/2024	21:24:00	0.9	1.2	10	158
28/03/2024	21:25:00	0.9	1.2	10	161
28/03/2024	21:26:00	1	1.4	10	165
28/03/2024	21:27:00	0.8	1.1	10	166
28/03/2024	21:28:00	0.9	1.3	10	152
28/03/2024	21:29:00	0.9	1.3	10	155
28/03/2024	21:30:00	0.9	1.3	10	154
28/03/2024	21:31:00	1	1.5	10	149
28/03/2024	21:32:00	1	1.4	10	155
28/03/2024	21:33:00	1.2	1.7	10	162
28/03/2024	21:34:00	0.8	1.1	10	152
28/03/2024	21:35:00	1.1	1.7	10	157
28/03/2024	21:36:00	0.9	1.7	10	158
28/03/2024	21:37:00	1	1.3	10	180
28/03/2024	21:38:00	1	1.6	10	156
28/03/2024	21:39:00	0.9	1.3	10	158
28/03/2024	21:40:00	0.8	1.2	10	159
28/03/2024	21:41:00	1.1	2	10	156
28/03/2024	21:42:00	0.8	1.1	10	157
28/03/2024	21:43:00	1.1	1.6	10	156
28/03/2024	21:44:00	1.1	1.7	10	154
28/03/2024	21:45:00	0.9	1.3	10	163
28/03/2024	21:46:00	1.1	1.7	10	151
28/03/2024	21:47:00	1	1.3	10	157
28/03/2024	21:48:00	1.1	1.7	10	153
28/03/2024	21:49:00	1	1.3	10	167
28/03/2024	21:50:00	1.2	1.9	10	152
28/03/2024	21:51:00	1	1.7	10	172
28/03/2024	21:52:00	0.9	1.2	10	158
28/03/2024	21:53:00	1	1.6	10	160
28/03/2024	21:54:00	1.2	1.7	10	158
28/03/2024	21:55:00	0.9	1.1	10	158
28/03/2024	21:56:00	1.2	1.8	10	169
28/03/2024	21:57:00	1.2	1.6	10	162
28/03/2024	21:58:00	0.9	1.3	10	156

28/03/2024	21:59:00	0.9	1.3	10	160
28/03/2024	22:00:00	0.9	1.4	10	153
28/03/2024	22:01:00	1	1.6	10	175
28/03/2024	22:02:00	1.1	2.4	10	171
28/03/2024	22:03:00	1	1.6	10	165
28/03/2024	22:04:00	0.9	1.4	10	165
28/03/2024	22:05:00	1.2	1.9	10	164
28/03/2024	22:06:00	1.4	2.2	10	147
28/03/2024	22:07:00	1.4	2.2	10	176
28/03/2024	22:08:00	1.1	2	10	174
28/03/2024	22:09:00	1.2	2	10	180
28/03/2024	22:10:00	1.2	2.2	10	148
28/03/2024	22:11:00	1.2	1.7	10	157
28/03/2024	22:12:00	1.4	2.8	10	170
28/03/2024	22:13:00	1	1.5	10	162
28/03/2024	22:14:00	1.2	2	10	161
28/03/2024	22:15:00	1	1.4	10	169
28/03/2024	22:16:00	1.1	1.6	10	158
28/03/2024	22:17:00	1.4	2	10	170
28/03/2024	22:18:00	1.2	1.6	10	162
28/03/2024	22:19:00	1.2	1.8	10	159
28/03/2024	22:20:00	1.1	1.6	10	160
28/03/2024	22:21:00	1.2	1.7	10	169
28/03/2024	22:22:00	1	1.4	10	150
28/03/2024	22:23:00	1.3	1.9	10	163
28/03/2024	22:24:00	1.2	1.8	10	162
28/03/2024	22:25:00	1.2	1.8	10	152
28/03/2024	22:26:00	1.4	2.3	10	165
28/03/2024	22:27:00	1.2	1.7	10	166
28/03/2024	22:28:00	1.2	1.8	10	161
28/03/2024	22:29:00	1.5	1.9	10	171
28/03/2024	22:30:00	1.4	2.6	10	168
28/03/2024	22:31:00	1.2	2	10	158
28/03/2024	22:32:00	1.1	1.9	10	165
28/03/2024	22:33:00	1.2	1.6	10	166
28/03/2024	22:34:00	1.1	1.5	10	152
28/03/2024	22:35:00	1.3	2.1	10	172
28/03/2024	22:36:00	1.2	1.9	10	180
28/03/2024	22:37:00	1	2	10	175
28/03/2024	22:38:00	1.3	1.8	10	172
28/03/2024	22:39:00	0.9	1.3	10	175
28/03/2024	22:40:00	1.2	2.3	10	164
28/03/2024	22:41:00	3	6.5	10	178
28/03/2024	22:42:00	1.6	3.1	10	209
28/03/2024	22:43:00	1.7	3.6	11	183
28/03/2024	22:44:00	2.1	4.1	11	243

28/03/2024	22:45:00	1.8	3.2	11	201
28/03/2024	22:46:00	1.3	2.1	11	209
28/03/2024	22:47:00	1.8	3	11	213
28/03/2024	22:48:00	1.9	2.9	11	223
28/03/2024	22:49:00	1.5	2.3	11	214
28/03/2024	22:50:00	1.5	2.2	11	207
28/03/2024	22:51:00	1.8	2.7	11	229
28/03/2024	22:52:00	1.6	3	11	221
28/03/2024	22:53:00	1.5	3.8	11	221
28/03/2024	22:54:00	1.8	2.5	11	235
28/03/2024	22:55:00	2.1	4	11	242
28/03/2024	22:56:00	2	3.2	11	239
28/03/2024	22:57:00	1.6	2.2	11	247
28/03/2024	22:58:00	1.9	2.7	11	234
28/03/2024	22:59:00	1.5	2.3	11	224
28/03/2024	23:00:00	1.4	2.4	11	241
28/03/2024	23:01:00	1.3	2.6	11	236
28/03/2024	23:02:00	1	1.6	11	227
28/03/2024	23:03:00	0.8	1.2	11	260
28/03/2024	23:04:00	1.2	1.9	11	242
28/03/2024	23:05:00	1.5	2.3	11	236
28/03/2024	23:06:00	2.1	3	11	240
28/03/2024	23:07:00	1.1	1.6	11	229
28/03/2024	23:08:00	1.3	2	11	239
28/03/2024	23:09:00	1.8	2.5	11	236
28/03/2024	23:10:00	1.2	2	11	230
28/03/2024	23:11:00	1.4	1.9	11	233
28/03/2024	23:12:00	1.1	1.6	11	230
28/03/2024	23:13:00	1.4	2	11	227
28/03/2024	23:14:00	1.6	3.7	11	238
28/03/2024	23:15:00	1.5	2	11	244
28/03/2024	23:16:00	1.4	3	11	234
28/03/2024	23:17:00	1.5	2.4	11	252
28/03/2024	23:18:00	1.3	1.6	11	230
28/03/2024	23:19:00	1.3	1.9	11	241
28/03/2024	23:20:00	1.7	2.5	11	261
28/03/2024	23:21:00	1.2	2	11	237
28/03/2024	23:22:00	1.5	2.1	11	242
28/03/2024	23:23:00	1.7	3.1	11	274
28/03/2024	23:24:00	1.5	2.3	11	278
28/03/2024	23:25:00	1.3	2.1	11	263
28/03/2024	23:26:00	1.8	3.3	11	261
28/03/2024	23:27:00	1.8	3.5	11	281
28/03/2024	23:28:00	1.7	2.8	11	263
28/03/2024	23:29:00	2.1	3.7	11	266
28/03/2024	23:30:00	1.8	2.9	11	274

28/03/2024	23:31:00	2	4	11	269
28/03/2024	23:32:00	1.8	2.6	11	261
28/03/2024	23:33:00	1.7	2.7	11	265
28/03/2024	23:34:00	1.9	2.9	11	272
28/03/2024	23:35:00	1.7	3.2	11	269
28/03/2024	23:36:00	1.6	2.1	11	252
28/03/2024	23:37:00	1.8	2.9	11	258
28/03/2024	23:38:00	1.6	2.4	11	246
28/03/2024	23:39:00	1.7	4.2	11	272
28/03/2024	23:40:00	2	3.7	11	239
28/03/2024	23:41:00	1.9	2.4	11	253
28/03/2024	23:42:00	1.5	2.8	11	227
28/03/2024	23:43:00	1.8	2.6	11	261
28/03/2024	23:44:00	1.6	2.8	11	252
28/03/2024	23:45:00	1.7	2.5	11	256
28/03/2024	23:46:00	1.5	2.6	11	247
28/03/2024	23:47:00	2	3.4	11	250
28/03/2024	23:48:00	2.3	4	11	262
28/03/2024	23:49:00	1.7	2.5	11	252
28/03/2024	23:50:00	2.3	3.8	11	267
28/03/2024	23:51:00	1.8	3	11	274
28/03/2024	23:52:00	1.8	3.4	11	282
28/03/2024	23:53:00	1.4	1.8	11	258
28/03/2024	23:54:00	1.4	2.1	11	263
28/03/2024	23:55:00	1.3	2.3	10	268
28/03/2024	23:56:00	1.6	2.3	10	240
28/03/2024	23:57:00	1.5	2.2	10	252
28/03/2024	23:58:00	1.3	1.8	10	243
28/03/2024	23:59:00	1.2	1.7	10	269
29/03/2024	0:00:00	1	1.4	10	256
29/03/2024	0:01:00	1.4	2.3	10	240
29/03/2024	0:02:00	1.6	3.1	10	240
29/03/2024	0:03:00	1.2	1.6	10	268
29/03/2024	0:04:00	1.4	2.3	10	267
29/03/2024	0:05:00	1.1	1.7	10	243
29/03/2024	0:06:00	1.2	2.1	10	253
29/03/2024	0:07:00	1.7	2.8	10	250
29/03/2024	0:08:00	1.6	3	10	250
29/03/2024	0:09:00	1.6	2.2	10	253
29/03/2024	0:10:00	1.6	2.7	10	259
29/03/2024	0:11:00	1.3	1.7	10	224
29/03/2024	0:12:00	1	1.3	10	290
29/03/2024	0:13:00	1.2	1.7	10	265
29/03/2024	0:14:00	1.2	1.6	10	251
29/03/2024	0:15:00	1.4	3.1	10	256
29/03/2024	0:16:00	1.5	2.6	10	265

29/03/2024	0:17:00	1	1.4	10	241
29/03/2024	0:18:00	1.2	1.8	10	248
29/03/2024	0:19:00	1.3	1.9	10	261
29/03/2024	0:20:00	1.4	2.1	10	263
29/03/2024	0:21:00	1.4	2.1	10	278
29/03/2024	0:22:00	0.9	1.3	10	257
29/03/2024	0:23:00	1.2	1.9	10	272
29/03/2024	0:24:00	1	1.2	10	287
29/03/2024	0:25:00	0.8	1	10	283
29/03/2024	0:26:00	0.9	1.3	10	272
29/03/2024	0:27:00	1	1.4	10	252
29/03/2024	0:28:00	1.2	1.6	10	287
29/03/2024	0:29:00	1.1	1.7	10	257
29/03/2024	0:30:00	0.9	1.2	10	256
29/03/2024	0:31:00	1.4	2.2	10	236
29/03/2024	0:32:00	1.4	2.3	10	242
29/03/2024	0:33:00	1.4	2	10	263
29/03/2024	0:34:00	1.2	1.4	10	247
29/03/2024	0:35:00	1.1	1.6	10	228
29/03/2024	0:36:00	1.3	2.7	10	252
29/03/2024	0:37:00	1.4	2.6	10	240
29/03/2024	0:38:00	1	1.4	10	250
29/03/2024	0:39:00	1.4	2.2	10	260
29/03/2024	0:40:00	1.4	2	10	265
29/03/2024	0:41:00	0.9	1.6	10	261
29/03/2024	0:42:00	1.1	1.6	10	266
29/03/2024	0:43:00	1	1.6	10	259
29/03/2024	0:44:00	0.6	1.4	10	263
29/03/2024	0:45:00	1.2	2	10	251
29/03/2024	0:46:00	1.4	2	10	247
29/03/2024	0:47:00	1.1	1.7	10	251
29/03/2024	0:48:00	0.8	1.1	10	255
29/03/2024	0:49:00	0.9	1.2	10	238
29/03/2024	0:50:00	1.4	2.1	10	262
29/03/2024	0:51:00	0.8	1.2	10	221
29/03/2024	0:52:00	0.7	1.2	10	239
29/03/2024	0:53:00	1.3	1.9	10	214
29/03/2024	0:54:00	1.5	2	10	226
29/03/2024	0:55:00	1.2	1.6	10	218
29/03/2024	0:56:00	1.1	1.7	10	248
29/03/2024	0:57:00	1.3	1.6	10	230
29/03/2024	0:58:00	1.2	1.5	10	247
29/03/2024	0:59:00	0.9	1.4	10	244
29/03/2024	1:00:00	1.1	1.5	10	238
29/03/2024	1:01:00	0.9	1.4	10	224
29/03/2024	1:02:00	0.7	1	10	238

29/03/2024	1:03:00	1.2	1.7	10	215
29/03/2024	1:04:00	0.9	1.3	10	207
29/03/2024	1:05:00	0.9	1.2	10	209
29/03/2024	1:06:00	0.7	1	10	222
29/03/2024	1:07:00	0.8	1.3	10	233
29/03/2024	1:08:00	0.6	1	10	271
29/03/2024	1:09:00	1.1	1.5	9	243
29/03/2024	1:10:00	0.8	1.1	9	276
29/03/2024	1:11:00	1.2	1.5	9	224
29/03/2024	1:12:00	1	1.2	9	240
29/03/2024	1:13:00	0.8	1.1	9	216
29/03/2024	1:14:00	0.2	0.7	9	141
29/03/2024	1:15:00	0.8	1.1	9	225
29/03/2024	1:16:00	1.1	1.4	9	232
29/03/2024	1:17:00	0.6	0.9	9	185
29/03/2024	1:18:00	0.6	1.1	9	166
29/03/2024	1:19:00	0.9	1.2	9	189
29/03/2024	1:20:00	0.8	1.3	9	200
29/03/2024	1:21:00	0.8	1.2	9	204
29/03/2024	1:22:00	0.8	1.2	9	213
29/03/2024	1:23:00	1.2	1.6	9	207
29/03/2024	1:24:00	0.7	1	9	186
29/03/2024	1:25:00	0.6	1	9	176
29/03/2024	1:26:00	0.8	1.2	9	163
29/03/2024	1:27:00	0.9	1.2	9	160
29/03/2024	1:28:00	1.1	1.7	9	161
29/03/2024	1:29:00	0.9	1.2	9	178
29/03/2024	1:30:00	0.8	1.4	9	177
29/03/2024	1:31:00	1.1	1.6	9	151
29/03/2024	1:32:00	1.2	1.8	9	161
29/03/2024	1:33:00	1.3	1.7	9	162
29/03/2024	1:34:00	0.8	1.2	9	155
29/03/2024	1:35:00	0.8	1.2	9	162
29/03/2024	1:36:00	1	1.8	9	181
29/03/2024	1:37:00	0.9	1.3	9	184
29/03/2024	1:38:00	1.1	1.9	9	165
29/03/2024	1:39:00	1	1.7	9	165
29/03/2024	1:40:00	0.9	1.2	9	148
29/03/2024	1:41:00	1	1.3	9	152
29/03/2024	1:42:00	1.2	1.7	9	149
29/03/2024	1:43:00	1.3	1.8	9	149
29/03/2024	1:44:00	0.8	1.2	9	172
29/03/2024	1:45:00	1	1.5	9	150
29/03/2024	1:46:00	1.2	1.5	9	139
29/03/2024	1:47:00	1.2	1.7	9	157
29/03/2024	1:48:00	0.9	1.3	9	152

29/03/2024	1:49:00	1	1.4	9	168
29/03/2024	1:50:00	0.8	1.1	9	158
29/03/2024	1:51:00	1	1.5	9	172
29/03/2024	1:52:00	1	1.5	9	171
29/03/2024	1:53:00	0.8	1.1	9	146
29/03/2024	1:54:00	1	1.7	9	156
29/03/2024	1:55:00	1.2	1.6	9	173
29/03/2024	1:56:00	1	1.7	9	175
29/03/2024	1:57:00	1	1.4	9	150
29/03/2024	1:58:00	1	1.3	9	154
29/03/2024	1:59:00	1	1.5	9	162
29/03/2024	2:00:00	0.6	0.9	9	153
29/03/2024	2:01:00	1.1	1.6	9	176
29/03/2024	2:02:00	0.8	1.2	9	163
29/03/2024	2:03:00	0.8	1.7	9	163
29/03/2024	2:04:00	0.8	1.2	9	163
29/03/2024	2:05:00	1	1.4	9	171
29/03/2024	2:06:00	0.9	1.8	9	171
29/03/2024	2:07:00	0.8	1.4	9	174
29/03/2024	2:08:00	1.2	1.7	8	158
29/03/2024	2:09:00	1	1.4	8	175
29/03/2024	2:10:00	1.1	1.7	8	171
29/03/2024	2:11:00	1	1.4	8	188
29/03/2024	2:12:00	1.3	2.4	8	168
29/03/2024	2:13:00	0.9	1.2	8	168
29/03/2024	2:14:00	1.3	2.1	8	171
29/03/2024	2:15:00	1.3	1.9	8	178
29/03/2024	2:16:00	1.1	1.8	8	169
29/03/2024	2:17:00	1.2	1.7	8	182
29/03/2024	2:18:00	1	1.5	8	152
29/03/2024	2:19:00	1.2	1.7	8	179
29/03/2024	2:20:00	1.2	1.7	8	162
29/03/2024	2:21:00	0.9	1.3	8	165
29/03/2024	2:22:00	1	2	8	176
29/03/2024	2:23:00	1.2	2.2	8	169
29/03/2024	2:24:00	1.1	1.4	8	157
29/03/2024	2:25:00	0.8	1.2	8	157
29/03/2024	2:26:00	1.1	1.9	8	171
29/03/2024	2:27:00	1.1	1.8	8	153
29/03/2024	2:28:00	0.8	1.3	8	177
29/03/2024	2:29:00	0.9	1.4	8	160
29/03/2024	2:30:00	0.9	1.2	8	157
29/03/2024	2:31:00	1.2	1.7	8	178
29/03/2024	2:32:00	1.2	1.8	8	162
29/03/2024	2:33:00	1	1.7	8	163
29/03/2024	2:34:00	0.9	1.2	8	162

29/03/2024	2:35:00	1.1	1.7	8	166
29/03/2024	2:36:00	1	1.5	8	168
29/03/2024	2:37:00	1.5	2.1	8	170
29/03/2024	2:38:00	1.4	2.2	8	160
29/03/2024	2:39:00	1	1.5	8	159
29/03/2024	2:40:00	1.5	2	8	166
29/03/2024	2:41:00	1.2	1.8	8	167
29/03/2024	2:42:00	1.6	2.2	8	171
29/03/2024	2:43:00	1.3	2.1	8	166
29/03/2024	2:44:00	1.2	1.8	8	171
29/03/2024	2:45:00	1.1	1.5	8	168
29/03/2024	2:46:00	1.4	2.3	8	164
29/03/2024	2:47:00	1.5	2.5	8	167
29/03/2024	2:48:00	1.3	1.8	8	154
29/03/2024	2:49:00	1.5	2.2	8	177
29/03/2024	2:50:00	1.1	2.1	8	165
29/03/2024	2:51:00	1.4	2.4	8	174
29/03/2024	2:52:00	1.3	1.8	8	176
29/03/2024	2:53:00	1.2	2.2	8	176
29/03/2024	2:54:00	1.2	2	8	168
29/03/2024	2:55:00	1.5	2.5	8	170
29/03/2024	2:56:00	1.2	1.9	8	170
29/03/2024	2:57:00	1.4	2.2	8	151
29/03/2024	2:58:00	1.3	2	8	164
29/03/2024	2:59:00	1.4	2	8	161
29/03/2024	3:00:00	1.6	2.8	8	157
29/03/2024	3:01:00	1.7	2.6	8	162
29/03/2024	3:02:00	1.2	1.8	8	156
29/03/2024	3:03:00	1.2	2	8	158
29/03/2024	3:04:00	1.6	2.2	8	163
29/03/2024	3:05:00	1.4	1.9	8	172
29/03/2024	3:06:00	1.3	2	8	154
29/03/2024	3:07:00	1.2	2	8	165
29/03/2024	3:08:00	1.6	2.7	8	168
29/03/2024	3:09:00	1.7	2.5	8	172
29/03/2024	3:10:00	1.2	1.9	8	160
29/03/2024	3:11:00	1.4	2.1	8	158
29/03/2024	3:12:00	1.4	2.1	8	167
29/03/2024	3:13:00	1.5	2.7	8	172
29/03/2024	3:14:00	1.5	1.9	8	165
29/03/2024	3:15:00	1.5	2.6	8	182
29/03/2024	3:16:00	1.4	2.3	8	176
29/03/2024	3:17:00	1.7	2.5	8	163
29/03/2024	3:18:00	1.3	2	8	167
29/03/2024	3:19:00	1.5	2.2	8	166
29/03/2024	3:20:00	1.6	2.9	8	173

29/03/2024	3:21:00	1.7	2.4	8	166
29/03/2024	3:22:00	1.8	3	8	176
29/03/2024	3:23:00	1.3	2	8	167
29/03/2024	3:24:00	1.7	2.7	8	174
29/03/2024	3:25:00	1.6	2.4	8	163
29/03/2024	3:26:00	1.6	2.6	8	164
29/03/2024	3:27:00	1.6	2.6	8	182
29/03/2024	3:28:00	1.4	2	8	171
29/03/2024	3:29:00	1.8	3.5	8	169
29/03/2024	3:30:00	1.2	1.7	8	157
29/03/2024	3:31:00	1.5	2.4	8	170
29/03/2024	3:32:00	1.5	2.4	8	157
29/03/2024	3:33:00	1.8	2.6	8	168
29/03/2024	3:34:00	1.2	2	8	164
29/03/2024	3:35:00	1.8	2.4	8	167
29/03/2024	3:36:00	1.5	2.2	8	179
29/03/2024	3:37:00	1.9	3.7	8	172
29/03/2024	3:38:00	1.6	2.2	8	156
29/03/2024	3:39:00	1.3	2	8	166
29/03/2024	3:40:00	2.2	3.6	8	177
29/03/2024	3:41:00	1.8	2.6	8	168
29/03/2024	3:42:00	1.5	2.2	8	180
29/03/2024	3:43:00	2	3.4	8	166
29/03/2024	3:44:00	1.6	3.1	8	162
29/03/2024	3:45:00	2.2	3.8	8	177
29/03/2024	3:46:00	1.9	3.3	8	180
29/03/2024	3:47:00	1.8	3.1	8	168
29/03/2024	3:48:00	1.6	3	8	175
29/03/2024	3:49:00	0.9	1.8	8	161
29/03/2024	3:50:00	1.4	2.5	8	175
29/03/2024	3:51:00	1.5	3.1	8	171
29/03/2024	3:52:00	1.5	2.4	8	169
29/03/2024	3:53:00	1.4	2.1	8	182
29/03/2024	3:54:00	1.6	3.1	8	163
29/03/2024	3:55:00	1.3	2	8	164
29/03/2024	3:56:00	1.7	2.4	8	165
29/03/2024	3:57:00	1.6	2.1	8	176
29/03/2024	3:58:00	1.5	2.6	8	167
29/03/2024	3:59:00	1.5	2.6	8	172
29/03/2024	4:00:00	1.4	2.3	8	152
29/03/2024	4:01:00	1.1	1.5	8	166
29/03/2024	4:02:00	1	2	8	159
29/03/2024	4:03:00	1.5	2.4	8	164
29/03/2024	4:04:00	1.2	1.6	8	180
29/03/2024	4:05:00	1.4	1.9	8	170
29/03/2024	4:06:00	1.3	1.9	8	170

29/03/2024	4:07:00	1.6	3	8	163
29/03/2024	4:08:00	1.2	1.9	8	169
29/03/2024	4:09:00	1.4	1.9	8	178
29/03/2024	4:10:00	1.3	1.8	8	166
29/03/2024	4:11:00	1.4	2.7	8	168
29/03/2024	4:12:00	1.1	1.4	8	181
29/03/2024	4:13:00	1.4	2.1	8	164
29/03/2024	4:14:00	1.3	2	8	178
29/03/2024	4:15:00	1.3	1.8	8	170
29/03/2024	4:16:00	1.5	2.4	8	169
29/03/2024	4:17:00	1.5	2.2	8	164
29/03/2024	4:18:00	1.5	2.6	8	156
29/03/2024	4:19:00	1.6	2.7	8	175
29/03/2024	4:20:00	1.5	2.2	8	174
29/03/2024	4:21:00	1.6	2.6	8	164
29/03/2024	4:22:00	1.4	2.4	8	176
29/03/2024	4:23:00	1.4	2.3	8	160
29/03/2024	4:24:00	1.5	2.4	8	182
29/03/2024	4:25:00	1.6	2.7	8	173
29/03/2024	4:26:00	1.4	2.1	8	192
29/03/2024	4:27:00	1.3	2.6	8	170
29/03/2024	4:28:00	1.8	2.9	8	168
29/03/2024	4:29:00	1.5	2.4	8	162
29/03/2024	4:30:00	1.3	2.6	8	161
29/03/2024	4:31:00	1.5	2.3	8	171
29/03/2024	4:32:00	1.1	1.8	8	179
29/03/2024	4:33:00	1	1.7	8	166
29/03/2024	4:34:00	1.1	1.5	8	174
29/03/2024	4:35:00	1.6	2.5	8	160
29/03/2024	4:36:00	1.3	2.4	8	202
29/03/2024	4:37:00	1	1.7	8	211
29/03/2024	4:38:00	1	1.8	8	174
29/03/2024	4:39:00	1.3	2.2	8	203
29/03/2024	4:40:00	1.1	1.6	8	211
29/03/2024	4:41:00	1.4	2.3	8	192
29/03/2024	4:42:00	1.2	2.1	8	172
29/03/2024	4:43:00	1.6	2.3	8	211
29/03/2024	4:44:00	1.6	2.7	8	231
29/03/2024	4:45:00	1.5	2.3	8	203
29/03/2024	4:46:00	1.5	3.1	8	220
29/03/2024	4:47:00	1.2	2	8	180
29/03/2024	4:48:00	1.8	3.1	8	220
29/03/2024	4:49:00	0.9	1.3	8	208
29/03/2024	4:50:00	1.6	2.2	8	233
29/03/2024	4:51:00	1.6	2.8	8	219
29/03/2024	4:52:00	1.1	1.7	8	222

29/03/2024	4:53:00	1.8	3.4	8	239
29/03/2024	4:54:00	1.4	2.7	8	210
29/03/2024	4:55:00	1.1	1.4	8	211
29/03/2024	4:56:00	1.6	3.2	8	229
29/03/2024	4:57:00	1.7	3.2	8	236
29/03/2024	4:58:00	1.2	2	8	218
29/03/2024	4:59:00	1.8	3.2	8	242
29/03/2024	5:00:00	1.8	3.3	8	235
29/03/2024	5:01:00	1.8	3.4	8	221
29/03/2024	5:02:00	1.4	2.4	8	235
29/03/2024	5:03:00	2.1	3	8	231
29/03/2024	5:04:00	1.8	3	8	223
29/03/2024	5:05:00	2.2	3.9	8	237
29/03/2024	5:06:00	1.8	3.6	8	233
29/03/2024	5:07:00	2.1	3.7	8	233
29/03/2024	5:08:00	1.4	2.1	8	223
29/03/2024	5:09:00	2	4	8	226
29/03/2024	5:10:00	1.9	3.2	8	234
29/03/2024	5:11:00	1.5	3.2	8	243
29/03/2024	5:12:00	2.3	3.7	8	213
29/03/2024	5:13:00	1.5	2.1	8	234
29/03/2024	5:14:00	1.6	3.2	8	230
29/03/2024	5:15:00	1.9	2.8	8	228
29/03/2024	5:16:00	1.5	2	8	226
29/03/2024	5:17:00	1.6	3.2	8	232
29/03/2024	5:18:00	1.6	2.3	8	236
29/03/2024	5:19:00	1.7	2.1	7	225
29/03/2024	5:20:00	1.6	2.8	7	232
29/03/2024	5:21:00	2.2	3.3	7	235
29/03/2024	5:22:00	1.6	2.3	7	249
29/03/2024	5:23:00	1.7	2.7	7	227
29/03/2024	5:24:00	1.6	3.1	7	236
29/03/2024	5:25:00	1.8	2.9	7	224
29/03/2024	5:26:00	1.8	2.6	7	237
29/03/2024	5:27:00	2	3.9	7	230
29/03/2024	5:28:00	2.1	2.9	7	243
29/03/2024	5:29:00	1.9	3	7	244
29/03/2024	5:30:00	1.8	2.8	7	236
29/03/2024	5:31:00	2	2.7	7	236
29/03/2024	5:32:00	2	2.8	7	245
29/03/2024	5:33:00	1.9	3.6	7	248
29/03/2024	5:34:00	1.3	1.7	7	249
29/03/2024	5:35:00	2.2	4.2	7	224
29/03/2024	5:36:00	2	3.4	7	239
29/03/2024	5:37:00	1.3	1.9	7	227
29/03/2024	5:38:00	2	3.6	7	225

29/03/2024	5:39:00	2.1	3.1	7	238
29/03/2024	5:40:00	1.9	2.9	7	232
29/03/2024	5:41:00	2	3.3	8	233
29/03/2024	5:42:00	1.9	3.1	7	240
29/03/2024	5:43:00	2.1	3.9	7	234
29/03/2024	5:44:00	2.3	3.3	7	231
29/03/2024	5:45:00	2.1	3.7	7	232
29/03/2024	5:46:00	1.8	2.9	7	254
29/03/2024	5:47:00	1.7	2.6	7	247
29/03/2024	5:48:00	2	4.3	7	252
29/03/2024	5:49:00	1.8	2.4	7	245
29/03/2024	5:50:00	2.1	3.6	7	233
29/03/2024	5:51:00	2	3.1	7	237
29/03/2024	5:52:00	1.4	2	7	259
29/03/2024	5:53:00	1.5	2.2	7	243
29/03/2024	5:54:00	2	3.3	7	238
29/03/2024	5:55:00	2.6	4.5	7	254
29/03/2024	5:56:00	2.2	3.2	7	241
29/03/2024	5:57:00	1.6	2.6	7	254
29/03/2024	5:58:00	1.6	3.4	7	253
29/03/2024	5:59:00	2.3	3.7	7	240
29/03/2024	6:00:00	2.2	3.5	7	255
29/03/2024	6:01:00	2.3	3.8	7	232
29/03/2024	6:02:00	1.9	3.2	7	251
29/03/2024	6:03:00	2.1	3.2	7	250
29/03/2024	6:04:00	2.1	3.3	7	244
29/03/2024	6:05:00	2.3	3.7	7	248
29/03/2024	6:06:00	1.7	2.6	7	255
29/03/2024	6:07:00	1.8	3.9	7	256
29/03/2024	6:08:00	1.9	2.6	7	233
29/03/2024	6:09:00	1.7	2.7	7	249
29/03/2024	6:10:00	1.8	2.6	7	260
29/03/2024	6:11:00	1.7	3.1	7	255
29/03/2024	6:12:00	2.3	3.8	7	246
29/03/2024	6:13:00	1.9	2.9	7	234
29/03/2024	6:14:00	1.4	3	7	234
29/03/2024	6:15:00	1.3	1.7	7	232
29/03/2024	6:16:00	1.8	2.4	7	260
29/03/2024	6:17:00	1.6	2.4	7	232
29/03/2024	6:18:00	1.8	3	7	262
29/03/2024	6:19:00	1.8	2.8	7	237
29/03/2024	6:20:00	1.9	3.1	7	241
29/03/2024	6:21:00	1.6	2.5	7	261
29/03/2024	6:22:00	1.2	1.5	7	235
29/03/2024	6:23:00	1.5	3.3	7	228
29/03/2024	6:24:00	1.6	2.9	7	241

29/03/2024	6:25:00	1.2	1.8	7	255
29/03/2024	6:26:00	1.1	2.1	7	245
29/03/2024	6:27:00	1.3	1.9	7	232
29/03/2024	6:28:00	1.4	1.8	7	220
29/03/2024	6:29:00	2.1	3.4	7	230
29/03/2024	6:30:00	2	2.6	7	228
29/03/2024	6:31:00	1.8	3.6	7	245
29/03/2024	6:32:00	1.5	2.1	7	262
29/03/2024	6:33:00	1.3	2.7	7	219
29/03/2024	6:34:00	1.7	2.9	7	256
29/03/2024	6:35:00	1.5	1.9	7	257
29/03/2024	6:36:00	2.1	3.7	6	229
29/03/2024	6:37:00	2.1	2.6	6	240
29/03/2024	6:38:00	1.5	2.6	6	237
29/03/2024	6:39:00	2.2	3.7	6	233
29/03/2024	6:40:00	1.9	2.6	6	246
29/03/2024	6:41:00	1.5	2.6	6	212
29/03/2024	6:42:00	1.9	2.8	6	228
29/03/2024	6:43:00	1.5	2.8	6	227
29/03/2024	6:44:00	1.7	2.7	6	228
29/03/2024	6:45:00	1.7	2.7	6	250
29/03/2024	6:46:00	2	3.1	6	256
29/03/2024	6:47:00	2.1	3.3	6	231
29/03/2024	6:48:00	2.4	3.6	6	250
29/03/2024	6:49:00	2.3	3.2	6	248
29/03/2024	6:50:00	1.7	2.6	6	244
29/03/2024	6:51:00	2.2	3.4	6	243
29/03/2024	6:52:00	1.7	2.6	6	243
29/03/2024	6:53:00	1.3	3.1	6	244
29/03/2024	6:54:00	1.9	3.1	6	242
29/03/2024	6:55:00	2	3.2	6	244
29/03/2024	6:56:00	2.3	3.7	6	232
29/03/2024	6:57:00	1.8	3	6	254
29/03/2024	6:58:00	2	3.7	6	241
29/03/2024	6:59:00	1.9	2.6	6	228
29/03/2024	7:00:00	1.6	2.2	6	239
29/03/2024	7:01:00	2.4	3	6	235
29/03/2024	7:02:00	2.6	4.1	6	231
29/03/2024	7:03:00	1.9	3.5	6	219
29/03/2024	7:04:00	1.7	3.1	6	210
29/03/2024	7:05:00	1.8	2.7	6	227
29/03/2024	7:06:00	1.4	2.3	6	202
29/03/2024	7:07:00	1.6	2.6	6	221
29/03/2024	7:08:00	2	2.9	6	226
29/03/2024	7:09:00	2	3	6	234
29/03/2024	7:10:00	2.2	4	6	242

29/03/2024	7:11:00	1.5	1.9	6	241
29/03/2024	7:12:00	1.9	3.5	6	229
29/03/2024	7:13:00	1.4	2.6	6	234
29/03/2024	7:14:00	1.9	2.8	6	244
29/03/2024	7:15:00	1.5	2.2	6	242
29/03/2024	7:16:00	2.3	3.5	6	242
29/03/2024	7:17:00	2.3	3.6	6	219
29/03/2024	7:18:00	2.1	3.6	6	232
29/03/2024	7:19:00	2.1	3.4	6	232
29/03/2024	7:20:00	2.1	4.8	6	226
29/03/2024	7:21:00	2.2	3	6	238
29/03/2024	7:22:00	2.1	3.3	6	233
29/03/2024	7:23:00	1.4	2.4	6	215
29/03/2024	7:24:00	1.7	3.1	6	234
29/03/2024	7:25:00	2.2	3.7	6	231
29/03/2024	7:26:00	1.9	3	6	239
29/03/2024	7:27:00	2.2	3.2	6	237
29/03/2024	7:28:00	1.7	2.9	6	232
29/03/2024	7:29:00	2.1	3.2	6	251
29/03/2024	7:30:00	1.8	3.9	6	240
29/03/2024	7:31:00	1.8	3.5	6	220
29/03/2024	7:32:00	1.3	2.1	6	213
29/03/2024	7:33:00	1.8	2.9	6	229
29/03/2024	7:34:00	1.8	2.7	6	218
29/03/2024	7:35:00	1.8	3.6	6	216
29/03/2024	7:36:00	1.9	3.3	6	244
29/03/2024	7:37:00	1.7	2.8	6	236
29/03/2024	7:38:00	1.4	2.2	6	229
29/03/2024	7:39:00	1.7	2.9	6	235
29/03/2024	7:40:00	1.7	3.1	6	231
29/03/2024	7:41:00	2.3	3.5	6	239
29/03/2024	7:42:00	2.6	4	6	236
29/03/2024	7:43:00	2.5	3.8	6	229
29/03/2024	7:44:00	2.6	3.5	6	232
29/03/2024	7:45:00	2	3	6	227
29/03/2024	7:46:00	2.2	3.6	6	238
29/03/2024	7:47:00	1.8	2.9	6	254
29/03/2024	7:48:00	2.1	3.9	6	230
29/03/2024	7:49:00	1.8	2.8	6	228
29/03/2024	7:50:00	2.2	3.4	6	233
29/03/2024	7:51:00	2.4	3.2	6	238
29/03/2024	7:52:00	2.5	3.7	6	252
29/03/2024	7:53:00	2.1	3.4	6	241
29/03/2024	7:54:00	2	3	6	260
29/03/2024	7:55:00	1.6	2.6	6	234
29/03/2024	7:56:00	1.8	2.4	6	242

29/03/2024	7:57:00	1.4	1.9	6	249
29/03/2024	7:58:00	1.7	2.5	6	273
29/03/2024	7:59:00	1.9	3.4	6	238
29/03/2024	8:00:00	2.1	3.4	6	244
29/03/2024	8:01:00	2.3	4.2	6	240
29/03/2024	8:02:00	1.8	2.5	6	234
29/03/2024	8:03:00	1.6	2.4	6	224
29/03/2024	8:04:00	1.7	2.6	6	228
29/03/2024	8:05:00	2.4	3.8	6	226
29/03/2024	8:06:00	2.1	2.7	6	226
29/03/2024	8:07:00	2.1	3.8	6	252
29/03/2024	8:08:00	2.5	3.5	6	229
29/03/2024	8:09:00	2.7	4.6	6	227
29/03/2024	8:10:00	2.8	4.6	6	237
29/03/2024	8:11:00	2.5	4.2	6	232
29/03/2024	8:12:00	2	3.2	6	257
29/03/2024	8:13:00	2.1	4	6	229
29/03/2024	8:14:00	2.4	4.3	6	245
29/03/2024	8:15:00	2	2.9	6	243
29/03/2024	8:16:00	2.6	4.7	6	242
29/03/2024	8:17:00	2.2	3.6	6	238
29/03/2024	8:18:00	2	4.3	6	235
29/03/2024	8:19:00	1.6	2.9	6	246
29/03/2024	8:20:00	2	2.6	6	250
29/03/2024	8:21:00	2	3.2	6	247
29/03/2024	8:22:00	2	3.7	7	238
29/03/2024	8:23:00	2.4	4.2	7	241
29/03/2024	8:24:00	2	3.1	7	272
29/03/2024	8:25:00	2.7	4.1	7	253
29/03/2024	8:26:00	1.7	2.7	7	252
29/03/2024	8:27:00	2.1	3	7	268
29/03/2024	8:28:00	1.8	2.4	7	240
29/03/2024	8:29:00	2	4.2	7	255
29/03/2024	8:30:00	2.1	3.7	7	227
29/03/2024	8:31:00	2	4.4	7	247
29/03/2024	8:32:00	1.9	4.4	7	264
29/03/2024	8:33:00	2.9	5.1	7	262
29/03/2024	8:34:00	2.3	3.7	7	252
29/03/2024	8:35:00	2.2	4.3	7	266
29/03/2024	8:36:00	2.2	3.4	7	253
29/03/2024	8:37:00	3.2	5.1	7	258
29/03/2024	8:38:00	2.4	3.2	7	264
29/03/2024	8:39:00	2.2	3.1	7	256
29/03/2024	8:40:00	2.5	4.2	7	256

Data for N 8 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/29/2024	9:39:24	61	88.8	80.5	40.7	64.1	47.5
3/29/2024	9:49:24	55.8	83.6	73.4	41.3	58.9	45.8
3/29/2024	9:59:24	58.3	86.1	78.6	42.7	61	47.5
3/29/2024	10:09:24	56.1	83.9	69.8	42.4	59.7	46.7
3/29/2024	10:19:24	57	84.8	73.8	40.5	60.4	46.2
3/29/2024	10:29:24	55.1	82.9	68.7	40.7	58.6	44.7
3/29/2024	10:39:24	56.4	84.2	72.2	40.8	59.7	45.7
3/29/2024	10:49:24	60.2	88	78.3	43.4	64.4	48.6
3/29/2024	10:59:24	57.2	85	72.5	37.6	61.1	45.4
3/29/2024	11:09:24	58.5	86.3	77.1	43.7	60.9	47.3
3/29/2024	11:19:24	56.4	84.2	71.1	42.6	60.4	47
3/29/2024	11:29:24	55.3	83.1	72.3	43.3	58.5	46.5
3/29/2024	11:39:24	59.5	87.3	77.2	44.4	62.9	48.1
3/29/2024	11:49:24	57.9	85.7	74.6	47.1	60.8	50.8
3/29/2024	11:59:24	57.3	85.1	76.2	45.9	60.2	49.9
3/29/2024	12:09:24	61.6	89.4	75.5	46.7	65.3	50.4
3/29/2024	12:19:24	59.6	87.4	73.2	47.4	62.6	51.2
3/29/2024	12:29:24	56.9	84.7	69.8	47.1	60.4	50.1
3/29/2024	12:39:24	56.6	84.4	70.9	45.1	60.4	49
3/29/2024	12:49:24	57.9	85.7	75.4	44	61.2	49
3/29/2024	12:59:24	59	86.8	74.3	45.9	62.4	50.4
3/29/2024	13:09:24	55.6	83.4	69.3	44.7	58.5	48.4
3/29/2024	13:19:24	57.1	84.9	72.5	43.8	60.3	50.3
3/29/2024	13:29:24	58.3	86.1	78.8	45.6	61	51.3
3/29/2024	13:39:24	58.3	86.1	72.1	43.3	61.7	49.3
3/29/2024	13:49:24	58.7	86.5	80.2	43.5	61	48.8
3/29/2024	13:59:24	57	84.8	72.2	42.2	60.5	48.2
3/29/2024	14:09:24	57.8	85.6	79.5	42.7	59.3	47.9
3/29/2024	14:19:24	58.8	86.6	75.6	45.3	61.5	49.4
3/29/2024	14:29:24	57.8	85.6	75	46	60.5	50.9
3/29/2024	14:39:24	60.1	87.9	80.4	43.2	61.3	50
3/29/2024	14:49:24	58.6	86.4	72	43	61.7	51.9
3/29/2024	14:59:24	58.9	86.7	74.9	48.9	62.4	52.4
3/29/2024	15:09:24	59	86.8	71.9	46.5	62.2	51.2
3/29/2024	15:19:24	59.2	87	70.8	46.5	62.5	53.1
3/29/2024	15:29:24	57.9	85.7	75.4	41.2	61.3	45.7
3/29/2024	15:39:24	56.9	84.7	72	43.9	59.9	48.2
3/29/2024	15:49:24	57.5	85.3	72.7	42.9	60.3	48.1
3/29/2024	15:59:24	58	85.8	76.4	45.4	60	49.7
3/29/2024	16:09:24	59.8	87.6	76	45	63.9	49.8
3/29/2024	16:19:24	59.4	87.2	76	42.1	62.8	48.6
3/29/2024	16:29:24	60.7	88.5	79.2	41.1	64.2	48.5
3/29/2024	16:39:24	60.8	88.6	82.4	38.9	62.2	49.4
3/29/2024	16:49:24	57.9	85.7	81	41.6	59.8	46.2

3/29/2024	16:59:24	57.8	85.6	74.6	42.4	60.5	49.5
3/29/2024	17:09:24	57.8	85.6	72	45.5	60.6	49.1
3/29/2024	17:19:24	56.4	84.2	67.8	43.6	59	47.8
3/29/2024	17:29:24	57.3	85.1	74.8	40.2	60.6	46.8
3/29/2024	17:39:24	57.8	85.6	75.8	41.3	58.5	51.3
3/29/2024	17:49:24	56.6	84.4	77.4	41	58.3	48.9
3/29/2024	17:59:24	59.3	87.1	69.3	41.1	62.8	50.1
3/29/2024	18:09:24	58.5	86.3	69.9	42.8	60.7	52.3
3/29/2024	18:19:24	57.7	85.5	71.9	41.9	60.5	48.3
3/29/2024	18:29:24	57.8	85.6	72.2	41.9	61.5	47.4
3/29/2024	18:39:24	56.6	84.4	66.1	42.4	58.9	50.1
3/29/2024	18:49:24	58.9	86.7	73.8	42.9	62.5	48.1
3/29/2024	18:59:24	57.9	85.7	74.2	41.2	60.4	47.7
3/29/2024	19:09:24	58.2	86	75.3	41.5	60.5	46.2
3/29/2024	19:19:24	56.3	84.1	68.8	40.2	59.6	46.4
3/29/2024	19:29:24	55.3	83.1	67.9	37.2	58.9	43
3/29/2024	19:39:24	54.3	82.1	64.4	38	57.4	44.6
3/29/2024	19:49:24	52.5	80.3	61.5	32.4	56	37.4
3/29/2024	19:59:24	52	79.8	67	31.7	56.2	36.9
3/29/2024	20:09:24	47.7	75.5	63.3	32.6	51.5	37.3
3/29/2024	20:19:24	54.8	82.6	78.1	32	54.8	38.4
3/29/2024	20:29:24	49.4	77.2	61.9	33.2	53.2	37.1
3/29/2024	20:39:24	53.8	81.6	74.7	31	57.9	36.6
3/29/2024	20:49:24	53.2	81	70.5	34.5	56.5	39.9
3/29/2024	20:59:24	52.2	80	70.7	30.7	54.7	35.6
3/29/2024	21:09:24	55.7	83.5	71.9	38.2	60.2	41.6
3/29/2024	21:19:24	52.1	79.9	73.2	33.3	55	40
3/29/2024	21:29:24	47.4	75.2	65.9	27	50.7	32.3
3/29/2024	21:39:24	52.1	79.9	70.1	35.5	55.2	39.9
3/29/2024	21:49:24	52.3	80.1	66.5	34.3	56.3	40.6
3/29/2024	21:59:24	53.1	80.9	73.5	37.8	56.3	42.3
3/29/2024	22:09:24	52.7	80.5	69.9	32.7	56	41.5
3/29/2024	22:19:24	50.1	77.9	68.5	29.7	52.9	35.8
3/29/2024	22:29:24	53.7	81.5	77.6	34.7	53.7	40.8
3/29/2024	22:39:24	52.8	80.6	68.8	39.5	55.5	44.1
3/29/2024	22:49:24	50.7	78.5	66.6	31.2	53.3	37.1
3/29/2024	22:59:24	51.3	79.1	70.1	34.8	53.9	39.4
3/29/2024	23:09:24	53.1	80.9	71.3	32.3	54.7	35.9
3/29/2024	23:19:24	51.5	79.3	70.2	31.4	53.1	35.9
3/29/2024	23:29:24	49.6	77.4	65.6	32	52.2	38.9
3/29/2024	23:39:24	54.4	82.2	75.9	30.1	57.5	33.7
3/29/2024	23:49:24	47	74.8	59.5	29.1	51.7	32.9
3/29/2024	23:59:24	47.4	75.2	59.7	29.4	51.4	34.6
3/30/2024	0:09:24	52	79.8	72.2	32.4	54.5	35.7
3/30/2024	0:19:24	46	73.8	62.8	27.6	50.1	31.3
3/30/2024	0:29:24	48.6	76.4	64.7	29.4	51.6	34.2

3/30/2024	0:39:24	47.7	75.5	64.7	28.8	50.3	32.4
3/30/2024	0:49:24	52	79.8	71.1	28.9	52.8	32.7
3/30/2024	0:59:24	49.1	76.9	72.4	29.8	51.2	34.3
3/30/2024	1:09:24	50.1	77.9	67.7	29.3	53.3	33.3
3/30/2024	1:19:24	50.7	78.5	67.9	30.5	54.3	37
3/30/2024	1:29:24	50.6	78.4	65.3	30.7	54.8	33.9
3/30/2024	1:39:24	45.1	72.9	63	26.7	49.2	29.8
3/30/2024	1:49:24	49.3	77.1	67.4	26.4	51.8	31.3
3/30/2024	1:59:24	47	74.8	65.8	28.2	49.2	30.8
3/30/2024	2:09:24	51.7	79.5	67.1	29.5	54.2	38.3
3/30/2024	2:19:24	50	77.8	69.9	29.7	53.5	35.6
3/30/2024	2:29:24	50.1	77.9	64.5	27.4	54.9	32.3
3/30/2024	2:39:24	46	73.8	65	27	49.3	31.9
3/30/2024	2:49:24	45.7	73.5	64.8	24.4	48.9	29.6
3/30/2024	2:59:24	48.1	75.9	64.6	21.6	51.1	26.9
3/30/2024	3:09:24	44.5	72.3	62.4	19.3	47.8	23.5
3/30/2024	3:19:24	47.8	75.6	64.9	20.5	49.6	25.7
3/30/2024	3:29:24	51.7	79.5	71.5	24.2	54.1	33.7
3/30/2024	3:39:24	53	80.8	79.8	21.2	52.9	25.4
3/30/2024	3:49:24	45.3	73.1	61.8	22	48.6	26.2
3/30/2024	3:59:24	52.8	80.6	75.4	19.1	49.9	30
3/30/2024	4:09:24	41.7	69.5	57.7	18	44.8	23.5
3/30/2024	4:19:24	40.4	68.2	56.1	22.3	43.8	27.4
3/30/2024	4:29:24	51.1	78.9	69.1	23.3	51.8	32.3
3/30/2024	4:39:24	48.3	76.1	66.5	24.6	50	29.6
3/30/2024	4:49:24	48.8	76.6	64.6	28	52.5	35.3
3/30/2024	4:59:24	47.2	75	63.5	25.2	50.7	29.3
3/30/2024	5:09:24	46.1	73.9	59.9	21.9	50.4	26.6
3/30/2024	5:19:24	47.8	75.6	68.8	21.6	49.7	28.6
3/30/2024	5:29:24	44.5	72.3	63.3	23.1	47.3	27
3/30/2024	5:39:24	49.3	77.1	67	28.5	52.1	31.7
3/30/2024	5:49:24	39.6	67.4	62.1	23.3	41.2	26
3/30/2024	5:59:24	44.6	72.4	61	25.8	48	31
3/30/2024	6:09:24	48.6	76.4	62.8	28.6	51.9	35.9
3/30/2024	6:19:24	51.9	79.7	72.7	32.2	54.3	37.5
3/30/2024	6:29:24	57.8	85.6	79.3	34.5	60.9	41.9
3/30/2024	6:39:24	53.7	81.5	75	35.5	55.3	40.2
3/30/2024	6:49:24	49.4	77.2	65.3	32.4	53.6	37.4
3/30/2024	6:59:24	52.9	80.7	71.4	36	56.1	40.5
3/30/2024	7:09:24	53.9	81.7	72.3	38.5	56.6	43.7
3/30/2024	7:19:24	54.1	81.9	69.2	35.9	58.1	40.6
3/30/2024	7:29:24	54.7	82.5	71.6	38.7	57.5	43.8
3/30/2024	7:39:24	54.4	82.2	73.4	37.4	56.5	42.5
3/30/2024	7:49:24	53.6	81.4	70.6	37.8	56.6	42.2
3/30/2024	7:59:24	55	82.8	83.9	37.9	58	41.8
3/30/2024	8:09:24	54	81.8	69.7	35.6	56.7	41

3/30/2024	8:19:24	55.8	83.6	73.6	33.8	58.9	41.4
3/30/2024	8:29:24	53.2	81	73	29.6	56.4	39.1
3/30/2024	8:39:24	55.5	83.3	71.9	33.7	59.1	41.3
3/30/2024	8:49:24	52.5	80.3	68	36.3	55.2	43.7
3/30/2024	8:59:24	58.2	86	77.1	33.2	60.8	43.5
3/30/2024	9:09:24	54.4	82.2	73.2	34.6	57.9	41.7
3/30/2024	9:19:24	50.9	78.7	69.4	29	53.5	36.9
3/30/2024	9:29:24	52.8	80.6	68.5	31.3	56.4	40.3
3/30/2024	9:39:24	52.9	80.7	67.7	33.8	55.6	42.6

Data for N 8 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
28/03/2024	9:39:00	2.3	3.1	10	168
28/03/2024	9:40:00	1.7	2.5	10	185
28/03/2024	9:41:00	2	3.3	10	174
28/03/2024	9:42:00	1.9	2.7	10	174
28/03/2024	9:43:00	1.6	2.5	10	177
28/03/2024	9:44:00	1.9	2.8	9	184
28/03/2024	9:45:00	2.3	4.5	9	188
28/03/2024	9:46:00	2	4	9	181
28/03/2024	9:47:00	1.9	3.1	9	199
28/03/2024	9:48:00	1.6	2.3	9	185
28/03/2024	9:49:00	1.8	2.5	8	174
28/03/2024	9:50:00	1.9	3.2	8	155
28/03/2024	9:51:00	1.9	2.9	8	152
28/03/2024	9:52:00	2	2.9	8	155
28/03/2024	9:53:00	1.8	2.5	8	156
28/03/2024	9:54:00	1.7	2.5	7	156
28/03/2024	9:55:00	1.7	2.8	7	170
28/03/2024	9:56:00	1.8	2.8	7	179
28/03/2024	9:57:00	1.5	2.7	7	181
28/03/2024	9:58:00	1.7	2.1	7	168
28/03/2024	9:59:00	2.4	4.5	7	157
28/03/2024	10:00:00	2.2	4.2	7	158
28/03/2024	10:01:00	1.9	2.7	7	161
28/03/2024	10:02:00	1.5	2.1	7	169
28/03/2024	10:03:00	1.6	3.3	7	168
28/03/2024	10:04:00	2.6	4.9	7	155
28/03/2024	10:05:00	2.1	2.6	7	159
28/03/2024	10:06:00	2	2.6	7	172
28/03/2024	10:07:00	1.9	2.8	7	184
28/03/2024	10:08:00	1.9	3.1	7	159
28/03/2024	10:09:00	1.8	3.2	7	165

28/03/2024	10:10:00	2	3.5	7	167
28/03/2024	10:11:00	2.3	4.2	7	155
28/03/2024	10:12:00	2	3.7	7	187
28/03/2024	10:13:00	1.5	1.9	7	187
28/03/2024	10:14:00	1.8	3.1	7	193
28/03/2024	10:15:00	2.2	3.4	7	184
28/03/2024	10:16:00	2	3	7	156
28/03/2024	10:17:00	2.2	5	8	182
28/03/2024	10:18:00	1.8	2.4	8	193
28/03/2024	10:19:00	2.4	3.9	8	192
28/03/2024	10:20:00	2	3.6	8	170
28/03/2024	10:21:00	1.8	4.1	8	154
28/03/2024	10:22:00	2.3	3.4	8	169
28/03/2024	10:23:00	1.9	2.7	8	176
28/03/2024	10:24:00	2	3.2	8	158
28/03/2024	10:25:00	2.2	2.9	8	173
28/03/2024	10:26:00	1.9	2.8	8	171
28/03/2024	10:27:00	1.8	3	8	176
28/03/2024	10:28:00	2.5	4	8	160
28/03/2024	10:29:00	2.5	4	8	165
28/03/2024	10:30:00	1.6	3.4	8	159
28/03/2024	10:31:00	2.2	3.8	8	181
28/03/2024	10:32:00	1.7	2.8	8	188
28/03/2024	10:33:00	1.8	2.8	8	182
28/03/2024	10:34:00	1.4	2	8	182
28/03/2024	10:35:00	1.6	2	8	185
28/03/2024	10:36:00	2.4	5.4	8	192
28/03/2024	10:37:00	2.1	3.4	8	171
28/03/2024	10:38:00	1.6	2.4	8	177
28/03/2024	10:39:00	1.9	3.1	8	164
28/03/2024	10:40:00	2.3	3.4	8	147
28/03/2024	10:41:00	2.3	3.3	8	156
28/03/2024	10:42:00	1.9	2.5	8	170
28/03/2024	10:43:00	2	3	8	169
28/03/2024	10:44:00	2.2	3.4	8	155
28/03/2024	10:45:00	2	3	8	194
28/03/2024	10:46:00	2.5	3.5	8	188
28/03/2024	10:47:00	2	2.8	8	174
28/03/2024	10:48:00	1.7	3.1	9	165
28/03/2024	10:49:00	1.8	2.8	9	173
28/03/2024	10:50:00	2.2	3.7	9	151
28/03/2024	10:51:00	2.7	3.8	9	154
28/03/2024	10:52:00	2.1	3.1	9	166
28/03/2024	10:53:00	2.5	3.3	9	157
28/03/2024	10:54:00	2.4	4.1	9	159
28/03/2024	10:55:00	2	2.9	9	164

28/03/2024	10:56:00	2.1	4.3	9	165
28/03/2024	10:57:00	2.4	3.3	9	191
28/03/2024	10:58:00	2.3	3.2	10	159
28/03/2024	10:59:00	2	2.5	10	154
28/03/2024	11:00:00	1.9	3.1	10	190
28/03/2024	11:01:00	2.3	4.2	10	162
28/03/2024	11:02:00	1.7	2.8	10	153
28/03/2024	11:03:00	1.8	2.8	10	153
28/03/2024	11:04:00	2.2	3.8	10	202
28/03/2024	11:05:00	1.9	3	10	186
28/03/2024	11:06:00	2.7	5.2	10	184
28/03/2024	11:07:00	2	2.6	10	178
28/03/2024	11:08:00	2.2	3.6	10	183
28/03/2024	11:09:00	1.9	2.5	10	167
28/03/2024	11:10:00	1.9	3.3	10	157
28/03/2024	11:11:00	1.9	3.5	10	160
28/03/2024	11:12:00	2	2.9	10	158
28/03/2024	11:13:00	1.7	2.9	10	187
28/03/2024	11:14:00	1.5	2.1	10	183
28/03/2024	11:15:00	1.5	2.3	10	179
28/03/2024	11:16:00	1.9	4.2	10	191
28/03/2024	11:17:00	2.1	3.3	10	194
28/03/2024	11:18:00	2.2	3.4	10	160
28/03/2024	11:19:00	2	3.1	10	158
28/03/2024	11:20:00	1.8	2.5	10	173
28/03/2024	11:21:00	1.9	3.1	10	175
28/03/2024	11:22:00	2.1	3.9	11	187
28/03/2024	11:23:00	2	2.9	11	186
28/03/2024	11:24:00	2.1	3.3	11	171
28/03/2024	11:25:00	1.8	2.8	11	170
28/03/2024	11:26:00	2.2	3.3	11	157
28/03/2024	11:27:00	2.3	3.4	11	157
28/03/2024	11:28:00	2.3	4	11	169
28/03/2024	11:29:00	2	2.8	11	187
28/03/2024	11:30:00	1.8	3.5	11	186
28/03/2024	11:31:00	1.9	3.1	11	194
28/03/2024	11:32:00	2.1	4.1	11	186
28/03/2024	11:33:00	2.2	3.5	11	155
28/03/2024	11:34:00	2.1	4.1	11	167
28/03/2024	11:35:00	2.1	3.3	11	160
28/03/2024	11:36:00	2.5	4	11	155
28/03/2024	11:37:00	2.3	3.7	11	164
28/03/2024	11:38:00	2.1	3	11	168
28/03/2024	11:39:00	2.2	3.2	11	176
28/03/2024	11:40:00	2.5	3.7	11	165
28/03/2024	11:41:00	2	3.9	11	179

28/03/2024	11:42:00	2.6	3.8	11	154
28/03/2024	11:43:00	2.2	3.5	11	177
28/03/2024	11:44:00	2.4	4.1	11	191
28/03/2024	11:45:00	2.8	4.1	11	177
28/03/2024	11:46:00	2	3.8	11	163
28/03/2024	11:47:00	2.5	4.3	11	149
28/03/2024	11:48:00	2.9	5.2	11	156
28/03/2024	11:49:00	2.1	3.4	11	169
28/03/2024	11:50:00	2.3	3	11	178
28/03/2024	11:51:00	1.5	2.9	12	180
28/03/2024	11:52:00	2.4	4	12	162
28/03/2024	11:53:00	3	5.2	12	175
28/03/2024	11:54:00	2.4	3.5	12	168
28/03/2024	11:55:00	2.2	3.2	12	177
28/03/2024	11:56:00	2.1	4	12	180
28/03/2024	11:57:00	2.7	3.9	12	179
28/03/2024	11:58:00	1.9	2.8	12	146
28/03/2024	11:59:00	2.4	3.4	12	155
28/03/2024	12:00:00	2.5	4.9	12	168
28/03/2024	12:01:00	2.8	4.9	12	146
28/03/2024	12:02:00	3	4.8	12	148
28/03/2024	12:03:00	2.2	3.6	12	164
28/03/2024	12:04:00	2	3.8	12	156
28/03/2024	12:05:00	2.8	5.3	12	147
28/03/2024	12:06:00	2.5	3.8	12	155
28/03/2024	12:07:00	2.6	3.5	12	158
28/03/2024	12:08:00	2.3	4.5	12	157
28/03/2024	12:09:00	2	3	12	161
28/03/2024	12:10:00	2.4	4.9	12	164
28/03/2024	12:11:00	2.5	3.7	12	174
28/03/2024	12:12:00	2.4	3.5	12	167
28/03/2024	12:13:00	2.6	3.7	12	150
28/03/2024	12:14:00	2.2	3.4	12	160
28/03/2024	12:15:00	2	3.5	12	162
28/03/2024	12:16:00	3	5.2	12	161
28/03/2024	12:17:00	2.3	4	12	151
28/03/2024	12:18:00	2.8	4.4	12	156
28/03/2024	12:19:00	2.3	3.3	12	170
28/03/2024	12:20:00	2.4	4.2	12	153
28/03/2024	12:21:00	2.2	3.6	12	154
28/03/2024	12:22:00	2.6	3.7	12	153
28/03/2024	12:23:00	2.8	4.7	12	156
28/03/2024	12:24:00	3.5	5	12	155
28/03/2024	12:25:00	2.1	3.8	12	160
28/03/2024	12:26:00	2.2	4	12	173
28/03/2024	12:27:00	2.4	6.3	12	141

28/03/2024	12:28:00	3.4	5.8	12	165
28/03/2024	12:29:00	2.8	3.7	12	170
28/03/2024	12:30:00	3.1	4.2	12	153
28/03/2024	12:31:00	2.2	3.6	13	175
28/03/2024	12:32:00	2.1	3.5	13	177
28/03/2024	12:33:00	2.8	4.8	13	152
28/03/2024	12:34:00	2.8	6	13	160
28/03/2024	12:35:00	3.4	5	13	153
28/03/2024	12:36:00	1.8	3.3	13	153
28/03/2024	12:37:00	2.5	4.2	13	178
28/03/2024	12:38:00	2.4	3.6	13	161
28/03/2024	12:39:00	3	5.4	13	165
28/03/2024	12:40:00	2.1	3	13	165
28/03/2024	12:41:00	2.6	4.6	13	159
28/03/2024	12:42:00	2.2	3.2	13	169
28/03/2024	12:43:00	2.7	3.8	13	149
28/03/2024	12:44:00	2.4	3.6	13	171
28/03/2024	12:45:00	2.3	4.1	13	172
28/03/2024	12:46:00	2.4	4.3	13	166
28/03/2024	12:47:00	3.1	6	13	191
28/03/2024	12:48:00	2.5	4	13	154
28/03/2024	12:49:00	2.7	3.7	13	152
28/03/2024	12:50:00	2.2	3.7	13	167
28/03/2024	12:51:00	2.4	4.5	13	170
28/03/2024	12:52:00	2.3	4.2	13	179
28/03/2024	12:53:00	1.8	2.5	13	157
28/03/2024	12:54:00	1.8	2.6	13	167
28/03/2024	12:55:00	2	3.1	13	168
28/03/2024	12:56:00	2.5	5.3	13	162
28/03/2024	12:57:00	2.2	3.6	13	187
28/03/2024	12:58:00	2.6	4.2	13	195
28/03/2024	12:59:00	2.6	3.8	13	178
28/03/2024	13:00:00	2.4	3.8	13	171
28/03/2024	13:01:00	1.9	3	13	181
28/03/2024	13:02:00	2.4	3.3	13	181
28/03/2024	13:03:00	2.6	4	13	183
28/03/2024	13:04:00	2.3	3.7	13	161
28/03/2024	13:05:00	2.6	4.5	13	173
28/03/2024	13:06:00	2.6	4	13	164
28/03/2024	13:07:00	2.8	5	13	167
28/03/2024	13:08:00	2.8	4.6	13	172
28/03/2024	13:09:00	2.6	4.2	13	162
28/03/2024	13:10:00	2.7	5.9	13	156
28/03/2024	13:11:00	2.1	3.1	13	181
28/03/2024	13:12:00	2.1	3.8	14	172
28/03/2024	13:13:00	2.4	3.9	14	182

28/03/2024	13:14:00	3	4.2	14	154
28/03/2024	13:15:00	3.1	5.1	14	170
28/03/2024	13:16:00	2.2	3.1	14	181
28/03/2024	13:17:00	2.9	4.3	14	180
28/03/2024	13:18:00	2.8	3.8	14	177
28/03/2024	13:19:00	3	5	14	189
28/03/2024	13:20:00	3	4.7	14	157
28/03/2024	13:21:00	2.3	3.4	14	186
28/03/2024	13:22:00	2.4	4	14	190
28/03/2024	13:23:00	2.2	4.5	14	158
28/03/2024	13:24:00	2.5	4.1	14	161
28/03/2024	13:25:00	2.8	5	14	165
28/03/2024	13:26:00	2.3	3.8	14	173
28/03/2024	13:27:00	2.4	4.6	14	156
28/03/2024	13:28:00	2.4	3.6	14	176
28/03/2024	13:29:00	2.1	3.3	14	187
28/03/2024	13:30:00	2.9	4.5	14	171
28/03/2024	13:31:00	2.5	4.3	14	160
28/03/2024	13:32:00	2.3	3.4	14	189
28/03/2024	13:33:00	2.6	4	14	189
28/03/2024	13:34:00	2.2	4.1	14	182
28/03/2024	13:35:00	2.5	3.6	14	182
28/03/2024	13:36:00	2.4	5	14	187
28/03/2024	13:37:00	2.2	3.3	14	179
28/03/2024	13:38:00	2.7	3.8	14	181
28/03/2024	13:39:00	1.9	2.9	14	171
28/03/2024	13:40:00	2.4	4.1	14	177
28/03/2024	13:41:00	2.2	3.1	14	175
28/03/2024	13:42:00	1.9	3.2	14	186
28/03/2024	13:43:00	2.5	3.8	14	168
28/03/2024	13:44:00	2.5	3.9	14	176
28/03/2024	13:45:00	2.7	4.3	14	163
28/03/2024	13:46:00	2.2	3.3	14	163
28/03/2024	13:47:00	2.9	4.4	14	148
28/03/2024	13:48:00	3.5	5.5	14	166
28/03/2024	13:49:00	2.7	4.3	14	183
28/03/2024	13:50:00	3	4.7	14	175
28/03/2024	13:51:00	2.3	3.3	14	176
28/03/2024	13:52:00	2.3	3.7	14	186
28/03/2024	13:53:00	3.2	5.3	14	199
28/03/2024	13:54:00	3.5	5.1	14	200
28/03/2024	13:55:00	2.2	3.4	14	193
28/03/2024	13:56:00	2.5	4.1	14	191
28/03/2024	13:57:00	2.4	5	14	191
28/03/2024	13:58:00	2.3	3.3	14	187
28/03/2024	13:59:00	2.8	5.4	14	181

28/03/2024	14:00:00	2.6	4.3	14	186
28/03/2024	14:01:00	2.1	3.2	14	192
28/03/2024	14:02:00	2.7	4.5	14	199
28/03/2024	14:03:00	2.3	4.5	14	195
28/03/2024	14:04:00	2.1	3	14	171
28/03/2024	14:05:00	2.5	3.8	14	162
28/03/2024	14:06:00	2.8	4.2	14	171
28/03/2024	14:07:00	2.4	4.5	14	169
28/03/2024	14:08:00	2.7	4.6	14	187
28/03/2024	14:09:00	2.7	3.9	14	163
28/03/2024	14:10:00	3.7	5.5	14	203
28/03/2024	14:11:00	2.2	3.7	14	185
28/03/2024	14:12:00	2.8	4.4	14	198
28/03/2024	14:13:00	2.7	3.8	14	180
28/03/2024	14:14:00	1.8	4	14	184
28/03/2024	14:15:00	2.6	4.6	14	180
28/03/2024	14:16:00	2.8	4.7	14	190
28/03/2024	14:17:00	2.2	3.6	14	188
28/03/2024	14:18:00	2.5	4.4	14	179
28/03/2024	14:19:00	2.9	4.7	14	166
28/03/2024	14:20:00	3	4.5	14	190
28/03/2024	14:21:00	2.3	3.6	14	164
28/03/2024	14:22:00	2.3	3.5	14	181
28/03/2024	14:23:00	2.5	4.1	14	158
28/03/2024	14:24:00	2.6	4.1	14	196
28/03/2024	14:25:00	2.3	4	14	193
28/03/2024	14:26:00	2.3	4.1	14	188
28/03/2024	14:27:00	2.7	3.7	14	190
28/03/2024	14:28:00	2.2	3.7	14	197
28/03/2024	14:29:00	2.8	4.3	14	197
28/03/2024	14:30:00	3.1	5.5	14	196
28/03/2024	14:31:00	2.9	4.1	14	180
28/03/2024	14:32:00	2.6	3.8	14	167
28/03/2024	14:33:00	2.1	3.3	14	181
28/03/2024	14:34:00	2.4	3.5	14	176
28/03/2024	14:35:00	1.8	3.3	14	188
28/03/2024	14:36:00	2.8	4.8	14	201
28/03/2024	14:37:00	3.2	5.4	14	204
28/03/2024	14:38:00	2.1	4.2	14	194
28/03/2024	14:39:00	2	3	14	190
28/03/2024	14:40:00	2.4	4	14	203
28/03/2024	14:41:00	2.5	3.7	14	198
28/03/2024	14:42:00	2.1	3	14	182
28/03/2024	14:43:00	3.1	6	14	191
28/03/2024	14:44:00	2.9	4.3	15	195
28/03/2024	14:45:00	2.1	3.6	15	198

28/03/2024	14:46:00	2	2.9	15	166
28/03/2024	14:47:00	2.6	4	15	177
28/03/2024	14:48:00	2.4	3.8	15	196
28/03/2024	14:49:00	2.1	3	15	201
28/03/2024	14:50:00	2.4	3.5	15	192
28/03/2024	14:51:00	2.4	3.4	15	196
28/03/2024	14:52:00	2	3	15	182
28/03/2024	14:53:00	2.5	4.2	15	196
28/03/2024	14:54:00	3.3	5.7	15	199
28/03/2024	14:55:00	2.6	3.8	15	187
28/03/2024	14:56:00	2.8	4.7	15	199
28/03/2024	14:57:00	2	2.8	15	185
28/03/2024	14:58:00	2.4	3.9	15	190
28/03/2024	14:59:00	3.2	4.5	15	189
28/03/2024	15:00:00	2.8	4	16	179
28/03/2024	15:01:00	2.8	5.2	16	181
28/03/2024	15:02:00	2.6	4.2	16	191
28/03/2024	15:03:00	2.2	3.4	16	192
28/03/2024	15:04:00	2.1	3.6	16	199
28/03/2024	15:05:00	2	3.5	16	203
28/03/2024	15:06:00	1.9	2.9	16	192
28/03/2024	15:07:00	2.8	4.5	16	197
28/03/2024	15:08:00	2.6	5.4	16	193
28/03/2024	15:09:00	2.7	5.7	16	168
28/03/2024	15:10:00	2.1	3.4	16	168
28/03/2024	15:11:00	2.1	3.1	16	157
28/03/2024	15:12:00	2.7	4.4	16	163
28/03/2024	15:13:00	2.5	4.1	16	181
28/03/2024	15:14:00	2.5	3.6	16	158
28/03/2024	15:15:00	3.2	5.2	16	203
28/03/2024	15:16:00	2.6	3.4	16	195
28/03/2024	15:17:00	2.4	4.1	16	179
28/03/2024	15:18:00	2.5	4.1	16	173
28/03/2024	15:19:00	2.3	4.4	16	184
28/03/2024	15:20:00	2.4	3.6	15	198
28/03/2024	15:21:00	3.2	6.9	15	193
28/03/2024	15:22:00	2.7	4.9	15	197
28/03/2024	15:23:00	2.4	3.4	15	178
28/03/2024	15:24:00	2.7	3.9	16	167
28/03/2024	15:25:00	2.1	3.6	16	160
28/03/2024	15:26:00	1.9	3	16	177
28/03/2024	15:27:00	2.2	5	16	173
28/03/2024	15:28:00	2.9	4.5	16	161
28/03/2024	15:29:00	3.2	5.6	16	174
28/03/2024	15:30:00	3.1	6.5	16	188
28/03/2024	15:31:00	2.2	3.8	16	184

28/03/2024	15:32:00	2.7	4.4	16	207
28/03/2024	15:33:00	2.4	3.4	16	187
28/03/2024	15:34:00	2.3	3.3	16	172
28/03/2024	15:35:00	2.6	3.8	16	157
28/03/2024	15:36:00	2.5	4.2	16	176
28/03/2024	15:37:00	2.5	3.4	16	207
28/03/2024	15:38:00	3.5	5.1	16	203
28/03/2024	15:39:00	3	5.3	16	203
28/03/2024	15:40:00	2.2	3.4	16	184
28/03/2024	15:41:00	1.8	2.8	16	184
28/03/2024	15:42:00	1.7	2.4	16	185
28/03/2024	15:43:00	3.1	4.3	16	209
28/03/2024	15:44:00	2.4	4.1	16	187
28/03/2024	15:45:00	2	3.7	16	197
28/03/2024	15:46:00	2.9	4.5	16	200
28/03/2024	15:47:00	2.1	3.5	16	190
28/03/2024	15:48:00	2.3	3.2	16	184
28/03/2024	15:49:00	2.3	3.2	16	157
28/03/2024	15:50:00	1.9	4.1	16	159
28/03/2024	15:51:00	2.4	4.2	16	161
28/03/2024	15:52:00	2.2	3.5	16	163
28/03/2024	15:53:00	2.4	4.2	15	146
28/03/2024	15:54:00	1.7	2.6	15	161
28/03/2024	15:55:00	1.7	3.4	15	179
28/03/2024	15:56:00	2.1	3.3	15	187
28/03/2024	15:57:00	1.8	3.2	15	154
28/03/2024	15:58:00	2.1	3.1	15	176
28/03/2024	15:59:00	2.4	4	15	190
28/03/2024	16:00:00	2.7	3.8	15	170
28/03/2024	16:01:00	3.2	5.4	15	198
28/03/2024	16:02:00	1.9	3.4	15	184
28/03/2024	16:03:00	3.4	4.5	15	193
28/03/2024	16:04:00	1.7	2.3	15	171
28/03/2024	16:05:00	3	4.7	15	146
28/03/2024	16:06:00	1.9	2.8	15	165
28/03/2024	16:07:00	2.1	3.4	16	157
28/03/2024	16:08:00	2.3	3.8	16	165
28/03/2024	16:09:00	2.7	4	16	154
28/03/2024	16:10:00	2.4	4	16	166
28/03/2024	16:11:00	3	4.8	16	181
28/03/2024	16:12:00	2.2	3.5	16	166
28/03/2024	16:13:00	2.2	4.4	16	183
28/03/2024	16:14:00	2	3.5	16	176
28/03/2024	16:15:00	2	3	16	183
28/03/2024	16:16:00	2.2	3.2	16	188
28/03/2024	16:17:00	2	3.5	16	183

28/03/2024	16:18:00	1.8	2.3	16	185
28/03/2024	16:19:00	2.3	3.6	16	177
28/03/2024	16:20:00	2.1	3	16	157
28/03/2024	16:21:00	3.1	4.2	16	177
28/03/2024	16:22:00	2.9	4.5	16	160
28/03/2024	16:23:00	2.4	4	16	158
28/03/2024	16:24:00	2	3.4	16	171
28/03/2024	16:25:00	2.2	3.6	16	176
28/03/2024	16:26:00	2.5	3.9	16	163
28/03/2024	16:27:00	1.8	2.4	16	161
28/03/2024	16:28:00	2	3.5	16	172
28/03/2024	16:29:00	2.2	3.9	16	182
28/03/2024	16:30:00	2.4	4.3	16	181
28/03/2024	16:31:00	2.8	4.9	16	189
28/03/2024	16:32:00	2.2	3.5	16	173
28/03/2024	16:33:00	2.4	3.5	16	166
28/03/2024	16:34:00	2.8	4	16	162
28/03/2024	16:35:00	2.4	4.3	16	165
28/03/2024	16:36:00	1.8	3.1	16	186
28/03/2024	16:37:00	3	5.1	16	191
28/03/2024	16:38:00	2.5	4.8	16	184
28/03/2024	16:39:00	2.7	4.6	16	173
28/03/2024	16:40:00	2.7	4.1	16	187
28/03/2024	16:41:00	2	3.6	16	157
28/03/2024	16:42:00	2.3	3.7	16	157
28/03/2024	16:43:00	2.4	3.6	16	176
28/03/2024	16:44:00	2	4	17	166
28/03/2024	16:45:00	2.4	4.1	17	184
28/03/2024	16:46:00	2.3	3.8	17	188
28/03/2024	16:47:00	2.3	3.3	17	178
28/03/2024	16:48:00	2.3	3.8	17	169
28/03/2024	16:49:00	1.6	2.5	17	178
28/03/2024	16:50:00	2.1	3.2	17	192
28/03/2024	16:51:00	1.8	3.4	17	198
28/03/2024	16:52:00	2.5	3.9	17	196
28/03/2024	16:53:00	2.4	3.3	17	176
28/03/2024	16:54:00	3.2	5.6	17	206
28/03/2024	16:55:00	2.7	4.1	17	161
28/03/2024	16:56:00	2.8	4.1	17	152
28/03/2024	16:57:00	1.8	2.7	17	180
28/03/2024	16:58:00	1.9	3.7	17	160
28/03/2024	16:59:00	2.3	4.1	17	173
28/03/2024	17:00:00	2	3.2	17	164
28/03/2024	17:01:00	2.4	3.1	17	164
28/03/2024	17:02:00	2.5	3.5	17	189
28/03/2024	17:03:00	2.1	3.6	17	181

28/03/2024	17:04:00	2	3.4	17	156
28/03/2024	17:05:00	1.7	3.3	17	158
28/03/2024	17:06:00	2.2	3.2	17	162
28/03/2024	17:07:00	2.8	4.1	17	144
28/03/2024	17:08:00	2.1	3.2	17	154
28/03/2024	17:09:00	2.1	3.2	17	157
28/03/2024	17:10:00	2.2	3.3	17	174
28/03/2024	17:11:00	2.6	4.4	17	194
28/03/2024	17:12:00	2.4	4.3	17	187
28/03/2024	17:13:00	3	5.3	17	196
28/03/2024	17:14:00	2.1	4.2	17	181
28/03/2024	17:15:00	2.7	4.9	17	198
28/03/2024	17:16:00	1.8	3.4	17	183
28/03/2024	17:17:00	2.3	3.7	17	177
28/03/2024	17:18:00	1.9	3	17	191
28/03/2024	17:19:00	1.4	1.9	17	177
28/03/2024	17:20:00	2.7	4.6	17	149
28/03/2024	17:21:00	2.4	3.3	17	144
28/03/2024	17:22:00	2.6	3.7	17	152
28/03/2024	17:23:00	2.5	3.9	17	146
28/03/2024	17:24:00	2.1	3.6	17	168
28/03/2024	17:25:00	2	3.5	17	164
28/03/2024	17:26:00	1.9	2.9	17	156
28/03/2024	17:27:00	1.8	2.7	17	165
28/03/2024	17:28:00	2.2	3.4	17	166
28/03/2024	17:29:00	2.7	5.2	17	157
28/03/2024	17:30:00	2.2	3.4	17	164
28/03/2024	17:31:00	2.5	3.6	17	170
28/03/2024	17:32:00	2.3	4	17	166
28/03/2024	17:33:00	2.1	3.2	17	164
28/03/2024	17:34:00	2.2	3.3	17	154
28/03/2024	17:35:00	1.9	3.1	17	157
28/03/2024	17:36:00	1.7	2.4	17	148
28/03/2024	17:37:00	2.2	3.6	17	155
28/03/2024	17:38:00	2.4	4.1	17	151
28/03/2024	17:39:00	2	3	17	157
28/03/2024	17:40:00	1.9	3.4	17	173
28/03/2024	17:41:00	2.1	3.4	17	161
28/03/2024	17:42:00	2.2	3.3	17	153
28/03/2024	17:43:00	2.2	3.7	17	169
28/03/2024	17:44:00	2.3	4.3	17	141
28/03/2024	17:45:00	2.9	4.8	17	161
28/03/2024	17:46:00	2.8	4.7	17	181
28/03/2024	17:47:00	2.3	3.8	17	179
28/03/2024	17:48:00	2.3	3.1	17	173
28/03/2024	17:49:00	2.4	4.5	17	193

28/03/2024	17:50:00	2.4	4.5	17	189
28/03/2024	17:51:00	2.4	3.7	17	153
28/03/2024	17:52:00	2.1	3.5	17	180
28/03/2024	17:53:00	2.4	3.9	17	196
28/03/2024	17:54:00	2.2	4.3	17	171
28/03/2024	17:55:00	2.6	3.8	17	186
28/03/2024	17:56:00	2.1	3.1	17	194
28/03/2024	17:57:00	2.4	4.5	17	167
28/03/2024	17:58:00	2	2.9	17	160
28/03/2024	17:59:00	1.8	3.3	17	164
28/03/2024	18:00:00	2	3.8	17	184
28/03/2024	18:01:00	1.5	2.1	17	193
28/03/2024	18:02:00	1.5	2.4	17	167
28/03/2024	18:03:00	2.2	3.1	17	194
28/03/2024	18:04:00	1.7	2.6	17	180
28/03/2024	18:05:00	1.7	3.3	17	202
28/03/2024	18:06:00	2	2.9	17	173
28/03/2024	18:07:00	2	4.3	17	184
28/03/2024	18:08:00	2.5	4.1	17	200
28/03/2024	18:09:00	1.9	2.7	17	175
28/03/2024	18:10:00	1.7	2.4	17	178
28/03/2024	18:11:00	1.8	3.2	17	179
28/03/2024	18:12:00	2.2	3.4	17	197
28/03/2024	18:13:00	2.6	3.6	17	198
28/03/2024	18:14:00	2.8	5.3	17	194
28/03/2024	18:15:00	2.4	3.5	17	177
28/03/2024	18:16:00	2.9	5.3	17	193
28/03/2024	18:17:00	2.3	3.9	17	169
28/03/2024	18:18:00	1.9	3.4	17	166
28/03/2024	18:19:00	1.8	3.1	17	195
28/03/2024	18:20:00	1.3	1.7	17	184
28/03/2024	18:21:00	1.8	4.2	17	177
28/03/2024	18:22:00	2.5	3.6	17	177
28/03/2024	18:23:00	2.2	3.6	17	192
28/03/2024	18:24:00	1.8	2.6	17	184
28/03/2024	18:25:00	2.3	3.7	17	168
28/03/2024	18:26:00	2.1	3.4	17	162
28/03/2024	18:27:00	1.9	2.5	17	191
28/03/2024	18:28:00	1.9	2.8	17	169
28/03/2024	18:29:00	1.8	3.9	17	166
28/03/2024	18:30:00	2.1	3.7	17	181
28/03/2024	18:31:00	2.8	5.6	17	193
28/03/2024	18:32:00	2.4	3.3	17	168
28/03/2024	18:33:00	2.1	2.9	17	171
28/03/2024	18:34:00	2.2	3.1	17	176
28/03/2024	18:35:00	2.2	3.8	17	180

28/03/2024	18:36:00	2.3	3.4	17	188
28/03/2024	18:37:00	2.4	3.4	17	190
28/03/2024	18:38:00	1.6	3	17	185
28/03/2024	18:39:00	1.9	3.7	17	198
28/03/2024	18:40:00	2	2.7	17	161
28/03/2024	18:41:00	1.7	2.4	17	168
28/03/2024	18:42:00	1.7	2.8	17	161
28/03/2024	18:43:00	2	2.8	17	189
28/03/2024	18:44:00	2	2.8	17	173
28/03/2024	18:45:00	2	2.8	17	180
28/03/2024	18:46:00	2.2	4	17	190
28/03/2024	18:47:00	1.4	2.1	17	171
28/03/2024	18:48:00	1.5	2.1	17	175
28/03/2024	18:49:00	2.2	3.7	17	187
28/03/2024	18:50:00	1.6	3.5	17	184
28/03/2024	18:51:00	2.5	4.4	17	187
28/03/2024	18:52:00	2.6	5.3	17	193
28/03/2024	18:53:00	2.2	4	17	164
28/03/2024	18:54:00	2.2	3.8	17	167
28/03/2024	18:55:00	1.5	2	17	186
28/03/2024	18:56:00	2.1	3.4	17	177
28/03/2024	18:57:00	2.4	4.4	17	181
28/03/2024	18:58:00	2	3	17	157
28/03/2024	18:59:00	2.7	3.9	17	150
28/03/2024	19:00:00	2.2	4.3	17	157
28/03/2024	19:01:00	2	3.2	17	149
28/03/2024	19:02:00	2.4	3.9	17	147
28/03/2024	19:03:00	2.4	3.5	17	159
28/03/2024	19:04:00	2.3	4.3	17	154
28/03/2024	19:05:00	2.1	3.2	17	162
28/03/2024	19:06:00	2.1	4.1	17	154
28/03/2024	19:07:00	1.8	2.9	17	163
28/03/2024	19:08:00	1.4	2.3	17	179
28/03/2024	19:09:00	1.6	2.3	17	173
28/03/2024	19:10:00	1.9	2.7	17	194
28/03/2024	19:11:00	2.2	3.3	17	160
28/03/2024	19:12:00	2	3.5	17	166
28/03/2024	19:13:00	2.4	3.7	17	162
28/03/2024	19:14:00	3.3	5.5	17	144
28/03/2024	19:15:00	2.1	4.5	17	154
28/03/2024	19:16:00	2	3.6	17	159
28/03/2024	19:17:00	2.5	3.7	16	163
28/03/2024	19:18:00	2.3	3.5	16	147
28/03/2024	19:19:00	2	3	16	174
28/03/2024	19:20:00	1.9	3.3	16	163
28/03/2024	19:21:00	2.4	3.6	16	169

28/03/2024	19:22:00	2.1	3	16	172
28/03/2024	19:23:00	2.3	3.3	16	163
28/03/2024	19:24:00	2.7	3.9	16	152
28/03/2024	19:25:00	1.8	2.7	16	164
28/03/2024	19:26:00	2.2	3.3	16	161
28/03/2024	19:27:00	1.6	3	16	171
28/03/2024	19:28:00	2.3	3.2	16	182
28/03/2024	19:29:00	1.5	2.5	16	175
28/03/2024	19:30:00	1.5	1.8	16	174
28/03/2024	19:31:00	1.8	2.7	16	158
28/03/2024	19:32:00	2.2	3.2	16	151
28/03/2024	19:33:00	2.3	3.6	16	144
28/03/2024	19:34:00	2.5	3.8	16	153
28/03/2024	19:35:00	2.5	4	16	150
28/03/2024	19:36:00	2.4	3.6	16	151
28/03/2024	19:37:00	1.7	3.2	16	161
28/03/2024	19:38:00	2.5	3.9	16	138
28/03/2024	19:39:00	1.8	3	16	152
28/03/2024	19:40:00	2.5	3.5	16	149
28/03/2024	19:41:00	2.1	3.2	16	150
28/03/2024	19:42:00	1.9	2.8	16	141
28/03/2024	19:43:00	2.2	4	16	144
28/03/2024	19:44:00	2.5	4.4	16	148
28/03/2024	19:45:00	1.8	2.6	16	155
28/03/2024	19:46:00	1.7	3.1	16	151
28/03/2024	19:47:00	1.7	2.6	16	148
28/03/2024	19:48:00	2	3.1	16	148
28/03/2024	19:49:00	1.8	2.5	15	164
28/03/2024	19:50:00	2.1	3.1	15	157
28/03/2024	19:51:00	1.6	2.6	15	169
28/03/2024	19:52:00	2	3.1	15	155
28/03/2024	19:53:00	1.1	1.6	15	172
28/03/2024	19:54:00	1.5	2.9	15	158
28/03/2024	19:55:00	1.7	3	15	153
28/03/2024	19:56:00	1.5	2.4	15	163
28/03/2024	19:57:00	1.5	2.1	15	186
28/03/2024	19:58:00	1.4	2.2	15	186
28/03/2024	19:59:00	1.4	2.3	15	168
28/03/2024	20:00:00	1.2	1.9	15	168
28/03/2024	20:01:00	0.7	1.1	15	164
28/03/2024	20:02:00	1.2	1.9	15	163
28/03/2024	20:03:00	1.7	3.5	15	186
28/03/2024	20:04:00	1.5	2.1	15	184
28/03/2024	20:05:00	1.2	1.8	15	180
28/03/2024	20:06:00	1.3	2	15	177
28/03/2024	20:07:00	1.4	2	15	167

28/03/2024	20:08:00	1.3	2.1	14	174
28/03/2024	20:09:00	1.6	2	14	158
28/03/2024	20:10:00	1.6	2.6	14	153
28/03/2024	20:11:00	1.7	2.9	14	153
28/03/2024	20:12:00	1.6	3	14	153
28/03/2024	20:13:00	1.7	2.7	14	174
28/03/2024	20:14:00	1.6	2	14	175
28/03/2024	20:15:00	1.9	3.3	14	153
28/03/2024	20:16:00	2.4	3.6	14	148
28/03/2024	20:17:00	1.5	2.3	14	178
28/03/2024	20:18:00	1.7	3.6	14	166
28/03/2024	20:19:00	1.6	2	14	165
28/03/2024	20:20:00	1.6	2.9	14	165
28/03/2024	20:21:00	1.3	1.9	14	158
28/03/2024	20:22:00	1.5	2.3	14	169
28/03/2024	20:23:00	1.5	2.2	14	166
28/03/2024	20:24:00	1.5	2.2	14	158
28/03/2024	20:25:00	1.9	2.7	14	154
28/03/2024	20:26:00	2	3.1	14	161
28/03/2024	20:27:00	1.5	2.2	14	159
28/03/2024	20:28:00	1.6	2.3	14	156
28/03/2024	20:29:00	1.7	2.7	14	155
28/03/2024	20:30:00	1.8	3	14	151
28/03/2024	20:31:00	1.3	1.8	14	149
28/03/2024	20:32:00	1.1	1.7	14	155
28/03/2024	20:33:00	1.3	2.5	14	154
28/03/2024	20:34:00	1.1	1.6	14	149
28/03/2024	20:35:00	1.9	3	14	148
28/03/2024	20:36:00	1.4	2.4	14	152
28/03/2024	20:37:00	1.6	2.4	14	153
28/03/2024	20:38:00	1.8	2.7	14	155
28/03/2024	20:39:00	1.5	2.2	14	155
28/03/2024	20:40:00	1.5	2.2	14	158
28/03/2024	20:41:00	1.6	2.3	14	157
28/03/2024	20:42:00	1.4	2	14	158
28/03/2024	20:43:00	1.3	1.9	14	159
28/03/2024	20:44:00	1.3	2.1	14	159
28/03/2024	20:45:00	1.4	1.9	14	150
28/03/2024	20:46:00	1.4	2.2	14	154
28/03/2024	20:47:00	1.4	2	13	155
28/03/2024	20:48:00	0.9	1.6	13	155
28/03/2024	20:49:00	1.4	2.1	13	155
28/03/2024	20:50:00	1.3	1.9	13	151
28/03/2024	20:51:00	1.5	2.1	13	148
28/03/2024	20:52:00	1.4	2.2	13	153
28/03/2024	20:53:00	1	1.7	13	154

28/03/2024	20:54:00	1.9	2.9	13	147
28/03/2024	20:55:00	1.3	1.7	13	152
28/03/2024	20:56:00	1.6	2.3	13	153
28/03/2024	20:57:00	1.3	2	13	155
28/03/2024	20:58:00	1.2	1.9	13	156
28/03/2024	20:59:00	1.1	1.5	13	155
28/03/2024	21:00:00	1.3	1.9	13	156
28/03/2024	21:01:00	1.5	2	13	156
28/03/2024	21:02:00	1.3	2.1	13	162
28/03/2024	21:03:00	1.4	2	13	156
28/03/2024	21:04:00	1.1	1.4	13	155
28/03/2024	21:05:00	1.4	1.9	13	158
28/03/2024	20:06:00	1.3	2	13	156
28/03/2024	21:06:00	0.9	1.4	13	155
28/03/2024	21:07:00	0.6	1.1	13	157
28/03/2024	21:08:00	1	1.6	13	155
28/03/2024	21:09:00	1.3	2	13	159
28/03/2024	21:10:00	1.1	1.7	13	155
28/03/2024	21:11:00	1.1	1.6	13	156
28/03/2024	21:12:00	1.3	2	13	155
28/03/2024	21:13:00	1.2	1.5	13	155
28/03/2024	21:14:00	1.2	1.7	13	155
28/03/2024	21:15:00	0.9	1.3	13	155
28/03/2024	21:16:00	0.9	1.1	12	156
28/03/2024	21:17:00	1	1.4	12	155
28/03/2024	21:18:00	0.9	1.7	12	155
28/03/2024	21:19:00	0.8	1.2	12	155
28/03/2024	21:20:00	0.9	1.3	12	155
28/03/2024	21:21:00	0.8	1.3	12	155
28/03/2024	21:22:00	0.8	1	12	156
28/03/2024	21:23:00	0.5	1.1	12	156
28/03/2024	21:24:00	0.6	1.1	12	156
28/03/2024	21:25:00	0.9	1.2	12	156
28/03/2024	21:26:00	0.4	0.9	12	156
28/03/2024	21:27:00	0.7	1	12	156
28/03/2024	21:28:00	0.5	0.9	12	156
28/03/2024	21:29:00	0.3	0.7	12	156
28/03/2024	21:30:00	0.7	0.9	12	156
28/03/2024	21:31:00	0.4	1	12	156
28/03/2024	21:32:00	1.1	2	12	155
28/03/2024	21:33:00	0.9	1.2	12	155
28/03/2024	21:34:00	0.6	1.2	12	155
28/03/2024	21:35:00	0.9	1.2	12	155
28/03/2024	21:36:00	0.8	1.2	12	152
28/03/2024	21:37:00	0.9	1.4	11	148
28/03/2024	21:38:00	0.9	1.2	11	150

28/03/2024	21:39:00	0.9	1.5	11	138
28/03/2024	21:40:00	0.8	1.2	11	141
28/03/2024	21:41:00	1.1	1.6	11	141
28/03/2024	21:42:00	1.1	1.6	11	140
28/03/2024	21:43:00	0.9	1.2	11	142
28/03/2024	21:44:00	1.1	1.6	11	138
28/03/2024	21:45:00	1.1	1.7	11	134
28/03/2024	21:46:00	1	1.5	11	142
28/03/2024	21:47:00	0.9	1.3	11	141
28/03/2024	21:48:00	1	1.3	11	141
28/03/2024	21:49:00	0.9	1.2	11	131
28/03/2024	21:50:00	0.9	1.3	11	142
28/03/2024	21:51:00	0.8	1.2	11	142
28/03/2024	21:52:00	0.8	1.3	11	140
28/03/2024	21:53:00	1	1.9	11	134
28/03/2024	21:54:00	1	1.5	11	140
28/03/2024	21:55:00	1.1	1.5	11	139
28/03/2024	21:56:00	0.9	1.3	11	140
28/03/2024	21:57:00	1.1	1.5	11	137
28/03/2024	21:58:00	1.2	1.8	11	140
28/03/2024	21:59:00	0.9	1.3	11	139
28/03/2024	22:00:00	1	1.5	11	124
28/03/2024	22:01:00	0.8	1.3	11	120
28/03/2024	22:02:00	1.3	2.1	11	132
28/03/2024	22:03:00	1.2	1.7	11	139
28/03/2024	22:04:00	0.9	1.5	11	126
28/03/2024	22:05:00	0.9	1.5	11	132
28/03/2024	22:06:00	0.9	1.4	11	130
28/03/2024	22:07:00	0.8	1.2	11	127
28/03/2024	22:08:00	0.7	1.2	11	132
28/03/2024	22:09:00	0.7	1	11	133
28/03/2024	22:10:00	0.8	0.9	11	133
28/03/2024	22:11:00	0.8	1.6	11	121
28/03/2024	22:12:00	1.1	1.7	11	139
28/03/2024	22:13:00	0.9	1.3	11	131
28/03/2024	22:14:00	1.1	1.5	11	133
28/03/2024	22:15:00	1.1	1.8	11	136
28/03/2024	22:16:00	1	1.3	11	132
28/03/2024	22:17:00	1.3	1.8	11	137
28/03/2024	22:18:00	1	1.6	11	128
28/03/2024	22:19:00	0.9	1.3	11	133
28/03/2024	22:20:00	1.1	1.4	11	132
28/03/2024	22:21:00	1.4	2	11	130
28/03/2024	22:22:00	1	1.4	11	135
28/03/2024	22:23:00	1	1.5	11	132
28/03/2024	22:24:00	0.9	1.2	11	129

28/03/2024	22:25:00	1.2	1.8	11	135
28/03/2024	22:26:00	1.2	1.7	11	132
28/03/2024	22:27:00	0.9	1.4	11	137
28/03/2024	22:28:00	0.7	1.1	11	139
28/03/2024	22:29:00	0.9	1.5	11	138
28/03/2024	22:30:00	1.2	1.6	11	136
28/03/2024	22:31:00	0.9	1.5	11	135
28/03/2024	22:32:00	0.9	1.7	11	140
28/03/2024	22:33:00	1.1	1.7	11	139
28/03/2024	22:34:00	1	1.5	11	138
28/03/2024	22:35:00	0.9	1.2	11	137
28/03/2024	22:36:00	0.9	1.5	11	139
28/03/2024	22:37:00	0.9	1.5	11	139
28/03/2024	22:38:00	0.9	1.6	11	139
28/03/2024	22:39:00	0.9	1.3	11	139
28/03/2024	22:40:00	1.1	2.2	11	129
28/03/2024	22:41:00	1.1	1.5	11	111
28/03/2024	22:42:00	0.8	1.1	11	104
28/03/2024	22:43:00	0.7	1.1	11	103
28/03/2024	22:44:00	0.8	1.1	11	90
28/03/2024	22:45:00	0.8	1.4	11	91
28/03/2024	22:46:00	1.1	1.8	11	77
28/03/2024	22:47:00	0.9	1.6	11	93
28/03/2024	22:48:00	0.9	1.3	11	103
28/03/2024	22:49:00	1.2	1.8	10	103
28/03/2024	22:50:00	1.2	1.9	10	97
28/03/2024	22:51:00	0.8	1.1	10	103
28/03/2024	22:52:00	0.8	1.1	10	103
28/03/2024	22:53:00	0.9	1.2	10	103
28/03/2024	22:54:00	0.7	1	10	103
28/03/2024	22:55:00	1	1.4	10	104
28/03/2024	22:56:00	0.9	1.2	10	103
28/03/2024	22:57:00	0.6	1	10	102
28/03/2024	22:58:00	0.8	1.2	10	103
28/03/2024	22:59:00	1.2	1.9	10	135
28/03/2024	23:00:00	0.8	1.2	10	140
28/03/2024	23:01:00	0.8	1.3	10	141
28/03/2024	23:02:00	0.9	1.3	10	135
28/03/2024	23:03:00	0.8	1.2	10	137
28/03/2024	23:04:00	0.9	1.6	10	139
28/03/2024	23:05:00	1	1.5	10	132
28/03/2024	23:06:00	1	1.3	10	133
28/03/2024	23:07:00	0.6	0.9	10	140
28/03/2024	23:08:00	0.7	1.2	10	139
28/03/2024	23:09:00	0.8	1.5	10	129
28/03/2024	23:10:00	0.8	1.4	10	132

28/03/2024	23:11:00	0.8	1	10	139
28/03/2024	23:12:00	0.9	1.2	10	140
28/03/2024	23:13:00	1.2	1.8	10	128
28/03/2024	23:14:00	0.8	1.4	10	109
28/03/2024	23:15:00	0.8	1.1	10	108
28/03/2024	23:16:00	0.8	1.1	10	109
28/03/2024	23:17:00	0.6	1.2	10	108
28/03/2024	23:18:00	0.8	1.1	10	109
28/03/2024	23:19:00	0.8	1.2	10	109
28/03/2024	23:20:00	0.7	0.8	10	109
28/03/2024	23:21:00	0.9	1.8	10	107
28/03/2024	23:22:00	1	1.3	10	108
28/03/2024	23:23:00	1	1.4	10	121
28/03/2024	23:24:00	1	1.5	10	119
28/03/2024	23:25:00	1.2	1.5	10	132
28/03/2024	23:26:00	0.9	1.2	10	142
28/03/2024	23:27:00	0.8	1.3	10	130
28/03/2024	23:28:00	0.8	1.2	10	119
28/03/2024	23:29:00	0.8	1.4	10	108
28/03/2024	23:30:00	1	1.4	10	127
28/03/2024	23:31:00	1	1.8	10	131
28/03/2024	23:32:00	0.9	1.5	10	135
28/03/2024	23:33:00	0.8	1.2	10	133
28/03/2024	23:34:00	0.8	1.3	10	129
28/03/2024	23:35:00	0.8	1.2	10	140
28/03/2024	23:36:00	1	1.7	10	135
28/03/2024	23:37:00	1.1	1.5	10	132
28/03/2024	23:38:00	1.1	1.7	10	134
28/03/2024	23:39:00	1.1	1.6	10	140
28/03/2024	23:40:00	1.2	1.7	10	129
28/03/2024	23:41:00	1	1.6	10	128
28/03/2024	23:42:00	1.1	1.5	10	131
28/03/2024	23:43:00	1.2	2	10	134
28/03/2024	23:44:00	1.3	2	10	139
28/03/2024	23:45:00	1	1.6	10	131
28/03/2024	23:46:00	1.2	1.6	10	137
28/03/2024	23:47:00	1.2	2.3	10	134
28/03/2024	23:48:00	1.1	1.6	10	113
28/03/2024	23:49:00	1	1.5	10	111
28/03/2024	23:50:00	0.9	1.4	10	123
28/03/2024	23:51:00	1.1	1.8	10	125
28/03/2024	23:52:00	1.2	1.8	10	126
28/03/2024	23:53:00	1.3	2.1	10	133
28/03/2024	23:54:00	1.2	1.8	10	132
28/03/2024	23:55:00	1.4	2.1	10	124
28/03/2024	23:56:00	1.2	1.7	10	133

28/03/2024	23:57:00	1.3	2.3	10	107
28/03/2024	23:58:00	1.3	2	10	135
28/03/2024	23:59:00	1.2	1.8	10	113
3/29/2024	0:00:00	1.1	1.8	10	118
3/29/2024	0:01:00	1.3	2.1	10	138
3/29/2024	0:02:00	1.1	1.6	10	136
3/29/2024	0:03:00	1.2	2.4	10	132
3/29/2024	0:04:00	1.3	1.9	10	138
3/29/2024	0:05:00	1.1	1.6	10	111
3/29/2024	0:06:00	1	1.5	10	119
3/29/2024	0:07:00	0.9	1.5	10	125
3/29/2024	0:08:00	1.1	1.7	10	119
3/29/2024	0:09:00	1.1	1.7	10	124
3/29/2024	0:10:00	1.3	2	10	140
3/29/2024	0:11:00	1.2	1.8	10	140
3/29/2024	0:12:00	1.2	1.6	10	140
3/29/2024	0:13:00	1.2	1.7	10	140
3/29/2024	0:14:00	1.2	1.6	10	138
3/29/2024	0:15:00	2.3	5.5	11	118
3/29/2024	0:16:00	2.4	5.5	11	163
3/29/2024	0:17:00	1.9	3.1	11	155
3/29/2024	0:18:00	1.6	3.3	11	182
3/29/2024	0:19:00	2.7	5.5	11	148
3/29/2024	0:20:00	1.7	2.4	11	163
3/29/2024	0:21:00	2.1	3.6	11	173
3/29/2024	0:22:00	1.5	2	11	174
3/29/2024	0:23:00	1.8	2.3	11	154
3/29/2024	0:24:00	1.9	3.2	11	162
3/29/2024	0:25:00	1.4	2	11	163
3/29/2024	0:26:00	1.6	2.7	11	173
3/29/2024	0:27:00	1.6	2.2	11	163
3/29/2024	0:28:00	1.6	2.6	11	162
3/29/2024	0:29:00	1.6	2.6	11	192
3/29/2024	0:30:00	1.2	1.5	11	187
3/29/2024	0:31:00	1.2	1.7	11	187
3/29/2024	0:32:00	1.7	2.4	11	184
3/29/2024	0:33:00	1.2	1.8	11	187
3/29/2024	0:34:00	0.8	1.2	11	185
3/29/2024	0:35:00	1.4	1.9	11	185
3/29/2024	0:36:00	1.4	2.7	11	189
3/29/2024	0:37:00	0.8	1.4	11	212
3/29/2024	0:38:00	1	1.7	11	212
3/29/2024	0:39:00	0.9	1.3	11	212
3/29/2024	0:40:00	1	1.4	11	212
3/29/2024	0:41:00	1.4	2.1	11	174
3/29/2024	0:42:00	1.2	1.8	11	178

3/29/2024	0:43:00	1	1.3	11	178
3/29/2024	0:44:00	1.4	2.4	11	199
3/29/2024	0:45:00	1.4	2.1	11	208
3/29/2024	0:46:00	0.9	1.4	11	196
3/29/2024	0:47:00	1	1.5	11	194
3/29/2024	0:48:00	1	1.9	11	206
3/29/2024	0:49:00	1.8	2.7	11	203
3/29/2024	0:50:00	1.5	2.2	11	192
3/29/2024	0:51:00	1.7	2.4	11	205
3/29/2024	0:52:00	1.4	2	11	208
3/29/2024	0:53:00	1.6	3	11	190
3/29/2024	0:54:00	1.2	1.7	11	208
3/29/2024	0:55:00	1.2	1.8	11	204
3/29/2024	0:56:00	2	2.9	11	203
3/29/2024	0:57:00	1.7	3.3	11	192
3/29/2024	0:58:00	1.6	2.2	11	192
3/29/2024	0:59:00	1.4	2.3	11	205
3/29/2024	1:00:00	1.4	1.9	11	196
3/29/2024	1:01:00	1.5	2.1	11	190
3/29/2024	1:02:00	1.4	2	11	217
3/29/2024	1:03:00	1.4	2.2	11	184
3/29/2024	1:04:00	1.6	2.8	10	185
29/03/2024	1:05:00	1.8	2.7	10	204
29/03/2024	1:06:00	1.2	1.5	10	184
29/03/2024	1:07:00	1.1	1.7	10	185
29/03/2024	1:08:00	1	1.5	10	186
29/03/2024	1:09:00	1.1	1.6	10	186
29/03/2024	1:10:00	1.3	1.8	10	184
29/03/2024	1:11:00	1.1	1.6	10	187
29/03/2024	1:12:00	1.5	2.9	10	193
29/03/2024	1:13:00	1.4	2.1	10	213
29/03/2024	1:14:00	0.9	1.2	10	208
29/03/2024	1:15:00	1	1.3	10	207
29/03/2024	1:16:00	0.9	1.2	10	207
29/03/2024	1:17:00	1.5	2.4	10	203
29/03/2024	1:18:00	1.1	1.5	10	200
29/03/2024	1:19:00	0.7	1	10	199
29/03/2024	1:20:00	1.2	2.1	10	205
29/03/2024	1:21:00	1.1	1.7	10	200
29/03/2024	1:22:00	1.1	1.5	10	200
29/03/2024	1:23:00	1	1.4	10	210
29/03/2024	1:24:00	1.1	1.6	10	210
29/03/2024	1:25:00	1.1	1.4	10	208
29/03/2024	1:26:00	0.8	1.2	10	210
29/03/2024	1:27:00	1	1.3	10	210
29/03/2024	1:28:00	1	1.6	10	211

29/03/2024	1:29:00	0.9	1.4	10	211
29/03/2024	1:30:00	1.4	2	10	213
29/03/2024	1:31:00	1.7	2.6	10	213
29/03/2024	1:32:00	1.1	1.7	10	207
29/03/2024	1:33:00	1.4	2.1	10	200
29/03/2024	1:34:00	1.4	1.9	10	198
29/03/2024	1:35:00	1.6	2.3	10	215
29/03/2024	1:36:00	1.2	2	10	199
29/03/2024	1:37:00	1	1.4	10	206
29/03/2024	1:38:00	1.6	2.7	10	208
29/03/2024	1:39:00	1.4	3	10	202
29/03/2024	1:40:00	1.1	1.4	10	201
29/03/2024	1:41:00	0.9	1.1	10	199
29/03/2024	1:42:00	1	1.8	10	200
29/03/2024	1:43:00	1.1	1.4	10	203
29/03/2024	1:44:00	1.1	1.7	10	203
29/03/2024	1:45:00	0.8	1.2	10	199
29/03/2024	1:46:00	1	1.4	10	200
29/03/2024	1:47:00	0.8	1.2	10	201
29/03/2024	1:48:00	0.6	0.9	10	208
29/03/2024	1:49:00	0.6	1.4	10	205
29/03/2024	1:50:00	1	1.2	10	198
29/03/2024	1:51:00	0.9	1.6	10	201
29/03/2024	1:52:00	1.1	2.4	10	206
29/03/2024	1:53:00	0.9	1.3	10	198
29/03/2024	1:54:00	0.9	1.3	10	198
29/03/2024	1:55:00	1.1	1.8	10	203
29/03/2024	1:56:00	1.1	1.8	10	198
29/03/2024	1:57:00	1	1.4	10	198
29/03/2024	1:58:00	1	1.5	10	199
29/03/2024	1:59:00	1	1.5	10	209
29/03/2024	2:00:00	0.8	1	10	209
29/03/2024	2:01:00	0.9	1.2	10	206
29/03/2024	2:02:00	0.9	1.3	10	198
29/03/2024	2:03:00	1.1	1.5	10	207
29/03/2024	2:04:00	0.9	1.6	10	209
29/03/2024	2:05:00	0.9	1.2	10	202
29/03/2024	2:06:00	1.1	1.6	10	200
29/03/2024	2:07:00	0.8	1.1	10	202
29/03/2024	2:08:00	0.9	1.2	10	202
29/03/2024	2:09:00	0.5	1.2	10	202
29/03/2024	2:10:00	0.6	0.8	10	202
29/03/2024	2:11:00	0.8	1	10	202
29/03/2024	2:12:00	0.7	1	10	202
29/03/2024	2:13:00	0.8	1	10	201
29/03/2024	2:14:00	0.6	0.9	10	201

29/03/2024	2:15:00	0.6	0.9	10	202
29/03/2024	2:16:00	0.7	0.8	10	202
29/03/2024	2:17:00	0.8	0.9	10	201
29/03/2024	2:18:00	1.1	1.6	10	198
29/03/2024	2:19:00	1	1.4	10	198
29/03/2024	2:20:00	1.1	1.8	10	197
29/03/2024	2:21:00	1	1.3	10	198
29/03/2024	2:22:00	0.9	1.3	10	198
29/03/2024	2:23:00	0.9	1.2	10	198
29/03/2024	2:24:00	1	1.6	10	198
29/03/2024	2:25:00	1.2	1.4	10	197
29/03/2024	2:26:00	1.2	1.6	10	197
29/03/2024	2:27:00	1.1	1.7	10	196
29/03/2024	2:28:00	0.3	1	10	198
29/03/2024	2:29:00	0.8	1.2	10	198
29/03/2024	2:30:00	1.1	1.5	10	198
29/03/2024	2:31:00	1.1	1.4	10	198
29/03/2024	2:32:00	0.9	1.2	10	198
29/03/2024	2:33:00	1	1.4	10	198
29/03/2024	2:34:00	1.2	1.6	10	197
29/03/2024	2:35:00	0.9	1.3	10	197
29/03/2024	2:36:00	0.9	1.3	10	198
29/03/2024	2:37:00	1.2	1.6	10	197
29/03/2024	2:38:00	0.8	1.3	10	198
29/03/2024	2:39:00	0.8	1.1	10	198
29/03/2024	2:40:00	1	1.3	10	197
29/03/2024	2:41:00	1	1.7	9	172
29/03/2024	2:42:00	1	1.5	9	112
29/03/2024	2:43:00	0.7	1.4	9	109
29/03/2024	2:44:00	1.1	1.6	9	109
29/03/2024	2:45:00	1.1	1.4	9	112
29/03/2024	2:46:00	0.9	1.2	9	105
29/03/2024	2:47:00	1.1	1.4	9	104
29/03/2024	2:48:00	1	1.3	9	108
29/03/2024	2:49:00	0.9	1.2	9	112
29/03/2024	2:50:00	0.9	1.3	9	111
29/03/2024	2:51:00	0.8	1.2	9	108
29/03/2024	2:52:00	0.9	1.4	9	113
29/03/2024	2:53:00	1	1.6	9	124
29/03/2024	2:54:00	0.8	1.1	9	110
29/03/2024	2:55:00	1	1.3	9	121
29/03/2024	2:56:00	0.9	1.3	9	125
29/03/2024	2:57:00	0.9	1.5	9	118
29/03/2024	2:58:00	1	1.2	9	107
29/03/2024	2:59:00	0.7	1.1	9	109
29/03/2024	3:00:00	0.7	1.1	9	111

29/03/2024	3:01:00	1	1.3	9	111
29/03/2024	3:02:00	1	1.4	9	122
29/03/2024	3:03:00	0.9	1.2	9	125
29/03/2024	3:04:00	0.9	1.1	9	113
29/03/2024	3:05:00	0.8	1.2	9	112
29/03/2024	3:06:00	0.9	1.6	9	114
29/03/2024	3:07:00	0.9	1.7	9	129
29/03/2024	3:08:00	1	1.7	9	126
29/03/2024	3:09:00	1	1.5	9	125
29/03/2024	3:10:00	1.1	1.5	8	128
29/03/2024	3:11:00	0.9	1.1	8	123
29/03/2024	3:12:00	1	1.4	8	126
29/03/2024	3:13:00	0.9	1.2	8	125
29/03/2024	3:14:00	0.9	1.5	8	120
29/03/2024	3:15:00	1	1.3	8	127
29/03/2024	3:16:00	1.3	1.9	8	130
29/03/2024	3:17:00	1.2	1.9	8	132
29/03/2024	3:18:00	1.1	1.4	8	126
29/03/2024	3:19:00	0.8	1.2	8	128
29/03/2024	3:20:00	1	1.4	8	127
29/03/2024	3:21:00	1.3	1.9	8	119
29/03/2024	3:22:00	0.9	1.2	8	112
29/03/2024	3:23:00	1.1	1.8	8	131
29/03/2024	3:24:00	1	1.5	8	124
29/03/2024	3:25:00	1	1.4	8	112
29/03/2024	3:26:00	0.6	1.3	8	116
29/03/2024	3:27:00	1.1	1.8	8	131
29/03/2024	3:28:00	0.9	1.4	8	131
29/03/2024	3:29:00	0.9	1.3	8	119
29/03/2024	3:30:00	1	1.4	8	127
29/03/2024	3:31:00	1.1	1.7	8	131
29/03/2024	3:32:00	0.9	1.2	8	130
29/03/2024	3:33:00	0.9	1.4	8	130
29/03/2024	3:34:00	0.9	1.2	8	130
29/03/2024	3:35:00	0.8	1.1	8	130
29/03/2024	3:36:00	1.1	1.6	8	130
29/03/2024	3:37:00	0.9	1.5	8	130
29/03/2024	3:38:00	1.1	1.6	8	130
29/03/2024	3:39:00	1	1.4	8	131
29/03/2024	3:40:00	1.3	1.9	8	130
29/03/2024	3:41:00	1.3	1.7	8	132
29/03/2024	3:42:00	1.2	1.9	8	129
29/03/2024	3:43:00	1.3	2	8	128
29/03/2024	3:44:00	1.4	2.1	8	127
29/03/2024	3:45:00	1.3	2.2	8	128
29/03/2024	3:46:00	1.3	1.8	8	131

29/03/2024	3:47:00	1.1	1.5	8	123
29/03/2024	3:48:00	1.3	2.2	8	126
29/03/2024	3:49:00	1.4	2.1	8	132
29/03/2024	3:50:00	1.5	2	8	133
29/03/2024	3:51:00	1.3	2.1	8	125
29/03/2024	3:52:00	1.3	1.8	8	126
29/03/2024	3:53:00	1.1	2.2	8	132
29/03/2024	3:54:00	1.4	2.8	8	117
29/03/2024	3:55:00	1.4	2.2	8	142
29/03/2024	3:56:00	1.5	2.9	8	144
29/03/2024	3:57:00	1.2	1.9	8	142
29/03/2024	3:58:00	1.4	2.2	8	122
29/03/2024	3:59:00	1.1	1.7	8	121
29/03/2024	4:00:00	1.3	2.1	8	121
29/03/2024	4:01:00	1.2	1.8	8	114
29/03/2024	4:02:00	1.2	1.8	8	121
29/03/2024	4:03:00	1.4	2.2	8	108
29/03/2024	4:04:00	1.3	2	8	110
29/03/2024	4:05:00	1.5	2.1	8	122
29/03/2024	4:06:00	1.4	1.9	8	113
29/03/2024	4:07:00	1.5	2.1	8	129
29/03/2024	4:08:00	1.4	2.2	8	130
29/03/2024	4:09:00	1.6	2.5	8	132
29/03/2024	4:10:00	1.5	2.4	8	128
29/03/2024	4:11:00	1.2	2	8	144
29/03/2024	4:12:00	1.4	3.2	8	130
29/03/2024	4:13:00	1.5	2.7	8	119
29/03/2024	4:14:00	1.5	2.5	8	116
29/03/2024	4:15:00	1.7	2.4	8	124
29/03/2024	4:16:00	1.7	2.6	8	134
29/03/2024	4:17:00	1.6	3.3	8	133
29/03/2024	4:18:00	1.7	3	8	141
29/03/2024	4:19:00	1.6	3.2	8	109
29/03/2024	4:20:00	1.4	2.3	8	119
29/03/2024	4:21:00	1.7	2.4	8	137
29/03/2024	4:22:00	1.5	2.2	8	116
29/03/2024	4:23:00	1.8	2.9	8	126
29/03/2024	4:24:00	1.2	1.7	8	135
29/03/2024	4:25:00	1.8	2.9	8	140
29/03/2024	4:26:00	1.4	3.2	8	106
29/03/2024	4:27:00	1.8	3.2	8	119
29/03/2024	4:28:00	1.9	4.1	8	139
29/03/2024	4:29:00	1.9	2.8	8	125
29/03/2024	4:30:00	1.6	3.3	8	143
29/03/2024	4:31:00	1.4	2.4	8	136
29/03/2024	4:32:00	1.5	2.3	8	140

29/03/2024	4:33:00	1.5	2.3	8	127
29/03/2024	4:34:00	1.6	2.8	8	131
29/03/2024	4:35:00	1.4	2	8	135
29/03/2024	4:36:00	1.7	2.2	8	127
29/03/2024	4:37:00	1.6	2.2	8	142
29/03/2024	4:38:00	1.4	1.9	8	148
29/03/2024	4:39:00	1.5	3.2	8	151
29/03/2024	4:40:00	1.7	3	8	141
29/03/2024	4:41:00	2	3.1	8	144
29/03/2024	4:42:00	1.6	2.2	8	143
29/03/2024	4:43:00	1.2	2.2	8	147
29/03/2024	4:44:00	1.6	2.4	8	139
29/03/2024	4:45:00	1.7	3.1	8	121
29/03/2024	4:46:00	1.9	2.3	8	148
29/03/2024	4:47:00	1.8	2.2	8	147
29/03/2024	4:48:00	1.3	2.1	8	148
29/03/2024	4:49:00	1.7	2.4	8	152
29/03/2024	4:50:00	1.5	2.3	8	152
29/03/2024	4:51:00	1.7	3.2	8	150
29/03/2024	4:52:00	1.5	2.4	8	148
29/03/2024	4:53:00	1.8	3	8	151
29/03/2024	4:54:00	2	3.1	8	152
29/03/2024	4:55:00	1.7	2.6	8	147
29/03/2024	4:56:00	1.5	2	8	149
29/03/2024	4:57:00	1.3	1.8	8	149
29/03/2024	4:58:00	1.3	2.2	8	148
29/03/2024	4:59:00	1.6	2.3	8	147
29/03/2024	5:00:00	1.3	1.8	8	149
29/03/2024	5:01:00	1.3	1.8	8	151
29/03/2024	5:02:00	1.4	2.5	8	151
29/03/2024	5:03:00	1.4	2.4	8	149
29/03/2024	5:04:00	1.2	1.8	8	149
29/03/2024	5:05:00	1.3	1.9	8	150
29/03/2024	5:06:00	1.2	1.5	8	148
29/03/2024	5:07:00	1.4	2.1	8	150
29/03/2024	5:08:00	1.6	2.3	8	151
29/03/2024	5:09:00	1.3	1.9	8	151
29/03/2024	5:10:00	1.4	2.3	8	140
29/03/2024	5:11:00	1.2	1.6	8	132
29/03/2024	5:12:00	1.5	2.1	8	141
29/03/2024	5:13:00	1.6	2.3	8	142
29/03/2024	5:14:00	1.3	2	8	138
29/03/2024	5:15:00	1.2	1.7	8	142
29/03/2024	5:16:00	1.5	2.6	8	140
29/03/2024	5:17:00	1.4	2.3	8	139
29/03/2024	5:18:00	1.1	1.6	8	139

29/03/2024	5:19:00	1.2	2.2	8	138
29/03/2024	5:20:00	1.4	1.8	8	137
29/03/2024	5:21:00	1.2	1.8	8	140
29/03/2024	5:22:00	1.4	1.9	8	139
29/03/2024	5:23:00	1.2	1.8	8	137
29/03/2024	5:24:00	1.3	1.8	8	137
29/03/2024	5:25:00	1.6	2.2	8	131
29/03/2024	5:26:00	1.4	2.3	8	136
29/03/2024	5:27:00	1.3	2	8	139
29/03/2024	5:28:00	1.5	2	8	136
29/03/2024	5:29:00	1.4	2	8	140
29/03/2024	5:30:00	1.7	2.3	8	138
29/03/2024	5:31:00	1.6	2.2	8	140
29/03/2024	5:32:00	1.4	2.1	8	145
29/03/2024	5:33:00	1.3	1.9	8	142
29/03/2024	5:34:00	1.3	1.9	8	141
29/03/2024	5:35:00	1.5	2.1	8	147
29/03/2024	5:36:00	1.4	1.9	8	146
29/03/2024	5:37:00	1.2	1.7	8	148
29/03/2024	5:38:00	1.3	1.8	8	154
29/03/2024	5:39:00	1.2	1.7	8	157
29/03/2024	5:40:00	1.5	2.5	8	160
29/03/2024	5:41:00	1.2	1.8	8	164
29/03/2024	5:42:00	1.1	1.6	8	160
29/03/2024	5:43:00	1.3	1.6	8	156
29/03/2024	5:44:00	1.8	2.5	8	155
29/03/2024	5:45:00	1.6	1.9	8	154
29/03/2024	5:46:00	1.7	3.1	8	156
29/03/2024	5:47:00	1.8	3	8	161
29/03/2024	5:48:00	1.8	2.6	8	163
29/03/2024	5:49:00	1.5	2.1	8	155
29/03/2024	5:50:00	1.3	2.2	8	184
29/03/2024	5:51:00	1.5	2.6	8	160
29/03/2024	5:52:00	1.5	2.1	8	157
29/03/2024	5:53:00	1.6	2.5	8	154
29/03/2024	5:54:00	1.6	2.3	8	152
29/03/2024	5:55:00	1.3	2	8	159
29/03/2024	5:56:00	1.7	2.2	8	158
29/03/2024	5:57:00	1.5	2.4	8	155
29/03/2024	5:58:00	1.3	1.8	8	166
29/03/2024	5:59:00	1.4	2.4	8	185
29/03/2024	6:00:00	1.4	1.9	8	184
29/03/2024	6:01:00	1.6	2.3	8	186
29/03/2024	6:02:00	1.4	2.3	8	184
29/03/2024	6:03:00	1.6	2.3	8	161
29/03/2024	6:04:00	1.3	1.8	8	160

29/03/2024	6:05:00	1.4	2.3	8	179
29/03/2024	6:06:00	1.8	2.8	8	176
29/03/2024	6:07:00	1.2	2.1	8	167
29/03/2024	6:08:00	1.5	2.2	8	174
29/03/2024	6:09:00	1.2	1.6	8	171
29/03/2024	6:10:00	1.5	2.6	8	163
29/03/2024	6:11:00	1.7	2.3	8	177
29/03/2024	6:12:00	1.8	3.1	8	173
29/03/2024	6:13:00	1.3	2.2	8	160
29/03/2024	6:14:00	1.3	2	8	171
29/03/2024	6:15:00	1.6	3.3	8	167
29/03/2024	6:16:00	1.5	2.6	8	186
29/03/2024	6:17:00	1.3	2.2	8	190
29/03/2024	6:18:00	1.2	1.7	8	176
29/03/2024	6:19:00	1.4	1.9	8	177
29/03/2024	6:20:00	1.8	3.3	8	188
29/03/2024	6:21:00	1.3	1.9	8	180
29/03/2024	6:22:00	1.5	2.7	8	183
29/03/2024	6:23:00	1.9	4	8	198
29/03/2024	6:24:00	1.6	2.1	8	188
29/03/2024	6:25:00	1.9	2.7	8	194
29/03/2024	6:26:00	1.5	2.1	8	192
29/03/2024	6:27:00	1.4	2	8	181
29/03/2024	6:28:00	1.7	2.4	8	176
29/03/2024	6:29:00	2	3.3	8	191
29/03/2024	6:30:00	1.8	2.6	8	192
29/03/2024	6:31:00	1.9	3.7	8	190
29/03/2024	6:32:00	1.4	2	8	186
29/03/2024	6:33:00	1.6	3.9	8	196
29/03/2024	6:34:00	1.7	3.1	8	184
29/03/2024	6:35:00	1.9	3.5	8	200
29/03/2024	6:36:00	1.3	2.1	8	190
29/03/2024	6:37:00	1.7	2.5	8	180
29/03/2024	6:38:00	2.3	3.3	8	202
29/03/2024	6:39:00	1.4	2	8	181
29/03/2024	6:40:00	1.5	2.5	8	184
29/03/2024	6:41:00	1.5	2.3	8	174
29/03/2024	6:42:00	1.7	2.4	8	186
29/03/2024	6:43:00	1.9	3.3	8	185
29/03/2024	6:44:00	1.7	2.8	8	200
29/03/2024	6:45:00	1.5	2.4	8	201
29/03/2024	6:46:00	1.4	2.3	8	197
29/03/2024	6:47:00	1.9	2.5	7	191
29/03/2024	6:48:00	2.1	3.2	7	202
29/03/2024	6:49:00	1.6	2.2	7	202
29/03/2024	6:50:00	1.7	2.6	7	202

29/03/2024	6:51:00	1.6	2.4	7	178
29/03/2024	6:52:00	1.6	2.3	7	185
29/03/2024	6:53:00	2.1	4.1	7	198
29/03/2024	6:54:00	2.3	3	7	201
29/03/2024	6:55:00	1.9	3	7	187
29/03/2024	6:56:00	2.2	3.8	7	204
29/03/2024	6:57:00	2.3	4.1	7	204
29/03/2024	6:58:00	2.2	3.6	7	198
29/03/2024	6:59:00	1.6	2.5	7	190
29/03/2024	7:00:00	2.2	3	7	201
29/03/2024	7:01:00	1.8	2.6	7	190
29/03/2024	7:02:00	2.2	3.2	7	193
29/03/2024	7:03:00	2.2	3	7	196
29/03/2024	7:04:00	2.2	3.6	7	183
29/03/2024	7:05:00	2.5	3.2	7	201
29/03/2024	7:06:00	1.5	3	7	210
29/03/2024	7:07:00	2.2	3.7	7	200
29/03/2024	7:08:00	1.5	2	7	200
29/03/2024	7:09:00	1.3	1.8	7	196
29/03/2024	7:10:00	1.7	3.2	7	196
29/03/2024	7:11:00	2.3	3.8	7	197
29/03/2024	7:12:00	1.4	2.1	7	191
29/03/2024	7:13:00	1.7	3.3	7	198
29/03/2024	7:14:00	2.4	3.5	7	198
29/03/2024	7:15:00	2	2.8	7	195
29/03/2024	7:16:00	1.7	3.3	7	194
29/03/2024	7:17:00	1.5	2.3	7	193
29/03/2024	7:18:00	1.9	3.4	7	194
29/03/2024	7:19:00	1.5	2.5	7	196
29/03/2024	7:20:00	1.4	2.1	7	194
29/03/2024	7:21:00	1.6	2.2	7	183
29/03/2024	07;22;00	2	2.9	7	203
29/03/2024	07;23;00	1.6	3.1	7	200
29/03/2024	7:24:00	1.4	1.7	7	191
29/03/2024	7:25:00	1.2	1.7	7	196
29/03/2024	7:26:00	1.7	2.6	7	201
29/03/2024	7:27:00	1.8	2.7	7	201
29/03/2024	7:28:00	1.2	1.5	7	195
29/03/2024	7:29:00	1.2	1.8	7	192
29/03/2024	7:30:00	1.3	1.9	7	195
29/03/2024	7:31:00	1.5	2.2	7	193
29/03/2024	7:32:00	1.4	2	7	192
29/03/2024	7:33:00	1.8	4	7	197
29/03/2024	7:34:00	1.6	3.5	7	196
29/03/2024	7:35:00	1.9	2.7	7	203
29/03/2024	7:36:00	2	3.2	7	206

29/03/2024	7:37:00	1.8	3.4	7	198
29/03/2024	7:38:00	2	2.8	7	199
29/03/2024	7:39:00	1.4	1.8	7	190
29/03/2024	7:40:00	1.6	2	7	189
29/03/2024	7:41:00	1.6	2	7	187
29/03/2024	7:42:00	1.4	2.2	7	188
29/03/2024	7:43:00	1.2	2.1	7	197
29/03/2024	7:44:00	1.6	3.2	7	200
29/03/2024	7:45:00	1.3	2.1	7	191
29/03/2024	7:46:00	2.1	2.8	7	193
29/03/2024	7:47:00	1.5	2	7	190
29/03/2024	7:48:00	1.8	3	7	187
29/03/2024	7:49:00	1.8	2.7	6	184
29/03/2024	7:50:00	2.1	3	6	197
29/03/2024	7:51:00	1.7	2.3	6	197
29/03/2024	7:52:00	1.9	2.8	6	199
29/03/2024	7:53:00	2.1	2.9	6	197
29/03/2024	7:54:00	2.1	3	6	190
29/03/2024	7:55:00	2	2.9	6	188
29/03/2024	7:56:00	1.8	3.5	6	195
29/03/2024	7:57:00	1.8	2.8	6	181
29/03/2024	7:58:00	1.6	2.8	6	200
29/03/2024	7:59:00	1.5	2.9	6	195
29/03/2024	8:00:00	1.3	2.1	6	197
29/03/2024	8:01:00	1.6	2.6	6	185
29/03/2024	8:02:00	2.2	3.2	6	158
29/03/2024	8:03:00	1.4	1.8	6	168
29/03/2024	8:04:00	1.1	1.6	6	171
29/03/2024	8:05:00	1.6	3.5	6	171
29/03/2024	8:06:00	1.5	2.3	6	174
29/03/2024	8:07:00	1.7	2.6	6	182
29/03/2024	8:08:00	1.9	4	6	198
29/03/2024	8:09:00	2.1	3.1	6	185
29/03/2024	8:10:00	1.6	2.9	6	175
29/03/2024	8:11:00	2	2.8	6	189
29/03/2024	8:12:00	1.7	2.8	6	185
29/03/2024	8:13:00	1.7	2.6	6	175
29/03/2024	8:14:00	1.8	3.9	6	188
29/03/2024	8:15:00	1.9	3.1	6	189
29/03/2024	8:16:00	1.9	3.1	6	188
29/03/2024	8:17:00	1.9	3	6	182
29/03/2024	8:18:00	1.6	2.7	6	157
29/03/2024	8:19:00	1.5	2.3	6	162
29/03/2024	8:20:00	1.5	2.5	6	180
29/03/2024	8:21:00	1.9	3.5	6	168
29/03/2024	8:22:00	1.5	1.9	6	172

29/03/2024	8:23:00	1.6	2.5	6	193
29/03/2024	8:24:00	1.4	2.5	6	196
29/03/2024	8:25:00	1.5	2.1	6	160
29/03/2024	8:26:00	1.4	2.1	6	158
29/03/2024	8:27:00	1.5	2.2	6	183
29/03/2024	8:28:00	1.9	2.9	6	197
29/03/2024	8:29:00	1.8	2.8	6	193
29/03/2024	8:30:00	2	3.4	6	182
29/03/2024	8:31:00	1.5	4.1	6	195
29/03/2024	8:32:00	1.7	2.5	6	199
29/03/2024	8:33:00	2	2.9	6	184
29/03/2024	8:34:00	2.1	3.7	6	196
29/03/2024	8:35:00	1.8	2.4	6	178
29/03/2024	8:36:00	2.4	3.5	6	175
29/03/2024	8:37:00	2.2	3.2	6	175
29/03/2024	8:38:00	1.6	2.2	6	182
29/03/2024	8:39:00	1.9	2.5	6	187
29/03/2024	8:40:00	2	3.1	6	185
29/03/2024	8:41:00	2.1	3.1	6	188
29/03/2024	8:42:00	1.7	2.6	6	182
29/03/2024	8:43:00	1.8	3.1	6	186
29/03/2024	8:44:00	1.6	2.7	6	185
29/03/2024	8:45:00	1.8	3.3	6	181
29/03/2024	8:46:00	2.1	3.4	6	175
29/03/2024	8:47:00	2.5	4.2	6	201
29/03/2024	8:48:00	2.1	3.1	6	194
29/03/2024	8:49:00	1.1	1.8	6	184
29/03/2024	8:50:00	1.3	2.1	6	182
29/03/2024	8:51:00	2.2	2.9	6	175
29/03/2024	8:52:00	2.5	4.1	6	207
29/03/2024	8:53:00	1.8	2.6	6	190
29/03/2024	8:54:00	2.4	3.7	6	187
29/03/2024	8:55:00	2.8	4.9	6	196
29/03/2024	8:56:00	2.2	3.5	6	198
29/03/2024	8:57:00	1.5	2.6	6	188
29/03/2024	8:58:00	1.9	5.2	6	197
29/03/2024	8:59:00	2.2	4.7	6	198
29/03/2024	9:00:00	1.5	2.2	6	187
29/03/2024	9:01:00	1.4	2	6	198
29/03/2024	9:02:00	1.7	2.9	6	190
29/03/2024	9:03:00	2.2	3.8	6	193
29/03/2024	9:04:00	2	4	6	197
29/03/2024	9:05:00	1.9	2.7	6	184
29/03/2024	9:06:00	1.9	3.9	6	190
29/03/2024	9:07:00	1.6	2.1	6	177
29/03/2024	9:08:00	2.2	3.7	6	178

29/03/2024	9:09:00	2.1	3.3	6	186
29/03/2024	9:10:00	2	3.1	6	164
29/03/2024	9:11:00	2	3.6	6	170
29/03/2024	9:12:00	2.1	3.5	7	185
29/03/2024	9:13:00	1.9	2.6	7	188
29/03/2024	9:14:00	2.2	3	7	187
29/03/2024	9:15:00	1.8	2.4	7	185
29/03/2024	9:16:00	2.3	3.1	7	200
29/03/2024	9:17:00	2.3	3.4	7	196
29/03/2024	9:18:00	2.2	3.5	7	191
29/03/2024	9:19:00	2.2	3.5	7	180
29/03/2024	9:20:00	1.7	3.2	7	188
29/03/2024	9:21:00	2	3.2	7	199
29/03/2024	9:22:00	1.7	4.1	7	199
29/03/2024	9:23:00	1.9	3.5	7	205
29/03/2024	9:24:00	2	2.8	7	206
29/03/2024	9:25:00	2.7	5.5	7	202
29/03/2024	9:26:00	2	3.2	7	208
29/03/2024	9:27:00	2	5.1	7	204
29/03/2024	9:28:00	2.6	3.8	7	192
29/03/2024	9:29:00	1.9	3.6	7	207
29/03/2024	9:30:00	2.2	3.4	7	184
29/03/2024	9:31:00	3	7.2	7	200
29/03/2024	9:32:00	2.7	3.8	7	191
29/03/2024	9:33:00	2	3.7	7	198
29/03/2024	9:34:00	2.1	3.5	7	191
29/03/2024	9:35:00	2.2	3.1	7	194
29/03/2024	9:36:00	2.2	5.1	7	196
29/03/2024	9:37:00	2.7	3.6	7	185
29/03/2024	9:38:00	2.5	4.1	7	192
29/03/2024	9:39:00	2.4	3.8	7	213

Data for N 9 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/29/2024	10:23:00	55.8	83.6	67.2	45.4	59.2	50.3
3/29/2024	10:33:00	53.9	81.7	69.9	42.5	56.4	47.7
3/29/2024	10:43:00	54.4	82.2	69	44.6	57.1	48.6
3/29/2024	10:53:00	58.1	85.9	70.8	46.5	61.7	50.7
3/29/2024	11:03:00	57.7	85.5	74.2	41.3	60.7	48.1
3/29/2024	11:13:00	53.6	81.4	65	43.1	56.5	49
3/29/2024	11:23:00	56	83.8	67.8	45.6	59.4	49.2
3/29/2024	11:33:00	57.2	85	68.5	47.3	60.3	51.2
3/29/2024	11:43:00	57.2	85	69.2	45.1	60.5	50.6
3/29/2024	11:53:00	58.2	86	70	47.3	61.2	52.8

3/29/2024	12:03:00	58.2	86	67.5	46.9	61	52.9
3/29/2024	12:13:00	60.8	88.6	74.1	51.8	63.9	55
3/29/2024	12:23:00	58.1	85.9	68.8	48.6	60.9	53.8
3/29/2024	12:33:00	56.2	84	68.3	45	59.2	50.4
3/29/2024	12:43:00	56.6	84.4	68.2	46.5	59.7	50.6
3/29/2024	12:53:00	55.9	83.7	68.8	46.6	59	50.8
3/29/2024	13:03:00	55.9	83.7	73	44.1	59.7	48.1
3/29/2024	13:13:00	55.4	83.2	69	46.7	58.3	50.5
3/29/2024	13:23:00	75.9	104	112.4	50.4	60.5	53.2
3/29/2024	13:33:00	56.9	84.7	71.7	45.1	60.1	50.3
3/29/2024	13:43:00	58.4	86.2	73	46.7	61.4	51.5
3/29/2024	13:53:00	56.8	84.6	66.8	44.1	59.7	50.2
3/29/2024	14:03:00	55.7	83.5	67.2	45.3	58.6	49.5
3/29/2024	14:13:00	56.3	84.1	67.9	45.4	59.5	49.8
3/29/2024	14:23:00	55.2	83	69.3	44.4	58.4	48.3
3/29/2024	14:33:00	57.5	85.3	69.2	46.2	60.2	52.6
3/29/2024	14:43:00	54.7	82.5	66.6	43.7	58.1	48.4
3/29/2024	14:53:00	54.7	82.5	68.1	44.5	57.8	48.4
3/29/2024	15:03:00	57.3	85.1	67.8	45.1	60.3	50.8
3/29/2024	15:13:00	55.9	83.7	67.7	45.9	58.9	50.1
3/29/2024	15:23:00	56.4	84.2	67.1	48.5	59.3	51.6
3/29/2024	15:33:00	55	82.8	66.6	44.8	58.6	48.4
3/29/2024	15:43:00	53.6	81.4	67.8	43.4	56.6	46.9
3/29/2024	15:53:00	54.7	82.5	68	43.5	58.3	47.3
3/29/2024	16:03:00	55.4	83.2	69.1	43.1	58.3	50
3/29/2024	16:13:00	56	83.8	69.5	41.5	59.5	48.6
3/29/2024	16:23:00	55.1	82.9	68.1	39	58.2	46.4
3/29/2024	16:33:00	56.1	83.9	68.1	42	60	48.9
3/29/2024	16:43:00	59.6	87.4	89.4	41.8	61.1	47.9
3/29/2024	16:53:00	52.9	80.7	69.1	40.4	55.5	45.9
3/29/2024	17:03:00	52.5	80.3	67.7	40.5	55.8	44.5
3/29/2024	17:13:00	53.5	81.3	65.6	39.7	56.8	46
3/29/2024	17:23:00	51.7	79.5	63.6	38.4	55.1	43.6
3/29/2024	17:33:00	54.2	82	72.7	38.4	56.8	44.4
3/29/2024	17:43:00	51	78.8	67.9	38.7	53.9	43
3/29/2024	17:53:00	52.6	80.4	68.6	38.6	55.8	43.6
3/29/2024	18:03:00	54.1	81.9	66.4	40	58	44.4
3/29/2024	18:13:00	52.5	80.3	62.7	37.9	55.5	42.3
3/29/2024	18:23:00	53	80.8	64.7	39.9	56.3	45.7
3/29/2024	18:33:00	52.7	80.5	64.8	42.7	55.9	45.8
3/29/2024	18:43:00	53.1	80.9	68.7	38.7	56.2	45.6
3/29/2024	18:53:00	55	82.8	74	37.8	57.7	44.2
3/29/2024	19:03:00	55.3	83.1	71.7	39.7	58.2	46.8
3/29/2024	19:13:00	52.7	80.5	67.5	41.2	55.4	45.4
3/29/2024	19:23:00	52.5	80.3	69.2	38.1	56.3	41.6
3/29/2024	19:33:00	48.8	76.6	59	35.4	53.2	40.1

3/29/2024	19:43:00	48.9	76.7	59.4	34.2	52.6	40.4
3/29/2024	19:53:00	47.8	75.6	58.9	30.6	51.8	36.3
3/29/2024	20:03:00	50.1	77.9	62.9	32.9	53.7	39.7
3/29/2024	20:13:00	49.6	77.4	61.8	40.6	53.3	42.5
3/29/2024	20:23:00	52.5	80.3	72	35.5	54	41.6
3/29/2024	20:33:00	47.4	75.2	57.1	32.2	51.5	36.2
3/29/2024	20:43:00	52.4	80.2	68.1	36.8	56	41.8
3/29/2024	20:53:00	51.9	79.7	67.8	34.9	55.1	42.6
3/29/2024	21:03:00	52.5	80.3	65.9	33.4	55.9	41.5
3/29/2024	21:13:00	53.6	81.4	66.9	41.6	57.2	45.2
3/29/2024	21:23:00	48	75.8	64.3	31.8	49.9	37.4
3/29/2024	21:33:00	47.4	75.2	62.9	34	50.7	37.9
3/29/2024	21:43:00	51.5	79.3	68.2	37.4	54.2	41.5
3/29/2024	21:53:00	52	79.8	65.6	40	55.2	43.4
3/29/2024	22:03:00	53.7	81.5	83.5	40.7	55.9	45
3/29/2024	22:13:00	47.8	75.6	61.2	32.1	51	38.4
3/29/2024	22:23:00	49.4	77.2	67.3	35.2	51.6	41.2
3/29/2024	22:33:00	52.5	80.3	75	36.3	54.6	41
3/29/2024	22:43:00	50.1	77.9	66.4	35.7	53.2	41
3/29/2024	22:53:00	50.6	78.4	65.4	34.4	54.4	38.9
3/29/2024	23:03:00	51.9	79.7	66	35.7	54.4	40.4
3/29/2024	23:13:00	46.7	74.5	59.7	34.4	51.3	37.5
3/29/2024	23:23:00	49.5	77.3	63.9	34.4	52.3	41
3/29/2024	23:33:00	53.3	81.1	73	35.8	54.6	40.5
3/29/2024	23:43:00	52	79.8	70.9	32.5	54.7	37.1
3/29/2024	23:53:00	46.2	74	58.9	31.3	49.9	35.4
3/30/2024	0:03:00	47.1	74.9	61.1	33.4	50.2	37.6
3/30/2024	0:13:00	50.1	77.9	69.1	34.7	52.6	38.6
3/30/2024	0:23:00	45.1	72.9	59.7	31.8	49	34.3
3/30/2024	0:33:00	48.6	76.4	61.6	32.2	53	36.4
3/30/2024	0:43:00	60.2	88	78.2	33.1	54.5	36.6
3/30/2024	0:53:00	50.2	78	66.5	30.2	54.6	34.4
3/30/2024	1:03:00	47.7	75.5	64.6	34.5	51.4	37.7
3/30/2024	1:13:00	49.8	77.6	61.1	33.4	53.5	35.9
3/30/2024	1:23:00	48	75.8	58.4	35.3	52.1	39.2
3/30/2024	1:33:00	49.1	76.9	61.4	31.2	53.8	35.6
3/30/2024	1:43:00	44.3	72.1	59.2	29.3	47.9	33.4
3/30/2024	1:53:00	48.8	76.6	62.7	33.9	52.7	38.5
3/30/2024	2:03:00	49.2	77	62.3	33.8	53.6	36.6
3/30/2024	2:13:00	48.5	76.3	64.6	32.5	51.9	37.1
3/30/2024	2:23:00	49.4	77.2	61.4	33.5	53.5	38.1
3/30/2024	2:33:00	48.4	76.2	58.5	32.9	52.7	36.3
3/30/2024	2:43:00	46.8	74.6	57.5	37.8	51.2	39.3
3/30/2024	2:53:00	46.5	74.3	57.6	38.7	49.9	39.7
3/30/2024	3:03:00	45.5	73.3	57.3	26.4	50.3	31.9
3/30/2024	3:13:00	41.5	69.3	56.1	21.7	46.5	25.5

3/30/2024	3:23:00	49.1	76.9	63.6	25.7	53.2	34.5
3/30/2024	3:33:00	52.8	80.6	68.3	40.1	55.2	42.7
3/30/2024	3:43:00	48.6	76.4	58.5	39.4	52.6	40.4
3/30/2024	3:53:00	51	78.8	69.1	39.1	53.2	40.4
3/30/2024	4:03:00	49.5	77.3	60.7	39	52.8	40
3/30/2024	4:13:00	48.8	76.6	55.7	38.6	52.5	39.9
3/30/2024	4:23:00	50.7	78.5	64.9	38.7	53.2	40.1
3/30/2024	4:33:00	47.7	75.5	58.6	29.6	52.4	35.7
3/30/2024	4:43:00	45.6	73.4	57.4	25.6	50.5	30.6
3/30/2024	4:53:00	44.8	72.6	59.4	26.7	49.4	32.1
3/30/2024	5:03:00	43.9	71.7	58.5	26.2	48.2	29.5
3/30/2024	5:13:00	49.6	77.4	69.4	23.5	52	27.3
3/30/2024	5:23:00	45	72.8	63.8	27.2	48.6	30.4
3/30/2024	5:33:00	45	72.8	60.4	26.4	50.3	29.4
3/30/2024	5:43:00	46.5	74.3	61.8	27.3	50.9	29.9
3/30/2024	5:53:00	46.4	74.2	67	26.5	47.5	29.1
3/30/2024	6:03:00	43.9	71.7	59.1	28.9	46.9	32.9
3/30/2024	6:13:00	50	77.8	66.1	36.3	52.8	42.1
3/30/2024	6:23:00	50.9	78.7	66.5	32.3	54.5	36.2
3/30/2024	6:33:00	55.8	83.6	69.1	36.7	60.1	40.3
3/30/2024	6:43:00	49.2	77	62.4	33	53.1	38.1
3/30/2024	6:53:00	49.9	77.7	61.7	36.2	52.9	40.7
3/30/2024	7:03:00	52.6	80.4	68.3	38.4	56	43.6
3/30/2024	7:13:00	50.9	78.7	61.1	39.1	54.6	45.1
3/30/2024	7:23:00	55.4	83.2	71	34.5	58.3	41.6
3/30/2024	7:33:00	52.8	80.6	63.1	39.3	56.3	46.6
3/30/2024	7:43:00	53.5	81.3	70.1	37.2	56.8	45.2
3/30/2024	7:53:00	50.6	78.4	61.9	41.1	53.9	44.8
3/30/2024	8:03:00	52.1	79.9	65.6	39.3	55	44
3/30/2024	8:13:00	52.8	80.6	71.3	38.4	56.2	42.9
3/30/2024	8:23:00	52	79.8	65.2	38.7	55.7	43.3
3/30/2024	8:33:00	54.3	82.1	78.9	37	54	41.2
3/30/2024	8:43:00	53.2	81	73.9	39.9	55.6	45.5
3/30/2024	8:53:00	51.4	79.2	66.9	37.6	54.4	44.2
3/30/2024	9:03:00	55.7	83.5	70.8	40.8	58.9	47.5
3/30/2024	9:13:00	48.3	76.1	57.9	34.8	51.5	41.6
3/30/2024	9:23:00	48.1	75.9	63.4	33.8	50.5	37.9
3/30/2024	9:33:00	55.5	83.3	73.4	36.6	56.4	42.6
3/30/2024	9:43:00	55.3	83.1	72.1	34.8	59.2	43.9
3/30/2024	9:53:00	51.1	78.9	64.5	34.7	54.5	42.5
3/30/2024	10:03:00	50.8	78.6	64	34.3	54.5	40.2
3/30/2024	10:13:00	51.4	79.2	68.2	33.6	54.9	39.3
3/30/2024	10:23:00	52.3	80.1	70.3	29.7	55.9	36.5

Data for N 9 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
3/29/2024	10:23:00	2.0	4.1	12	238
3/29/2024	10:24:00	1.5	3.2	12	221
3/29/2024	10:25:00	2.1	3.5	12	215
3/29/2024	10:26:00	2.1	4.4	11	206
3/29/2024	10:27:00	2.0	3.1	11	206
3/29/2024	10:28:00	1.9	3.3	11	209
3/29/2024	10:29:00	1.8	2.8	11	197
3/29/2024	10:30:00	1.6	2.3	11	199
3/29/2024	10:31:00	2.0	3.1	11	212
3/29/2024	10:32:00	2.6	4.8	10	221
3/29/2024	10:33:00	2.4	3.5	10	237
3/29/2024	10:34:00	1.5	2.2	10	215
3/29/2024	10:35:00	1.4	1.9	10	231
3/29/2024	10:36:00	1.7	3.0	9	241
3/29/2024	10:37:00	2.4	3.7	9	240
3/29/2024	10:38:00	2.0	3.0	8	205
3/29/2024	10:39:00	2.8	4.1	8	228
3/29/2024	10:40:00	2.6	3.8	8	235
3/29/2024	10:41:00	1.6	2.3	8	207
3/29/2024	10:42:00	1.7	2.8	8	211
3/29/2024	10:43:00	2.7	4.9	8	215
3/29/2024	10:44:00	2.2	3.5	8	236
3/29/2024	10:45:00	2.5	3.3	8	208
3/29/2024	10:46:00	2.2	3.6	8	222
3/29/2024	10:47:00	2.4	4.3	8	213
3/29/2024	10:48:00	2.2	3.9	8	210
3/29/2024	10:49:00	2.8	4.2	8	224
3/29/2024	10:50:00	2.5	4.6	8	233
3/29/2024	10:51:00	1.7	2.8	8	184
3/29/2024	10:52:00	1.7	3.0	8	228
3/29/2024	10:53:00	2.1	3.6	8	219
3/29/2024	10:54:00	2.7	4.1	8	220
3/29/2024	10:55:00	1.8	2.7	8	226
3/29/2024	10:56:00	1.8	2.6	8	230
3/29/2024	10:57:00	1.1	2.1	8	188
3/29/2024	10:58:00	1.9	3.6	8	210
3/29/2024	10:59:00	2.0	2.8	8	207
3/29/2024	11:00:00	1.6	2.5	8	220
3/29/2024	11:01:00	1.6	3.4	8	182
3/29/2024	11:02:00	2.4	3.6	8	229
3/29/2024	11:03:00	1.7	3.6	8	219
3/29/2024	11:04:00	2.5	3.6	8	230
3/29/2024	11:05:00	2.0	3.2	8	210
3/29/2024	11:06:00	2.1	3.4	8	201

3/29/2024	11:07:00	1.6	2.3	8	232
3/29/2024	11:08:00	2.0	4.2	8	235
3/29/2024	11:09:00	1.9	3.0	8	190
3/29/2024	11:10:00	2.2	3.6	8	220
3/29/2024	11:11:00	1.3	2.7	8	198
3/29/2024	11:12:00	2.2	3.3	8	204
3/29/2024	11:13:00	2.3	3.9	8	184
3/29/2024	11:14:00	1.8	3.0	8	207
3/29/2024	11:15:00	2.8	4.7	8	231
3/29/2024	11:16:00	2.2	3.6	8	205
3/29/2024	11:17:00	1.9	4.1	8	211
3/29/2024	11:18:00	1.5	2.6	8	207
3/29/2024	11:19:00	2.4	4.5	8	221
3/29/2024	11:20:00	1.9	3.2	8	214
3/29/2024	11:21:00	2.2	3.4	8	204
3/29/2024	11:22:00	1.7	2.4	8	201
3/29/2024	11:23:00	1.6	3.4	9	210
3/29/2024	11:24:00	2.0	3.5	9	193
3/29/2024	11:25:00	1.7	2.7	9	207
3/29/2024	11:26:00	1.7	2.6	9	200
3/29/2024	11:27:00	1.9	3.0	9	233
3/29/2024	11:28:00	2.3	3.0	9	227
3/29/2024	11:29:00	2.7	3.8	9	240
3/29/2024	11:30:00	2.8	4.9	9	213
3/29/2024	11:31:00	2.2	4.0	9	242
3/29/2024	11:32:00	2.1	3.4	9	221
3/29/2024	11:33:00	2.1	3.7	9	222
3/29/2024	11:34:00	1.6	3.1	9	208
3/29/2024	11:35:00	1.7	2.7	9	199
3/29/2024	11:36:00	1.5	2.3	10	199
3/29/2024	11:37:00	2.1	3.5	10	245
3/29/2024	11:38:00	2.1	4.5	10	242
3/29/2024	11:39:00	2.1	3.4	10	239
3/29/2024	11:40:00	1.7	3.7	10	219
3/29/2024	11:41:00	2.1	4.3	10	232
3/29/2024	11:42:00	3.0	4.4	10	215
3/29/2024	11:43:00	2.3	3.9	10	214
3/29/2024	11:44:00	1.8	2.8	10	223
3/29/2024	11:45:00	2.1	3.5	10	221
3/29/2024	11:46:00	1.9	4.1	10	223
3/29/2024	11:47:00	2.8	6.1	10	233
3/29/2024	11:48:00	2.0	3.0	10	220
3/29/2024	11:49:00	1.9	3.0	10	197
3/29/2024	11:50:00	2.0	3.5	10	220
3/29/2024	11:51:00	2.8	5.0	10	232
3/29/2024	11:52:00	1.9	3.0	10	247

3/29/2024	11:53:00	1.9	3.1	10	222
3/29/2024	11:54:00	1.2	2.5	10	220
3/29/2024	11:55:00	2.3	3.4	10	230
3/29/2024	11:56:00	1.6	2.6	10	182
3/29/2024	11:57:00	2.1	4.2	10	219
3/29/2024	11:58:00	2.0	3.4	10	208
3/29/2024	11:59:00	2.1	4.2	10	209
3/29/2024	12:00:00	1.8	3.0	10	188
3/29/2024	12:01:00	2.1	3.7	10	213
3/29/2024	12:02:00	2.1	2.9	10	207
3/29/2024	12:03:00	3.0	4.8	10	230
3/29/2024	12:04:00	3.1	5.7	10	230
3/29/2024	12:05:00	3.0	4.3	10	227
3/29/2024	12:06:00	2.0	2.8	10	231
3/29/2024	12:07:00	2.1	3.3	10	242
3/29/2024	12:08:00	2.8	4.7	10	229
3/29/2024	12:09:00	2.4	4.8	10	188
3/29/2024	12:10:00	2.7	4.9	10	203
3/29/2024	12:11:00	3.0	4.4	11	217
3/29/2024	12:12:00	1.9	3.1	11	213
3/29/2024	12:13:00	2.3	4.0	11	215
3/29/2024	12:14:00	2.6	5.8	11	228
3/29/2024	12:15:00	2.8	4.4	11	229
3/29/2024	12:16:00	3.0	4.5	11	224
3/29/2024	12:17:00	2.3	4.4	11	198
3/29/2024	12:18:00	3.6	6.3	11	234
3/29/2024	12:19:00	3.5	4.6	11	231
3/29/2024	12:20:00	2.3	4.0	11	183
3/29/2024	12:21:00	1.9	3.2	11	200
3/29/2024	12:22:00	2.7	4.4	11	224
3/29/2024	12:23:00	2.6	4.9	11	192
3/29/2024	12:24:00	2.7	4.7	11	192
3/29/2024	12:25:00	2.1	3.2	11	204
3/29/2024	12:26:00	1.4	2.2	11	195
3/29/2024	12:27:00	2.3	4.5	11	188
3/29/2024	12:28:00	2.0	3.2	11	182
3/29/2024	12:29:00	2.5	4.2	11	188
3/29/2024	12:30:00	1.8	2.9	11	195
3/29/2024	12:31:00	2.9	4.5	11	219
3/29/2024	12:32:00	2.3	4.5	11	204
3/29/2024	12:33:00	2.9	5.4	11	213
3/29/2024	12:34:00	2.2	4.1	11	206
3/29/2024	12:35:00	2.1	5.0	11	201
3/29/2024	12:36:00	2.1	3.8	11	177
3/29/2024	12:37:00	3.3	5.2	11	222
3/29/2024	12:38:00	2.2	4.2	11	212

3/29/2024	12:39:00	2.2	4.4	11	200
3/29/2024	12:40:00	2.3	3.9	11	199
3/29/2024	12:41:00	2.2	3.5	11	187
3/29/2024	12:42:00	2.1	3.8	11	194
3/29/2024	12:43:00	2.1	3.8	11	180
3/29/2024	12:44:00	2.2	3.4	11	208
3/29/2024	12:45:00	2.1	4.2	11	193
3/29/2024	12:46:00	3.7	6.2	11	188
3/29/2024	12:47:00	2.1	4.0	11	196
3/29/2024	12:48:00	2.6	5.6	12	187
3/29/2024	12:49:00	2.1	3.6	12	179
3/29/2024	12:50:00	2.8	4.6	12	181
3/29/2024	12:51:00	2.9	3.9	12	216
3/29/2024	12:52:00	2.8	5.9	12	209
3/29/2024	12:53:00	2.4	4.5	12	194
3/29/2024	12:54:00	3.1	5.1	12	230
3/29/2024	12:55:00	2.7	3.9	12	217
3/29/2024	12:56:00	2.5	3.7	12	186
3/29/2024	12:57:00	2.2	4.3	12	192
3/29/2024	12:58:00	2.2	3.5	12	202
3/29/2024	12:59:00	1.6	2.5	12	170
3/29/2024	13:00:00	2.3	5.0	12	231
3/29/2024	13:01:00	2.4	4.9	12	210
3/29/2024	13:02:00	2.3	3.9	12	228
3/29/2024	13:03:00	2.2	3.3	12	227
3/29/2024	13:04:00	1.4	2.0	12	211
3/29/2024	13:05:00	1.9	4.4	12	172
3/29/2024	13:06:00	1.7	2.6	12	199
3/29/2024	13:07:00	2.2	3.5	12	234
3/29/2024	13:08:00	2.0	3.4	12	207
3/29/2024	13:09:00	2.2	3.2	12	208
3/29/2024	13:10:00	2.4	3.8	13	219
3/29/2024	13:11:00	2.0	3.1	13	180
3/29/2024	13:12:00	2.2	3.0	13	178
3/29/2024	13:13:00	2.4	4.4	13	210
3/29/2024	13:14:00	3.0	4.6	13	222
3/29/2024	13:15:00	2.0	3.9	13	211
3/29/2024	13:16:00	2.0	4.2	13	190
3/29/2024	13:17:00	3.3	5.2	13	230
3/29/2024	13:18:00	2.0	3.8	13	190
3/29/2024	13:19:00	2.7	5.9	13	228
3/29/2024	13:20:00	2.1	2.9	13	222
3/29/2024	13:21:00	2.6	4.0	13	224
3/29/2024	13:22:00	2.8	6.8	13	222
3/29/2024	13:23:00	2.3	4.2	13	198
3/29/2024	13:24:00	2.8	5.0	13	221

3/29/2024	13:25:00	3.1	5.7	13	251
3/29/2024	13:26:00	2.9	4.2	13	246
3/29/2024	13:27:00	3.0	4.3	13	233
3/29/2024	13:28:00	3.0	5.4	13	233
3/29/2024	13:29:00	3.2	6.0	13	216
3/29/2024	13:30:00	3.2	5.6	13	225
3/29/2024	13:31:00	3.2	6.1	13	226
3/29/2024	13:32:00	3.2	4.8	13	215
3/29/2024	13:33:00	2.7	4.7	13	210
3/29/2024	13:34:00	2.4	4.0	13	232
3/29/2024	13:35:00	2.2	3.8	13	231
3/29/2024	13:36:00	2.6	4.4	13	223
3/29/2024	13:37:00	2.5	3.6	13	223
3/29/2024	13:38:00	3.8	6.1	13	237
3/29/2024	13:39:00	2.5	3.8	13	227
3/29/2024	13:40:00	3.3	4.9	13	237
3/29/2024	13:41:00	3.1	5.1	13	247
3/29/2024	13:42:00	2.2	4.8	13	219
3/29/2024	13:43:00	2.9	4.8	13	229
3/29/2024	13:44:00	2.6	3.7	13	240
3/29/2024	13:45:00	2.5	4.4	13	235
3/29/2024	13:46:00	2.3	3.8	13	211
3/29/2024	13:47:00	2.7	4.2	13	197
3/29/2024	13:48:00	2.9	4.2	13	212
3/29/2024	13:49:00	3.1	5.0	13	206
3/29/2024	13:50:00	2.4	3.9	13	205
3/29/2024	13:51:00	2.0	3.1	13	206
3/29/2024	13:52:00	3.0	4.7	13	235
3/29/2024	13:53:00	3.7	6.4	13	238
3/29/2024	13:54:00	2.7	4.4	13	237
3/29/2024	13:55:00	2.3	4.3	13	247
3/29/2024	13:56:00	2.2	3.3	13	241
3/29/2024	13:57:00	3.1	4.8	13	238
3/29/2024	13:58:00	3.4	5.1	13	237
3/29/2024	13:59:00	2.8	3.7	13	232
3/29/2024	14:00:00	3.7	5.8	13	229
3/29/2024	14:01:00	2.0	3.7	13	232
3/29/2024	14:02:00	2.1	5.6	13	228
3/29/2024	14:03:00	2.7	4.6	14	227
3/29/2024	14:04:00	2.6	4.2	14	222
3/29/2024	14:05:00	1.5	2.1	14	199
3/29/2024	14:06:00	3.1	4.8	14	232
3/29/2024	14:07:00	2.7	4.0	14	237
3/29/2024	14:08:00	2.9	5.3	14	214
3/29/2024	14:09:00	2.3	4.8	14	213
3/29/2024	14:10:00	2.7	4.6	14	211

3/29/2024	14:11:00	3.3	5.4	14	236
3/29/2024	14:12:00	3.2	5.4	14	242
3/29/2024	14:13:00	3.7	5.4	14	239
3/29/2024	14:14:00	2.4	4.4	14	229
3/29/2024	14:15:00	2.4	4.1	14	234
3/29/2024	14:16:00	2.4	3.7	14	252
3/29/2024	14:17:00	2.6	4.9	14	245
3/29/2024	14:18:00	2.5	3.9	14	247
3/29/2024	14:19:00	1.7	2.5	14	226
3/29/2024	14:20:00	2.0	3.9	14	237
3/29/2024	14:21:00	2.2	3.7	14	234
3/29/2024	14:22:00	2.9	4.5	14	236
3/29/2024	14:23:00	2.3	3.5	14	252
3/29/2024	14:24:00	3.0	5.2	14	262
3/29/2024	14:25:00	3.2	4.9	14	243
3/29/2024	14:26:00	2.4	3.8	14	237
3/29/2024	14:27:00	1.6	2.4	14	210
3/29/2024	14:28:00	2.9	5.5	14	222
3/29/2024	14:29:00	2.9	4.7	14	225
3/29/2024	14:30:00	2.1	4.7	14	211
3/29/2024	14:31:00	2.1	4.1	14	229
3/29/2024	14:32:00	2.8	4.4	14	240
3/29/2024	14:33:00	3.0	4.9	14	256
3/29/2024	14:34:00	2.5	4.5	14	242
3/29/2024	14:35:00	2.8	4.6	14	228
3/29/2024	14:36:00	2.8	4.0	14	240
3/29/2024	14:37:00	2.8	3.9	14	232
3/29/2024	14:38:00	2.5	4.6	14	255
3/29/2024	14:39:00	3.1	4.9	14	262
3/29/2024	14:40:00	2.8	4.4	14	259
3/29/2024	14:41:00	2.8	4.6	14	221
3/29/2024	14:42:00	4.0	6.0	14	234
3/29/2024	14:43:00	2.9	5.5	14	242
3/29/2024	14:44:00	2.5	3.4	14	221
3/29/2024	14:45:00	2.9	4.7	14	238
3/29/2024	14:46:00	2.8	4.4	14	239
3/29/2024	14:47:00	2.1	3.4	14	241
3/29/2024	14:48:00	2.1	3.8	14	249
3/29/2024	14:49:00	2.9	4.5	14	260
3/29/2024	14:50:00	3.0	4.4	14	258
3/29/2024	14:51:00	3.2	6.0	14	258
3/29/2024	14:52:00	3.3	5.1	14	271
3/29/2024	14:53:00	2.6	4.0	14	228
3/29/2024	14:54:00	3.1	5.3	14	244
3/29/2024	14:55:00	3.1	4.4	14	241
3/29/2024	14:56:00	2.6	4.0	14	236

3/29/2024	14:57:00	2.7	4.0	14	257
3/29/2024	14:58:00	2.9	4.7	14	237
3/29/2024	14:59:00	2.9	4.3	14	247
3/29/2024	15:00:00	2.3	3.6	14	258
3/29/2024	15:01:00	2.0	3.4	14	260
3/29/2024	15:02:00	3.0	4.7	14	237
3/29/2024	15:03:00	3.0	4.3	14	256
3/29/2024	15:04:00	3.0	4.6	14	267
3/29/2024	15:05:00	2.9	5.6	14	251
3/29/2024	15:06:00	2.6	4.8	14	242
3/29/2024	15:07:00	2.4	4.2	14	241
3/29/2024	15:08:00	2.3	5.1	14	225
3/29/2024	15:09:00	2.7	4.4	14	240
3/29/2024	15:10:00	2.3	5.0	14	247
3/29/2024	15:11:00	3.0	5.0	14	248
3/29/2024	15:12:00	2.5	5.0	14	262
3/29/2024	15:13:00	3.5	5.6	14	268
3/29/2024	15:14:00	2.5	4.2	14	229
3/29/2024	15:15:00	2.1	3.3	14	238
3/29/2024	15:16:00	2.6	4.0	14	271
3/29/2024	15:17:00	3.1	4.6	14	271
3/29/2024	15:18:00	3.0	4.1	14	252
3/29/2024	15:19:00	2.4	5.9	14	240
3/29/2024	15:20:00	3.0	4.5	14	225
3/29/2024	15:21:00	3.2	4.9	14	246
3/29/2024	15:22:00	3.6	5.4	15	242
3/29/2024	15:23:00	3.0	5.5	15	241
3/29/2024	15:24:00	3.2	4.6	15	224
3/29/2024	15:25:00	3.1	5.2	15	260
3/29/2024	15:26:00	3.0	4.6	15	272
3/29/2024	15:27:00	2.2	3.9	15	259
3/29/2024	15:28:00	2.4	3.8	15	246
3/29/2024	15:29:00	2.1	2.8	15	245
3/29/2024	15:30:00	2.2	3.4	15	234
3/29/2024	15:31:00	1.8	3.1	15	240
3/29/2024	15:32:00	2.8	5.5	15	214
3/29/2024	15:33:00	1.9	4.2	15	218
3/29/2024	15:34:00	3.0	4.6	15	235
3/29/2024	15:35:00	2.7	4.1	15	237
3/29/2024	15:36:00	2.8	5.0	15	230
3/29/2024	15:37:00	2.0	3.3	15	239
3/29/2024	15:38:00	2.5	3.9	15	274
3/29/2024	15:39:00	2.2	4.1	15	228
3/29/2024	15:40:00	3.0	4.7	15	234
3/29/2024	15:41:00	2.8	4.7	15	249
3/29/2024	15:42:00	2.7	4.4	15	244

3/29/2024	15:43:00	2.4	4.0	15	259
3/29/2024	15:44:00	2.0	3.0	15	243
3/29/2024	15:45:00	2.3	4.8	15	250
3/29/2024	15:46:00	2.9	5.4	15	248
3/29/2024	15:47:00	2.8	4.1	15	214
3/29/2024	15:48:00	2.3	4.6	15	202
3/29/2024	15:49:00	3.5	4.4	15	232
3/29/2024	15:50:00	3.9	5.9	15	233
3/29/2024	15:51:00	3.0	6.3	15	214
3/29/2024	15:52:00	2.3	4.2	15	225
3/29/2024	15:53:00	2.4	3.9	15	238
3/29/2024	15:54:00	2.4	4.3	15	242
3/29/2024	15:55:00	2.6	4.1	15	248
3/29/2024	15:56:00	2.2	4.6	16	255
3/29/2024	15:57:00	2.8	4.4	16	242
3/29/2024	15:58:00	3.0	6.9	16	238
3/29/2024	15:59:00	2.1	3.9	16	249
3/29/2024	16:00:00	1.8	2.9	16	236
3/29/2024	16:01:00	2.2	3.3	16	228
3/29/2024	16:02:00	2.6	4.5	16	242
3/29/2024	16:03:00	2.6	4.0	16	245
3/29/2024	16:04:00	2.1	3.3	16	230
3/29/2024	16:05:00	1.9	3.1	16	230
3/29/2024	16:06:00	2.0	4.3	16	260
3/29/2024	16:07:00	2.5	4.0	16	253
3/29/2024	16:08:00	2.3	3.2	16	269
3/29/2024	16:09:00	2.0	3.3	16	241
3/29/2024	16:10:00	1.9	3.3	16	243
3/29/2024	16:11:00	1.6	3.6	16	228
3/29/2024	16:12:00	1.5	2.4	16	202
3/29/2024	16:13:00	1.8	3.7	16	206
3/29/2024	16:14:00	2.2	3.6	16	213
3/29/2024	16:15:00	3.2	5.0	16	229
3/29/2024	16:16:00	2.2	3.9	16	192
3/29/2024	16:17:00	1.9	2.8	15	194
3/29/2024	16:18:00	1.6	2.3	15	218
3/29/2024	16:19:00	1.9	3.3	15	234
3/29/2024	16:20:00	2.2	3.4	15	207
3/29/2024	16:21:00	2.5	4.5	15	227
3/29/2024	16:22:00	3.0	5.1	15	230
3/29/2024	16:23:00	2.6	4.1	15	241
3/29/2024	16:24:00	2.8	4.0	15	242
3/29/2024	16:25:00	1.8	2.8	15	257
3/29/2024	16:26:00	3.3	4.5	15	230
3/29/2024	16:27:00	2.1	3.6	15	214
3/29/2024	16:28:00	2.2	4.1	15	185

3/29/2024	16:29:00	1.9	3.8	15	204
3/29/2024	16:30:00	2.2	3.7	15	203
3/29/2024	16:31:00	1.4	2.1	16	212
3/29/2024	16:32:00	2.6	4.2	16	215
3/29/2024	16:33:00	2.9	5.0	16	243
3/29/2024	16:34:00	2.8	5.9	16	219
3/29/2024	16:35:00	2.2	3.6	16	231
3/29/2024	16:36:00	1.9	4.1	16	235
3/29/2024	16:37:00	1.7	3.8	16	214
3/29/2024	16:38:00	1.8	2.4	16	226
3/29/2024	16:39:00	2.1	3.1	16	243
3/29/2024	16:40:00	2.3	4.0	16	247
3/29/2024	16:41:00	1.8	3.3	16	265
3/29/2024	16:42:00	2.1	3.2	16	231
3/29/2024	16:43:00	2.4	4.1	16	241
3/29/2024	16:44:00	2.0	3.3	16	205
3/29/2024	16:45:00	3.4	6.3	16	228
3/29/2024	16:46:00	3.2	6.5	16	222
3/29/2024	16:47:00	2.3	3.8	16	216
3/29/2024	16:48:00	2.6	5.6	16	244
3/29/2024	16:49:00	3.1	5.3	16	230
3/29/2024	16:50:00	2.2	3.2	16	216
3/29/2024	16:51:00	1.3	2.2	16	203
3/29/2024	16:52:00	1.6	3.5	16	238
3/29/2024	16:53:00	2.5	4.6	16	244
3/29/2024	16:54:00	2.5	4.8	16	250
3/29/2024	16:55:00	2.1	3.7	16	236
3/29/2024	16:56:00	1.6	2.6	16	231
3/29/2024	16:57:00	2.4	5.3	16	208
3/29/2024	16:58:00	3.0	4.2	16	232
3/29/2024	16:59:00	2.4	3.9	16	218
3/29/2024	17:00:00	1.8	3.2	16	250
3/29/2024	17:01:00	2.2	3.4	16	274
3/29/2024	17:02:00	2.7	5.2	16	235
3/29/2024	17:03:00	2.9	4.7	16	229
3/29/2024	17:04:00	2.9	4.7	16	243
3/29/2024	17:05:00	2.6	4.0	16	234
3/29/2024	17:06:00	2.2	4.0	16	229
3/29/2024	17:07:00	2.3	4.7	16	239
3/29/2024	17:08:00	2.6	4.2	17	231
3/29/2024	17:09:00	2.3	3.8	17	257
3/29/2024	17:10:00	2.0	3.3	17	246
3/29/2024	17:11:00	2.8	4.2	17	243
3/29/2024	17:12:00	2.8	5.5	17	232
3/29/2024	17:13:00	1.4	2.3	17	250
3/29/2024	17:14:00	2.0	2.9	17	235

3/29/2024	17:15:00	2.1	3.4	17	243
3/29/2024	17:16:00	2.9	4.9	17	263
3/29/2024	17:17:00	2.3	3.7	17	253
3/29/2024	17:18:00	3.4	5.3	17	240
3/29/2024	17:19:00	2.7	5.5	17	229
3/29/2024	17:20:00	3.3	5.8	17	234
3/29/2024	17:21:00	2.2	3.5	17	198
3/29/2024	17:22:00	2.7	4.6	17	195
3/29/2024	17:23:00	1.9	2.9	17	233
3/29/2024	17:24:00	2.6	4.0	17	224
3/29/2024	17:25:00	1.9	3.1	17	218
3/29/2024	17:26:00	1.7	2.8	17	231
3/29/2024	17:27:00	2.3	4.1	17	213
3/29/2024	17:28:00	1.9	3.0	17	198
3/29/2024	17:29:00	1.8	3.0	17	224
3/29/2024	17:30:00	2.1	3.7	17	200
3/29/2024	17:31:00	2.1	3.0	17	214
3/29/2024	17:32:00	1.2	2.6	17	216
3/29/2024	17:33:00	2.9	5.0	17	235
3/29/2024	17:34:00	2.4	3.9	17	253
3/29/2024	17:35:00	2.4	3.6	17	240
3/29/2024	17:36:00	2.7	5.3	17	241
3/29/2024	17:37:00	2.2	3.8	17	242
3/29/2024	17:38:00	2.6	4.4	17	245
3/29/2024	17:39:00	2.5	3.6	17	257
3/29/2024	17:40:00	2.9	5.2	17	232
3/29/2024	17:41:00	2.5	5.0	17	246
3/29/2024	17:42:00	2.1	3.0	17	229
3/29/2024	17:43:00	1.8	2.7	17	222
3/29/2024	17:44:00	2.8	3.8	17	162
3/29/2024	17:45:00	2.5	3.8	17	173
3/29/2024	17:46:00	2.4	4.6	17	175
3/29/2024	17:47:00	2.2	4.9	17	198
3/29/2024	17:48:00	1.9	3.4	17	223
3/29/2024	17:49:00	2.1	3.6	17	215
3/29/2024	17:50:00	1.6	3.7	17	202
3/29/2024	17:51:00	2.6	4.0	17	219
3/29/2024	17:52:00	2.3	4.3	17	212
3/29/2024	17:53:00	3.0	4.7	17	211
3/29/2024	17:54:00	1.9	2.9	17	192
3/29/2024	17:55:00	3.0	5.7	17	226
3/29/2024	17:56:00	2.3	5.3	17	220
3/29/2024	17:57:00	2.4	4.0	17	205
3/29/2024	17:58:00	2.1	3.6	17	201
3/29/2024	17:59:00	2.0	4.2	17	181
3/29/2024	18:00:00	2.4	4.0	17	169

3/29/2024	18:01:00	2.1	2.6	17	184
3/29/2024	18:02:00	1.7	2.6	17	214
3/29/2024	18:03:00	1.6	3.6	17	186
3/29/2024	18:04:00	2.2	3.3	17	235
3/29/2024	18:05:00	1.8	2.4	17	190
3/29/2024	18:06:00	1.8	3.8	17	203
3/29/2024	18:07:00	2.0	3.3	17	201
3/29/2024	18:08:00	2.6	4.2	17	186
3/29/2024	18:09:00	2.5	5.6	17	222
3/29/2024	18:10:00	2.8	5.8	17	234
3/29/2024	18:11:00	3.3	5.9	17	246
3/29/2024	18:12:00	1.9	2.9	17	215
3/29/2024	18:13:00	2.5	4.0	17	235
3/29/2024	18:14:00	2.4	4.3	17	235
3/29/2024	18:15:00	2.7	3.8	17	232
3/29/2024	18:16:00	1.4	1.9	17	239
3/29/2024	18:17:00	2.8	4.6	17	253
3/29/2024	18:18:00	2.7	4.0	17	249
3/29/2024	18:19:00	2.5	3.2	17	234
3/29/2024	18:20:00	2.0	3.6	17	224
3/29/2024	18:21:00	2.6	3.8	17	217
3/29/2024	18:22:00	2.4	3.4	17	229
3/29/2024	18:23:00	2.0	3.3	17	239
3/29/2024	18:24:00	2.1	2.9	17	221
3/29/2024	18:25:00	1.8	2.8	17	238
3/29/2024	18:26:00	2.0	2.7	17	200
3/29/2024	18:27:00	1.6	2.6	17	208
3/29/2024	18:28:00	1.3	1.9	17	218
3/29/2024	18:29:00	1.5	2.7	17	269
3/29/2024	18:30:00	2.0	4.5	17	206
3/29/2024	18:31:00	2.4	5.0	17	255
3/29/2024	18:32:00	1.8	2.9	17	254
3/29/2024	18:33:00	1.6	2.6	17	214
3/29/2024	18:34:00	1.9	2.8	17	225
3/29/2024	18:35:00	2.4	4.1	17	217
3/29/2024	18:36:00	1.8	3.0	17	238
3/29/2024	18:37:00	2.7	6.0	17	247
3/29/2024	18:38:00	2.9	4.6	17	234
3/29/2024	18:39:00	2.3	4.8	17	231
3/29/2024	18:40:00	3.3	5.4	17	231
3/29/2024	18:41:00	2.9	4.7	17	226
3/29/2024	18:42:00	2.0	3.8	17	233
3/29/2024	18:43:00	2.1	3.5	17	231
3/29/2024	18:44:00	2.3	4.1	17	237
3/29/2024	18:45:00	2.9	4.5	17	246
3/29/2024	18:46:00	2.9	4.3	17	240

3/29/2024	18:47:00	2.2	3.5	17	252
3/29/2024	18:48:00	3.0	4.9	17	231
3/29/2024	18:49:00	2.8	4.1	17	226
3/29/2024	18:50:00	1.3	2.4	17	206
3/29/2024	18:51:00	1.8	3.1	17	217
3/29/2024	18:52:00	1.4	2.2	17	192
3/29/2024	18:53:00	1.8	3.8	17	198
3/29/2024	18:54:00	2.1	3.9	17	255
3/29/2024	18:55:00	1.7	3.3	17	210
3/29/2024	18:56:00	2.9	4.7	17	230
3/29/2024	18:57:00	2.5	4.4	17	215
3/29/2024	18:58:00	2.3	3.5	17	227
3/29/2024	18:59:00	3.2	4.8	17	239
3/29/2024	19:00:00	2.4	3.6	17	246
3/29/2024	19:01:00	2.4	3.4	17	237
3/29/2024	19:02:00	1.7	2.4	17	222
3/29/2024	19:03:00	2.3	4.2	17	233
3/29/2024	19:04:00	2.4	3.6	17	225
3/29/2024	19:05:00	2.4	3.3	17	248
3/29/2024	19:06:00	1.9	2.9	17	191
3/29/2024	19:07:00	2.0	3.5	17	235
3/29/2024	19:08:00	1.9	3.2	17	216
3/29/2024	19:09:00	2.1	4.4	17	239
3/29/2024	19:10:00	2.1	4.0	17	227
3/29/2024	19:11:00	1.9	2.4	17	211
3/29/2024	19:12:00	1.8	4.4	17	194
3/29/2024	19:13:00	2.5	4.3	17	220
3/29/2024	19:14:00	1.8	2.9	17	246
3/29/2024	19:15:00	2.7	5.1	17	248
3/29/2024	19:16:00	2.9	5.2	17	235
3/29/2024	19:17:00	3.1	5.9	17	236
3/29/2024	19:18:00	2.2	3.6	17	229
3/29/2024	19:19:00	2.0	3.5	17	229
3/29/2024	19:20:00	3.3	5.5	17	239
3/29/2024	19:21:00	2.1	3.7	17	227
3/29/2024	19:22:00	2.3	3.5	17	233
3/29/2024	19:23:00	1.8	3.7	17	190
3/29/2024	19:24:00	1.9	3.1	17	188
3/29/2024	19:25:00	2.0	2.9	17	197
3/29/2024	19:26:00	1.8	3.5	17	185
3/29/2024	19:27:00	2.1	4.1	17	192
3/29/2024	19:28:00	2.4	4.0	17	196
3/29/2024	19:29:00	2.0	3.1	17	216
3/29/2024	19:30:00	2.0	3.5	17	222
3/29/2024	19:31:00	1.9	3.1	17	231
3/29/2024	19:32:00	2.7	4.4	17	231

3/29/2024	19:33:00	1.8	3.0	17	242
3/29/2024	19:34:00	1.4	2.0	17	210
3/29/2024	19:35:00	2.3	4.4	17	218
3/29/2024	19:36:00	1.8	3.4	17	230
3/29/2024	19:37:00	1.8	3.3	17	206
3/29/2024	19:38:00	2.5	4.0	17	193
3/29/2024	19:39:00	2.2	3.8	17	222
3/29/2024	19:40:00	1.6	2.7	17	199
3/29/2024	19:41:00	2.3	3.9	17	192
3/29/2024	19:42:00	1.9	2.9	17	200
3/29/2024	19:43:00	2.1	3.8	17	201
3/29/2024	19:44:00	2.0	4.4	17	224
3/29/2024	19:45:00	3.3	4.7	17	238
3/29/2024	19:46:00	2.3	3.5	17	232
3/29/2024	19:47:00	2.2	3.9	17	207
3/29/2024	19:48:00	1.7	3.0	17	169
3/29/2024	19:49:00	1.8	4.1	17	202
3/29/2024	19:50:00	1.8	3.8	17	198
3/29/2024	19:51:00	1.5	2.2	17	223
3/29/2024	19:52:00	1.8	2.5	17	224
3/29/2024	19:53:00	1.5	2.3	16	165
3/29/2024	19:54:00	1.4	2.3	16	189
3/29/2024	19:55:00	1.5	3.2	16	203
3/29/2024	19:56:00	2.1	3.5	16	186
3/29/2024	19:57:00	1.6	2.6	16	211
3/29/2024	19:58:00	2.6	4.7	16	184
3/29/2024	19:59:00	1.9	3.4	16	182
3/29/2024	20:00:00	1.7	2.4	16	191
3/29/2024	20:01:00	1.8	3.2	16	175
3/29/2024	20:02:00	2.6	4.1	16	178
3/29/2024	20:03:00	2.2	3.9	16	192
3/29/2024	20:04:00	2.2	3.2	16	170
3/29/2024	20:05:00	1.8	4.0	16	174
3/29/2024	20:06:00	2.4	3.6	16	165
3/29/2024	20:07:00	1.6	3.4	16	179
3/29/2024	20:08:00	2.1	4.6	16	190
3/29/2024	20:09:00	1.6	2.8	16	171
3/29/2024	20:10:00	1.8	2.7	16	175
3/29/2024	20:11:00	1.7	2.2	16	174
3/29/2024	20:12:00	1.7	3.0	16	170
3/29/2024	20:13:00	1.4	2.3	16	190
3/29/2024	20:14:00	1.8	2.5	15	213
3/29/2024	20:15:00	1.7	3.6	15	203
3/29/2024	20:16:00	2.0	3.2	15	233
3/29/2024	20:17:00	1.6	2.6	15	230
3/29/2024	20:18:00	2.4	4.2	15	230

3/29/2024	20:19:00	2.0	3.4	15	240
3/29/2024	20:20:00	1.9	3.6	15	235
3/29/2024	20:21:00	1.6	2.4	15	219
3/29/2024	20:22:00	2.2	3.1	15	228
3/29/2024	20:23:00	1.5	2.4	15	236
3/29/2024	20:24:00	1.1	1.8	15	197
3/29/2024	20:25:00	1.4	2.3	15	217
3/29/2024	20:26:00	1.3	1.8	15	225
3/29/2024	20:27:00	1.5	2.2	15	229
3/29/2024	20:28:00	1.3	2.1	15	232
3/29/2024	20:29:00	1.7	2.2	15	223
3/29/2024	20:30:00	1.6	2.2	15	215
3/29/2024	20:31:00	1.6	3.1	15	232
3/29/2024	20:32:00	1.6	2.8	15	207
3/29/2024	20:33:00	1.6	2.7	14	199
3/29/2024	20:34:00	1.7	3.2	14	218
3/29/2024	20:35:00	1.3	2.1	14	182
3/29/2024	20:36:00	1.3	2.1	14	226
3/29/2024	20:37:00	1.3	1.7	14	211
3/29/2024	20:38:00	1.0	1.4	14	188
3/29/2024	20:39:00	2.2	3.9	14	217
3/29/2024	20:40:00	1.9	2.8	14	204
3/29/2024	20:41:00	1.4	2.1	14	238
3/29/2024	20:42:00	1.7	3.3	14	209
3/29/2024	20:43:00	1.3	2.0	14	215
3/29/2024	20:44:00	1.6	3.5	14	193
3/29/2024	20:45:00	1.3	1.9	14	195
3/29/2024	20:46:00	1.2	1.9	14	165
3/29/2024	20:47:00	0.9	1.7	14	183
3/29/2024	20:48:00	1.4	1.9	14	194
3/29/2024	20:49:00	1.8	2.5	14	214
3/29/2024	20:50:00	1.1	1.7	14	154
3/29/2024	20:51:00	1.4	2.1	14	204
3/29/2024	20:52:00	1.6	2.3	14	180
3/29/2024	20:53:00	1.4	2.2	14	217
3/29/2024	20:54:00	1.7	2.9	14	173
3/29/2024	20:55:00	1.5	2.0	14	168
3/29/2024	20:56:00	1.5	2.2	14	175
3/29/2024	20:57:00	1.3	2.8	14	167
3/29/2024	20:58:00	1.7	2.5	14	184
3/29/2024	20:59:00	1.4	1.9	14	175
3/29/2024	21:00:00	1.2	2.0	14	179
3/29/2024	21:01:00	1.4	1.9	14	190
3/29/2024	21:02:00	1.5	2.1	14	167
3/29/2024	21:03:00	1.4	2.4	14	175
3/29/2024	21:04:00	1.2	2.4	14	182

3/29/2024	21:05:00	1.1	1.5	13	172
3/29/2024	21:06:00	1.5	2.2	13	168
3/29/2024	21:07:00	1.4	2.3	13	166
3/29/2024	21:08:00	1.6	3.2	13	182
3/29/2024	21:09:00	1.3	2.4	13	164
3/29/2024	21:10:00	1.3	2.1	13	174
3/29/2024	21:11:00	1.0	1.5	13	146
3/29/2024	21:12:00	1.5	2.0	13	172
3/29/2024	21:13:00	1.2	1.9	13	173
3/29/2024	21:14:00	1.4	2.5	13	169
3/29/2024	21:15:00	1.3	3.0	13	182
3/29/2024	21:16:00	1.3	1.9	13	186
3/29/2024	21:17:00	1.1	1.4	13	177
3/29/2024	21:18:00	1.2	2.2	13	169
3/29/2024	21:19:00	1.5	2.4	13	156
3/29/2024	21:20:00	1.3	2.1	13	152
3/29/2024	21:21:00	1.3	2.1	13	202
3/29/2024	21:22:00	1.1	1.5	13	158
3/29/2024	21:23:00	1.3	2.0	13	158
3/29/2024	21:24:00	1.1	1.6	13	175
3/29/2024	21:25:00	1.3	2.2	13	157
3/29/2024	21:26:00	1.2	1.7	13	168
3/29/2024	21:27:00	1.2	1.9	13	166
3/29/2024	21:28:00	1.5	2.1	13	168
3/29/2024	21:29:00	1.1	2.0	13	167
3/29/2024	21:30:00	1.3	1.9	13	164
3/29/2024	21:31:00	1.4	2.5	13	169
3/29/2024	21:32:00	1.5	2.1	13	164
3/29/2024	21:33:00	1.2	2.0	13	178
3/29/2024	21:34:00	1.5	2.3	12	184
3/29/2024	21:35:00	1.2	1.8	12	163
3/29/2024	21:36:00	1.3	2.2	12	176
3/29/2024	21:37:00	1.3	1.7	12	173
3/29/2024	21:38:00	1.0	1.4	12	158
3/29/2024	21:39:00	1.3	1.9	12	165
3/29/2024	21:40:00	1.3	1.9	12	168
3/29/2024	21:41:00	1.1	1.6	12	165
3/29/2024	21:42:00	1.2	1.8	12	166
3/29/2024	21:43:00	1.2	1.7	12	163
3/29/2024	21:44:00	1.1	1.6	12	171
3/29/2024	21:45:00	1.0	1.4	12	168
3/29/2024	21:46:00	1.0	1.5	12	161
3/29/2024	21:47:00	0.9	1.4	12	160
3/29/2024	21:48:00	1.0	1.6	12	168
3/29/2024	21:49:00	0.9	1.5	12	171
3/29/2024	21:50:00	0.8	1.1	12	159

3/29/2024	21:51:00	0.8	1.3	12	162
3/29/2024	21:52:00	0.9	1.5	12	153
3/29/2024	21:53:00	0.8	1.1	12	156
3/29/2024	21:54:00	0.9	1.6	12	169
3/29/2024	21:55:00	0.8	1.1	12	156
3/29/2024	21:56:00	1.0	1.4	12	177
3/29/2024	21:57:00	1.0	1.3	12	162
3/29/2024	21:58:00	0.7	0.9	12	165
3/29/2024	21:59:00	1.0	1.5	11	159
3/29/2024	22:00:00	0.9	1.4	11	167
3/29/2024	22:01:00	0.9	1.5	11	160
3/29/2024	22:02:00	0.9	1.3	11	155
3/29/2024	22:03:00	1.0	1.5	11	153
3/29/2024	22:04:00	0.9	1.3	11	162
3/29/2024	22:05:00	1.0	1.4	11	152
3/29/2024	22:06:00	1.2	1.6	11	178
3/29/2024	22:07:00	1.1	1.7	11	161
3/29/2024	22:08:00	1.2	1.7	11	166
3/29/2024	22:09:00	1.1	1.8	11	165
3/29/2024	22:10:00	0.8	1.2	11	153
3/29/2024	22:11:00	1.1	1.4	11	168
3/29/2024	22:12:00	1.0	1.6	11	164
3/29/2024	22:13:00	0.9	1.2	11	158
3/29/2024	22:14:00	1.1	1.7	11	171
3/29/2024	22:15:00	0.8	1.1	11	159
3/29/2024	22:16:00	1.1	1.8	11	163
3/29/2024	22:17:00	1.2	1.6	11	146
3/29/2024	22:18:00	1.4	1.8	11	179
3/29/2024	22:19:00	1.4	2.9	11	168
3/29/2024	22:20:00	1.2	1.8	11	171
3/29/2024	22:21:00	0.9	1.3	11	155
3/29/2024	22:22:00	1.1	2.0	11	178
3/29/2024	22:23:00	1.3	2.5	11	170
3/29/2024	22:24:00	0.9	1.2	11	152
3/29/2024	22:25:00	1.2	1.7	11	174
3/29/2024	22:26:00	1.1	1.7	11	156
3/29/2024	22:27:00	1.3	2.2	11	169
3/29/2024	22:28:00	1.0	1.3	11	152
3/29/2024	22:29:00	0.9	1.5	11	163
3/29/2024	22:30:00	0.9	1.4	11	157
3/29/2024	22:31:00	1.2	1.8	11	158
3/29/2024	22:32:00	0.8	1.2	11	157
3/29/2024	22:33:00	0.8	1.1	11	169
3/29/2024	22:34:00	1.0	1.5	11	174
3/29/2024	22:35:00	0.9	1.3	11	164
3/29/2024	22:36:00	1.2	2.1	11	164

3/29/2024	22:37:00	1.1	1.7	11	171
3/29/2024	22:38:00	1.3	2.0	11	169
3/29/2024	22:39:00	1.3	1.8	11	158
3/29/2024	22:40:00	1.1	1.9	11	166
3/29/2024	22:41:00	1.4	2.0	11	169
3/29/2024	22:42:00	1.0	1.5	11	150
3/29/2024	22:43:00	1.2	1.8	11	162
3/29/2024	22:44:00	1.2	1.9	11	164
3/29/2024	22:45:00	1.5	2.1	11	167
3/29/2024	22:46:00	1.3	1.9	11	168
3/29/2024	22:47:00	1.3	2.1	11	171
3/29/2024	22:48:00	1.1	1.4	11	155
3/29/2024	22:49:00	1.1	1.7	11	170
3/29/2024	22:50:00	1.4	2.0	11	181
3/29/2024	22:51:00	1.1	1.7	11	170
3/29/2024	22:52:00	1.0	1.8	11	163
3/29/2024	22:53:00	1.2	1.7	11	164
3/29/2024	22:54:00	1.4	2.1	11	176
3/29/2024	22:55:00	1.0	1.5	11	159
3/29/2024	22:56:00	1.1	1.6	11	158
3/29/2024	22:57:00	1.2	1.9	11	178
3/29/2024	22:58:00	1.1	1.6	11	175
3/29/2024	22:59:00	1.2	1.9	11	166
3/29/2024	23:00:00	1.0	1.4	11	158
3/29/2024	23:01:00	1.1	2.0	11	171
3/29/2024	23:02:00	1.0	1.6	11	162
3/29/2024	23:03:00	1.2	1.7	11	170
3/29/2024	23:04:00	1.1	1.8	11	167
3/29/2024	23:05:00	1.0	1.3	11	166
3/29/2024	23:06:00	1.1	1.5	11	154
3/29/2024	23:07:00	1.0	1.4	11	159
3/29/2024	23:08:00	0.9	1.2	11	169
3/29/2024	23:09:00	0.9	1.2	11	154
3/29/2024	23:10:00	0.9	1.3	11	152
3/29/2024	23:11:00	0.9	1.6	10	157
3/29/2024	23:12:00	1.0	1.4	10	156
3/29/2024	23:13:00	1.1	1.6	10	158
3/29/2024	23:14:00	1.4	1.9	10	157
3/29/2024	23:15:00	0.9	1.2	10	153
3/29/2024	23:16:00	1.0	1.4	10	156
3/29/2024	23:17:00	1.0	1.6	10	158
3/29/2024	23:18:00	0.8	1.1	10	151
3/29/2024	23:19:00	1.0	1.5	10	165
3/29/2024	23:20:00	1.1	1.8	10	168
3/29/2024	23:21:00	0.8	1.1	10	149
3/29/2024	23:22:00	1.0	1.4	10	149

3/29/2024	23:23:00	0.8	1.4	10	161
3/29/2024	23:24:00	0.9	1.2	10	158
3/29/2024	23:25:00	0.9	1.2	10	161
3/29/2024	23:26:00	1.0	1.4	10	165
3/29/2024	23:27:00	0.8	1.1	10	166
3/29/2024	23:28:00	0.9	1.3	10	152
3/29/2024	23:29:00	0.9	1.3	10	155
3/29/2024	23:30:00	0.9	1.3	10	154
3/29/2024	23:31:00	1.0	1.5	10	149
3/29/2024	23:32:00	1.0	1.4	10	155
3/29/2024	23:33:00	1.2	1.7	10	162
3/29/2024	23:34:00	0.8	1.1	10	152
3/29/2024	23:35:00	1.1	1.7	10	157
3/29/2024	23:36:00	0.9	1.7	10	158
3/29/2024	23:37:00	1.0	1.3	10	180
3/29/2024	23:38:00	1.0	1.6	10	156
3/29/2024	23:39:00	0.9	1.3	10	158
3/29/2024	23:40:00	0.8	1.2	10	159
3/29/2024	23:41:00	1.1	2.0	10	156
3/29/2024	23:42:00	0.8	1.1	10	157
3/29/2024	23:43:00	1.1	1.6	10	156
3/29/2024	23:44:00	1.1	1.7	10	154
3/29/2024	23:45:00	0.9	1.3	10	163
3/29/2024	23:46:00	1.1	1.7	10	151
3/29/2024	23:47:00	1.0	1.3	10	157
3/29/2024	23:48:00	1.1	1.7	10	153
3/29/2024	23:49:00	1.0	1.3	10	167
3/29/2024	23:50:00	1.2	1.9	10	152
3/29/2024	23:51:00	1.0	1.7	10	172
3/29/2024	23:52:00	0.9	1.2	10	158
3/29/2024	23:53:00	1.0	1.6	10	160
3/29/2024	23:54:00	1.2	1.7	10	158
3/29/2024	23:55:00	0.9	1.1	10	158
3/29/2024	23:56:00	1.2	1.8	10	169
3/29/2024	23:57:00	1.2	1.6	10	162
3/29/2024	23:58:00	0.9	1.3	10	156
3/29/2024	23:59:00	0.9	1.3	10	160
3/30/2024	00:00:00	0.9	1.4	10	153
3/30/2024	00:01:00	1.0	1.6	10	175
3/30/2024	00:02:00	1.1	2.4	10	171
3/30/2024	00:03:00	1.0	1.6	10	165
3/30/2024	00:04:00	0.9	1.4	10	165
3/30/2024	00:05:00	1.2	1.9	10	164
3/30/2024	00:06:00	1.4	2.2	10	147
3/30/2024	00:07:00	1.4	2.2	10	176
3/30/2024	00:08:00	1.1	2.0	10	174

3/30/2024	00:09:00	1.2	2.0	10	180
3/30/2024	00:10:00	1.2	2.2	10	148
3/30/2024	00:11:00	1.2	1.7	10	157
3/30/2024	00:12:00	1.4	2.8	10	170
3/30/2024	00:13:00	1.0	1.5	10	162
3/30/2024	00:14:00	1.2	2.0	10	161
3/30/2024	00:15:00	1.0	1.4	10	169
3/30/2024	00:16:00	1.1	1.6	10	158
3/30/2024	00:17:00	1.4	2.0	10	170
3/30/2024	00:18:00	1.2	1.6	10	162
3/30/2024	00:19:00	1.2	1.8	10	159
3/30/2024	00:20:00	1.1	1.6	10	160
3/30/2024	00:21:00	1.2	1.7	10	169
3/30/2024	00:22:00	1.0	1.4	10	150
3/30/2024	00:23:00	1.3	1.9	10	163
3/30/2024	00:24:00	1.2	1.8	10	162
3/30/2024	00:25:00	1.2	1.8	10	152
3/30/2024	00:26:00	1.4	2.3	10	165
3/30/2024	00:27:00	1.2	1.7	10	166
3/30/2024	00:28:00	1.2	1.8	10	161
3/30/2024	00:29:00	1.5	1.9	10	171
3/30/2024	00:30:00	1.4	2.6	10	168
3/30/2024	00:31:00	1.2	2.0	10	158
3/30/2024	00:32:00	1.1	1.9	10	165
3/30/2024	00:33:00	1.2	1.6	10	166
3/30/2024	00:34:00	1.1	1.5	10	152
3/30/2024	00:35:00	1.3	2.1	10	172
3/30/2024	00:36:00	1.2	1.9	10	180
3/30/2024	00:37:00	1.0	2.0	10	175
3/30/2024	00:38:00	1.3	1.8	10	172
3/30/2024	00:39:00	0.9	1.3	10	175
3/30/2024	00:40:00	1.2	2.3	10	164
3/30/2024	00:41:00	3.0	6.5	10	178
3/30/2024	00:42:00	1.6	3.1	10	209
3/30/2024	00:43:00	1.7	3.6	11	183
3/30/2024	00:44:00	2.1	4.1	11	243
3/30/2024	00:45:00	1.8	3.2	11	201
3/30/2024	00:46:00	1.3	2.1	11	209
3/30/2024	00:47:00	1.8	3.0	11	213
3/30/2024	00:48:00	1.9	2.9	11	223
3/30/2024	00:49:00	1.5	2.3	11	214
3/30/2024	00:50:00	1.5	2.2	11	207
3/30/2024	00:51:00	1.8	2.7	11	229
3/30/2024	00:52:00	1.6	3.0	11	221
3/30/2024	00:53:00	1.5	3.8	11	221
3/30/2024	00:54:00	1.8	2.5	11	235

3/30/2024	00:55:00	2.1	4.0	11	242
3/30/2024	00:56:00	2.0	3.2	11	239
3/30/2024	00:57:00	1.6	2.2	11	247
3/30/2024	00:58:00	1.9	2.7	11	234
3/30/2024	00:59:00	1.5	2.3	11	224
3/30/2024	01:00:00	1.4	2.4	11	241
3/30/2024	01:01:00	1.3	2.6	11	236
3/30/2024	01:02:00	1.0	1.6	11	227
3/30/2024	01:03:00	0.8	1.2	11	260
3/30/2024	01:04:00	1.2	1.9	11	242
3/30/2024	01:05:00	1.5	2.3	11	236
3/30/2024	01:06:00	2.1	3.0	11	240
3/30/2024	01:07:00	1.1	1.6	11	229
3/30/2024	01:08:00	1.3	2.0	11	239
3/30/2024	01:09:00	1.8	2.5	11	236
3/30/2024	01:10:00	1.2	2.0	11	230
3/30/2024	01:11:00	1.4	1.9	11	233
3/30/2024	01:12:00	1.1	1.6	11	230
3/30/2024	01:13:00	1.4	2.0	11	227
3/30/2024	01:14:00	1.6	3.7	11	238
3/30/2024	01:15:00	1.5	2.0	11	244
3/30/2024	01:16:00	1.4	3.0	11	234
3/30/2024	01:17:00	1.5	2.4	11	252
3/30/2024	01:18:00	1.3	1.6	11	230
3/30/2024	01:19:00	1.3	1.9	11	241
3/30/2024	01:20:00	1.7	2.5	11	261
3/30/2024	01:21:00	1.2	2.0	11	237
3/30/2024	01:22:00	1.5	2.1	11	242
3/30/2024	01:23:00	1.7	3.1	11	274
3/30/2024	01:24:00	1.5	2.3	11	278
3/30/2024	01:25:00	1.3	2.1	11	263
3/30/2024	01:26:00	1.8	3.3	11	261
3/30/2024	01:27:00	1.8	3.5	11	281
3/30/2024	01:28:00	1.7	2.8	11	263
3/30/2024	01:29:00	2.1	3.7	11	266
3/30/2024	01:30:00	1.8	2.9	11	274
3/30/2024	01:31:00	2.0	4.0	11	269
3/30/2024	01:32:00	1.8	2.6	11	261
3/30/2024	01:33:00	1.7	2.7	11	265
3/30/2024	01:34:00	1.9	2.9	11	272
3/30/2024	01:35:00	1.7	3.2	11	269
3/30/2024	01:36:00	1.6	2.1	11	252
3/30/2024	01:37:00	1.8	2.9	11	258
3/30/2024	01:38:00	1.6	2.4	11	246
3/30/2024	01:39:00	1.7	4.2	11	272
3/30/2024	01:40:00	2.0	3.7	11	239

3/30/2024	01:41:00	1.9	2.4	11	253
3/30/2024	01:42:00	1.5	2.8	11	227
3/30/2024	01:43:00	1.8	2.6	11	261
3/30/2024	01:44:00	1.6	2.8	11	252
3/30/2024	01:45:00	1.7	2.5	11	256
3/30/2024	01:46:00	1.5	2.6	11	247
3/30/2024	01:47:00	2.0	3.4	11	250
3/30/2024	01:48:00	2.3	4.0	11	262
3/30/2024	01:49:00	1.7	2.5	11	252
3/30/2024	01:50:00	2.3	3.8	11	267
3/30/2024	01:51:00	1.8	3.0	11	274
3/30/2024	01:52:00	1.8	3.4	11	282
3/30/2024	01:53:00	1.4	1.8	11	258
3/30/2024	01:54:00	1.4	2.1	11	263
3/30/2024	01:55:00	1.3	2.3	10	268
3/30/2024	01:56:00	1.6	2.3	10	240
3/30/2024	01:57:00	1.5	2.2	10	252
3/30/2024	01:58:00	1.3	1.8	10	243
3/30/2024	01:59:00	1.2	1.7	10	269
3/30/2024	02:00:00	1.0	1.4	10	256
3/30/2024	02:01:00	1.4	2.3	10	240
3/30/2024	02:02:00	1.6	3.1	10	240
3/30/2024	02:03:00	1.2	1.6	10	268
3/30/2024	02:04:00	1.4	2.3	10	267
3/30/2024	02:05:00	1.1	1.7	10	243
3/30/2024	02:06:00	1.2	2.1	10	253
3/30/2024	02:07:00	1.7	2.8	10	250
3/30/2024	02:08:00	1.6	3.0	10	250
3/30/2024	02:09:00	1.6	2.2	10	253
3/30/2024	02:10:00	1.6	2.7	10	259
3/30/2024	02:11:00	1.3	1.7	10	224
3/30/2024	02:12:00	1.0	1.3	10	290
3/30/2024	02:13:00	1.2	1.7	10	265
3/30/2024	02:14:00	1.2	1.6	10	251
3/30/2024	02:15:00	1.4	3.1	10	256
3/30/2024	02:16:00	1.5	2.6	10	265
3/30/2024	02:17:00	1.0	1.4	10	241
3/30/2024	02:18:00	1.2	1.8	10	248
3/30/2024	02:19:00	1.3	1.9	10	261
3/30/2024	02:20:00	1.4	2.1	10	263
3/30/2024	02:21:00	1.4	2.1	10	278
3/30/2024	02:22:00	0.9	1.3	10	257
3/30/2024	02:23:00	1.2	1.9	10	272
3/30/2024	02:24:00	1.0	1.2	10	287
3/30/2024	02:25:00	0.8	1.0	10	283
3/30/2024	02:26:00	0.9	1.3	10	272

3/30/2024	02:27:00	1.0	1.4	10	252
3/30/2024	02:28:00	1.2	1.6	10	287
3/30/2024	02:29:00	1.1	1.7	10	257
3/30/2024	02:30:00	0.9	1.2	10	256
3/30/2024	02:31:00	1.4	2.2	10	236
3/30/2024	02:32:00	1.4	2.3	10	242
3/30/2024	02:33:00	1.4	2.0	10	263
3/30/2024	02:34:00	1.2	1.4	10	247
3/30/2024	02:35:00	1.1	1.6	10	228
3/30/2024	02:36:00	1.3	2.7	10	252
3/30/2024	02:37:00	1.4	2.6	10	240
3/30/2024	02:38:00	1.0	1.4	10	250
3/30/2024	02:39:00	1.4	2.2	10	260
3/30/2024	02:40:00	1.4	2.0	10	265
3/30/2024	02:41:00	0.9	1.6	10	261
3/30/2024	02:42:00	1.1	1.6	10	266
3/30/2024	02:43:00	1.0	1.6	10	259
3/30/2024	02:44:00	0.6	1.4	10	263
3/30/2024	02:45:00	1.2	2.0	10	251
3/30/2024	02:46:00	1.4	2.0	10	247
3/30/2024	02:47:00	1.1	1.7	10	251
3/30/2024	02:48:00	0.8	1.1	10	255
3/30/2024	02:49:00	0.9	1.2	10	238
3/30/2024	02:50:00	1.4	2.1	10	262
3/30/2024	02:51:00	0.8	1.2	10	221
3/30/2024	02:52:00	0.7	1.2	10	239
3/30/2024	02:53:00	1.3	1.9	10	214
3/30/2024	02:54:00	1.5	2.0	10	226
3/30/2024	02:55:00	1.2	1.6	10	218
3/30/2024	02:56:00	1.1	1.7	10	248
3/30/2024	02:57:00	1.3	1.6	10	230
3/30/2024	02:58:00	1.2	1.5	10	247
3/30/2024	02:59:00	0.9	1.4	10	244
3/30/2024	03:00:00	1.1	1.5	10	238
3/30/2024	03:01:00	0.9	1.4	10	224
3/30/2024	03:02:00	0.7	1.0	10	238
3/30/2024	03:03:00	1.2	1.7	10	215
3/30/2024	03:04:00	0.9	1.3	10	207
3/30/2024	03:05:00	0.9	1.2	10	209
3/30/2024	03:06:00	0.7	1.0	10	222
3/30/2024	03:07:00	0.8	1.3	10	233
3/30/2024	03:08:00	0.6	1.0	10	271
3/30/2024	03:09:00	1.1	1.5	9	243
3/30/2024	03:10:00	0.8	1.1	9	276
3/30/2024	03:11:00	1.2	1.5	9	224
3/30/2024	03:12:00	1.0	1.2	9	240

3/30/2024	03:13:00	0.8	1.1	9	216
3/30/2024	03:14:00	0.2	0.7	9	141
3/30/2024	03:15:00	0.8	1.1	9	225
3/30/2024	03:16:00	1.1	1.4	9	232
3/30/2024	03:17:00	0.6	0.9	9	185
3/30/2024	03:18:00	0.6	1.1	9	166
3/30/2024	03:19:00	0.9	1.2	9	189
3/30/2024	03:20:00	0.8	1.3	9	200
3/30/2024	03:21:00	0.8	1.2	9	204
3/30/2024	03:22:00	0.8	1.2	9	213
3/30/2024	03:23:00	1.2	1.6	9	207
3/30/2024	03:24:00	0.7	1.0	9	186
3/30/2024	03:25:00	0.6	1.0	9	176
3/30/2024	03:26:00	0.8	1.2	9	163
3/30/2024	03:27:00	0.9	1.2	9	160
3/30/2024	03:28:00	1.1	1.7	9	161
3/30/2024	03:29:00	0.9	1.2	9	178
3/30/2024	03:30:00	0.8	1.4	9	177
3/30/2024	03:31:00	1.1	1.6	9	151
3/30/2024	03:32:00	1.2	1.8	9	161
3/30/2024	03:33:00	1.3	1.7	9	162
3/30/2024	03:34:00	0.8	1.2	9	155
3/30/2024	03:35:00	0.8	1.2	9	162
3/30/2024	03:36:00	1.0	1.8	9	181
3/30/2024	03:37:00	0.9	1.3	9	184
3/30/2024	03:38:00	1.1	1.9	9	165
3/30/2024	03:39:00	1.0	1.7	9	165
3/30/2024	03:40:00	0.9	1.2	9	148
3/30/2024	03:41:00	1.0	1.3	9	152
3/30/2024	03:42:00	1.2	1.7	9	149
3/30/2024	03:43:00	1.3	1.8	9	149
3/30/2024	03:44:00	0.8	1.2	9	172
3/30/2024	03:45:00	1.0	1.5	9	150
3/30/2024	03:46:00	1.2	1.5	9	139
3/30/2024	03:47:00	1.2	1.7	9	157
3/30/2024	03:48:00	0.9	1.3	9	152
3/30/2024	03:49:00	1.0	1.4	9	168
3/30/2024	03:50:00	0.8	1.1	9	158
3/30/2024	03:51:00	1.0	1.5	9	172
3/30/2024	03:52:00	1.0	1.5	9	171
3/30/2024	03:53:00	0.8	1.1	9	146
3/30/2024	03:54:00	1.0	1.7	9	156
3/30/2024	03:55:00	1.2	1.6	9	173
3/30/2024	03:56:00	1.0	1.7	9	175
3/30/2024	03:57:00	1.0	1.4	9	150
3/30/2024	03:58:00	1.0	1.3	9	154

3/30/2024	03:59:00	1.0	1.5	9	162
3/30/2024	04:00:00	0.6	0.9	9	153
3/30/2024	04:01:00	1.1	1.6	9	176
3/30/2024	04:02:00	0.8	1.2	9	163
3/30/2024	04:03:00	0.8	1.7	9	163
3/30/2024	04:04:00	0.8	1.2	9	163
3/30/2024	04:05:00	1.0	1.4	9	171
3/30/2024	04:06:00	0.9	1.8	9	171
3/30/2024	04:07:00	0.8	1.4	9	174
3/30/2024	04:08:00	1.2	1.7	8	158
3/30/2024	04:09:00	1.0	1.4	8	175
3/30/2024	04:10:00	1.1	1.7	8	171
3/30/2024	04:11:00	1.0	1.4	8	188
3/30/2024	04:12:00	1.3	2.4	8	168
3/30/2024	04:13:00	0.9	1.2	8	168
3/30/2024	04:14:00	1.3	2.1	8	171
3/30/2024	04:15:00	1.3	1.9	8	178
3/30/2024	04:16:00	1.1	1.8	8	169
3/30/2024	04:17:00	1.2	1.7	8	182
3/30/2024	04:18:00	1.0	1.5	8	152
3/30/2024	04:19:00	1.2	1.7	8	179
3/30/2024	04:20:00	1.2	1.7	8	162
3/30/2024	04:21:00	0.9	1.3	8	165
3/30/2024	04:22:00	1.0	2.0	8	176
3/30/2024	04:23:00	1.2	2.2	8	169
3/30/2024	04:24:00	1.1	1.4	8	157
3/30/2024	04:25:00	0.8	1.2	8	157
3/30/2024	04:26:00	1.1	1.9	8	171
3/30/2024	04:27:00	1.1	1.8	8	153
3/30/2024	04:28:00	0.8	1.3	8	177
3/30/2024	04:29:00	0.9	1.4	8	160
3/30/2024	04:30:00	0.9	1.2	8	157
3/30/2024	04:31:00	1.2	1.7	8	178
3/30/2024	04:32:00	1.2	1.8	8	162
3/30/2024	04:33:00	1.0	1.7	8	163
3/30/2024	04:34:00	0.9	1.2	8	162
3/30/2024	04:35:00	1.1	1.7	8	166
3/30/2024	04:36:00	1.0	1.5	8	168
3/30/2024	04:37:00	1.5	2.1	8	170
3/30/2024	04:38:00	1.4	2.2	8	160
3/30/2024	04:39:00	1.0	1.5	8	159
3/30/2024	04:40:00	1.5	2.0	8	166
3/30/2024	04:41:00	1.2	1.8	8	167
3/30/2024	04:42:00	1.6	2.2	8	171
3/30/2024	04:43:00	1.3	2.1	8	166
3/30/2024	04:44:00	1.2	1.8	8	171

3/30/2024	04:45:00	1.1	1.5	8	168
3/30/2024	04:46:00	1.4	2.3	8	164
3/30/2024	04:47:00	1.5	2.5	8	167
3/30/2024	04:48:00	1.3	1.8	8	154
3/30/2024	04:49:00	1.5	2.2	8	177
3/30/2024	04:50:00	1.1	2.1	8	165
3/30/2024	04:51:00	1.4	2.4	8	174
3/30/2024	04:52:00	1.3	1.8	8	176
3/30/2024	04:53:00	1.2	2.2	8	176
3/30/2024	04:54:00	1.2	2.0	8	168
3/30/2024	04:55:00	1.5	2.5	8	170
3/30/2024	04:56:00	1.2	1.9	8	170
3/30/2024	04:57:00	1.4	2.2	8	151
3/30/2024	04:58:00	1.3	2.0	8	164
3/30/2024	04:59:00	1.4	2.0	8	161
3/30/2024	05:00:00	1.6	2.8	8	157
3/30/2024	05:01:00	1.7	2.6	8	162
3/30/2024	05:02:00	1.2	1.8	8	156
3/30/2024	05:03:00	1.2	2.0	8	158
3/30/2024	05:04:00	1.6	2.2	8	163
3/30/2024	05:05:00	1.4	1.9	8	172
3/30/2024	05:06:00	1.3	2.0	8	154
3/30/2024	05:07:00	1.2	2.0	8	165
3/30/2024	05:08:00	1.6	2.7	8	168
3/30/2024	05:09:00	1.7	2.5	8	172
3/30/2024	05:10:00	1.2	1.9	8	160
3/30/2024	05:11:00	1.4	2.1	8	158
3/30/2024	05:12:00	1.4	2.1	8	167
3/30/2024	05:13:00	1.5	2.7	8	172
3/30/2024	05:14:00	1.5	1.9	8	165
3/30/2024	05:15:00	1.5	2.6	8	182
3/30/2024	05:16:00	1.4	2.3	8	176
3/30/2024	05:17:00	1.7	2.5	8	163
3/30/2024	05:18:00	1.3	2.0	8	167
3/30/2024	05:19:00	1.5	2.2	8	166
3/30/2024	05:20:00	1.6	2.9	8	173
3/30/2024	05:21:00	1.7	2.4	8	166
3/30/2024	05:22:00	1.8	3.0	8	176
3/30/2024	05:23:00	1.3	2.0	8	167
3/30/2024	05:24:00	1.7	2.7	8	174
3/30/2024	05:25:00	1.6	2.4	8	163
3/30/2024	05:26:00	1.6	2.6	8	164
3/30/2024	05:27:00	1.6	2.6	8	182
3/30/2024	05:28:00	1.4	2.0	8	171
3/30/2024	05:29:00	1.8	3.5	8	169
3/30/2024	05:30:00	1.2	1.7	8	157

3/30/2024	05:31:00	1.5	2.4	8	170
3/30/2024	05:32:00	1.5	2.4	8	157
3/30/2024	05:33:00	1.8	2.6	8	168
3/30/2024	05:34:00	1.2	2.0	8	164
3/30/2024	05:35:00	1.8	2.4	8	167
3/30/2024	05:36:00	1.5	2.2	8	179
3/30/2024	05:37:00	1.9	3.7	8	172
3/30/2024	05:38:00	1.6	2.2	8	156
3/30/2024	05:39:00	1.3	2.0	8	166
3/30/2024	05:40:00	2.2	3.6	8	177
3/30/2024	05:41:00	1.8	2.6	8	168
3/30/2024	05:42:00	1.5	2.2	8	180
3/30/2024	05:43:00	2.0	3.4	8	166
3/30/2024	05:44:00	1.6	3.1	8	162
3/30/2024	05:45:00	2.2	3.8	8	177
3/30/2024	05:46:00	1.9	3.3	8	180
3/30/2024	05:47:00	1.8	3.1	8	168
3/30/2024	05:48:00	1.6	3.0	8	175
3/30/2024	05:49:00	0.9	1.8	8	161
3/30/2024	05:50:00	1.4	2.5	8	175
3/30/2024	05:51:00	1.5	3.1	8	171
3/30/2024	05:52:00	1.5	2.4	8	169
3/30/2024	05:53:00	1.4	2.1	8	182
3/30/2024	05:54:00	1.6	3.1	8	163
3/30/2024	05:55:00	1.3	2.0	8	164
3/30/2024	05:56:00	1.7	2.4	8	165
3/30/2024	05:57:00	1.6	2.1	8	176
3/30/2024	05:58:00	1.5	2.6	8	167
3/30/2024	05:59:00	1.5	2.6	8	172
3/30/2024	06:00:00	1.4	2.3	8	152
3/30/2024	06:01:00	1.1	1.5	8	166
3/30/2024	06:02:00	1.0	2.0	8	159
3/30/2024	06:03:00	1.5	2.4	8	164
3/30/2024	06:04:00	1.2	1.6	8	180
3/30/2024	06:05:00	1.4	1.9	8	170
3/30/2024	06:06:00	1.3	1.9	8	170
3/30/2024	06:07:00	1.6	3.0	8	163
3/30/2024	06:08:00	1.2	1.9	8	169
3/30/2024	06:09:00	1.4	1.9	8	178
3/30/2024	06:10:00	1.3	1.8	8	166
3/30/2024	06:11:00	1.4	2.7	8	168
3/30/2024	06:12:00	1.1	1.4	8	181
3/30/2024	06:13:00	1.4	2.1	8	164
3/30/2024	06:14:00	1.3	2.0	8	178
3/30/2024	06:15:00	1.3	1.8	8	170
3/30/2024	06:16:00	1.5	2.4	8	169

3/30/2024	06:17:00	1.5	2.2	8	164
3/30/2024	06:18:00	1.5	2.6	8	156
3/30/2024	06:19:00	1.6	2.7	8	175
3/30/2024	06:20:00	1.5	2.2	8	174
3/30/2024	06:21:00	1.6	2.6	8	164
3/30/2024	06:22:00	1.4	2.4	8	176
3/30/2024	06:23:00	1.4	2.3	8	160
3/30/2024	06:24:00	1.5	2.4	8	182
3/30/2024	06:25:00	1.6	2.7	8	173
3/30/2024	06:26:00	1.4	2.1	8	192
3/30/2024	06:27:00	1.3	2.6	8	170
3/30/2024	06:28:00	1.8	2.9	8	168
3/30/2024	06:29:00	1.5	2.4	8	162
3/30/2024	06:30:00	1.3	2.6	8	161
3/30/2024	06:31:00	1.5	2.3	8	171
3/30/2024	06:32:00	1.1	1.8	8	179
3/30/2024	06:33:00	1.0	1.7	8	166
3/30/2024	06:34:00	1.1	1.5	8	174
3/30/2024	06:35:00	1.6	2.5	8	160
3/30/2024	06:36:00	1.3	2.4	8	202
3/30/2024	06:37:00	1.0	1.7	8	211
3/30/2024	06:38:00	1.0	1.8	8	174
3/30/2024	06:39:00	1.3	2.2	8	203
3/30/2024	06:40:00	1.1	1.6	8	211
3/30/2024	06:41:00	1.4	2.3	8	192
3/30/2024	06:42:00	1.2	2.1	8	172
3/30/2024	06:43:00	1.6	2.3	8	211
3/30/2024	06:44:00	1.6	2.7	8	231
3/30/2024	06:45:00	1.5	2.3	8	203
3/30/2024	06:46:00	1.5	3.1	8	220
3/30/2024	06:47:00	1.2	2.0	8	180
3/30/2024	06:48:00	1.8	3.1	8	220
3/30/2024	06:49:00	0.9	1.3	8	208
3/30/2024	06:50:00	1.6	2.2	8	233
3/30/2024	06:51:00	1.6	2.8	8	219
3/30/2024	06:52:00	1.1	1.7	8	222
3/30/2024	06:53:00	1.8	3.4	8	239
3/30/2024	06:54:00	1.4	2.7	8	210
3/30/2024	06:55:00	1.1	1.4	8	211
3/30/2024	06:56:00	1.6	3.2	8	229
3/30/2024	06:57:00	1.7	3.2	8	236
3/30/2024	06:58:00	1.2	2.0	8	218
3/30/2024	06:59:00	1.8	3.2	8	242
3/30/2024	07:00:00	1.8	3.3	8	235
3/30/2024	07:01:00	1.8	3.4	8	221
3/30/2024	07:02:00	1.4	2.4	8	235

3/30/2024	07:03:00	2.1	3.0	8	231
3/30/2024	07:04:00	1.8	3.0	8	223
3/30/2024	07:05:00	2.2	3.9	8	237
3/30/2024	07:06:00	1.8	3.6	8	233
3/30/2024	07:07:00	2.1	3.7	8	233
3/30/2024	07:08:00	1.4	2.1	8	223
3/30/2024	07:09:00	2.0	4.0	8	226
3/30/2024	07:10:00	1.9	3.2	8	234
3/30/2024	07:11:00	1.5	3.2	8	243
3/30/2024	07:12:00	2.3	3.7	8	213
3/30/2024	07:13:00	1.5	2.1	8	234
3/30/2024	07:14:00	1.6	3.2	8	230
3/30/2024	07:15:00	1.9	2.8	8	228
3/30/2024	07:16:00	1.5	2.0	8	226
3/30/2024	07:17:00	1.6	3.2	8	232
3/30/2024	07:18:00	1.6	2.3	8	236
3/30/2024	07:19:00	1.7	2.1	7	225
3/30/2024	07:20:00	1.6	2.8	7	232
3/30/2024	07:21:00	2.2	3.3	7	235
3/30/2024	07:22:00	1.6	2.3	7	249
3/30/2024	07:23:00	1.7	2.7	7	227
3/30/2024	07:24:00	1.6	3.1	7	236
3/30/2024	07:25:00	1.8	2.9	7	224
3/30/2024	07:26:00	1.8	2.6	7	237
3/30/2024	07:27:00	2.0	3.9	7	230
3/30/2024	07:28:00	2.1	2.9	7	243
3/30/2024	07:29:00	1.9	3.0	7	244
3/30/2024	07:30:00	1.8	2.8	7	236
3/30/2024	07:31:00	2.0	2.7	7	236
3/30/2024	07:32:00	2.0	2.8	7	245
3/30/2024	07:33:00	1.9	3.6	7	248
3/30/2024	07:34:00	1.3	1.7	7	249
3/30/2024	07:35:00	2.2	4.2	7	224
3/30/2024	07:36:00	2.0	3.4	7	239
3/30/2024	07:37:00	1.3	1.9	7	227
3/30/2024	07:38:00	2.0	3.6	7	225
3/30/2024	07:39:00	2.1	3.1	7	238
3/30/2024	07:40:00	1.9	2.9	7	232
3/30/2024	07:41:00	2.0	3.3	8	233
3/30/2024	07:42:00	1.9	3.1	7	240
3/30/2024	07:43:00	2.1	3.9	7	234
3/30/2024	07:44:00	2.3	3.3	7	231
3/30/2024	07:45:00	2.1	3.7	7	232
3/30/2024	07:46:00	1.8	2.9	7	254
3/30/2024	07:47:00	1.7	2.6	7	247
3/30/2024	07:48:00	2.0	4.3	7	252

3/30/2024	07:49:00	1.8	2.4	7	245
3/30/2024	07:50:00	2.1	3.6	7	233
3/30/2024	07:51:00	2.0	3.1	7	237
3/30/2024	07:52:00	1.4	2.0	7	259
3/30/2024	07:53:00	1.5	2.2	7	243
3/30/2024	07:54:00	2.0	3.3	7	238
3/30/2024	07:55:00	2.6	4.5	7	254
3/30/2024	07:56:00	2.2	3.2	7	241
3/30/2024	07:57:00	1.6	2.6	7	254
3/30/2024	07:58:00	1.6	3.4	7	253
3/30/2024	07:59:00	2.3	3.7	7	240
3/30/2024	08:00:00	2.2	3.5	7	255
3/30/2024	08:01:00	2.3	3.8	7	232
3/30/2024	08:02:00	1.9	3.2	7	251
3/30/2024	08:03:00	2.1	3.2	7	250
3/30/2024	08:04:00	2.1	3.3	7	244
3/30/2024	08:05:00	2.3	3.7	7	248
3/30/2024	08:06:00	1.7	2.6	7	255
3/30/2024	08:07:00	1.8	3.9	7	256
3/30/2024	08:08:00	1.9	2.6	7	233
3/30/2024	08:09:00	1.7	2.7	7	249
3/30/2024	08:10:00	1.8	2.6	7	260
3/30/2024	08:11:00	1.7	3.1	7	255
3/30/2024	08:12:00	2.3	3.8	7	246
3/30/2024	08:13:00	1.9	2.9	7	234
3/30/2024	08:14:00	1.4	3.0	7	234
3/30/2024	08:15:00	1.3	1.7	7	232
3/30/2024	08:16:00	1.8	2.4	7	260
3/30/2024	08:17:00	1.6	2.4	7	232
3/30/2024	08:18:00	1.8	3.0	7	262
3/30/2024	08:19:00	1.8	2.8	7	237
3/30/2024	08:20:00	1.9	3.1	7	241
3/30/2024	08:21:00	1.6	2.5	7	261
3/30/2024	08:22:00	1.2	1.5	7	235
3/30/2024	08:23:00	1.5	3.3	7	228
3/30/2024	08:24:00	1.6	2.9	7	241
3/30/2024	08:25:00	1.2	1.8	7	255
3/30/2024	08:26:00	1.1	2.1	7	245
3/30/2024	08:27:00	1.3	1.9	7	232
3/30/2024	08:28:00	1.4	1.8	7	220
3/30/2024	08:29:00	2.1	3.4	7	230
3/30/2024	08:30:00	2.0	2.6	7	228
3/30/2024	08:31:00	1.8	3.6	7	245
3/30/2024	08:32:00	1.5	2.1	7	262
3/30/2024	08:33:00	1.3	2.7	7	219
3/30/2024	08:34:00	1.7	2.9	7	256

3/30/2024	08:35:00	1.5	1.9	7	257
3/30/2024	08:36:00	2.1	3.7	6	229
3/30/2024	08:37:00	2.1	2.6	6	240
3/30/2024	08:38:00	1.5	2.6	6	237
3/30/2024	08:39:00	2.2	3.7	6	233
3/30/2024	08:40:00	1.9	2.6	6	246
3/30/2024	08:41:00	1.5	2.6	6	212
3/30/2024	08:42:00	1.9	2.8	6	228
3/30/2024	08:43:00	1.5	2.8	6	227
3/30/2024	08:44:00	1.7	2.7	6	228
3/30/2024	08:45:00	1.7	2.7	6	250
3/30/2024	08:46:00	2.0	3.1	6	256
3/30/2024	08:47:00	2.1	3.3	6	231
3/30/2024	08:48:00	2.4	3.6	6	250
3/30/2024	08:49:00	2.3	3.2	6	248
3/30/2024	08:50:00	1.7	2.6	6	244
3/30/2024	08:51:00	2.2	3.4	6	243
3/30/2024	08:52:00	1.7	2.6	6	243
3/30/2024	08:53:00	1.3	3.1	6	244
3/30/2024	08:54:00	1.9	3.1	6	242
3/30/2024	08:55:00	2.0	3.2	6	244
3/30/2024	08:56:00	2.3	3.7	6	232
3/30/2024	08:57:00	1.8	3.0	6	254
3/30/2024	08:58:00	2.0	3.7	6	241
3/30/2024	08:59:00	1.9	2.6	6	228
3/30/2024	09:00:00	1.6	2.2	6	239
3/30/2024	09:01:00	2.4	3.0	6	235
3/30/2024	09:02:00	2.6	4.1	6	231
3/30/2024	09:03:00	1.9	3.5	6	219
3/30/2024	09:04:00	1.7	3.1	6	210
3/30/2024	09:05:00	1.8	2.7	6	227
3/30/2024	09:06:00	1.4	2.3	6	202
3/30/2024	09:07:00	1.6	2.6	6	221
3/30/2024	09:08:00	2.0	2.9	6	226
3/30/2024	09:09:00	2.0	3.0	6	234
3/30/2024	09:10:00	2.2	4.0	6	242
3/30/2024	09:11:00	1.5	1.9	6	241
3/30/2024	09:12:00	1.9	3.5	6	229
3/30/2024	09:13:00	1.4	2.6	6	234
3/30/2024	09:14:00	1.9	2.8	6	244
3/30/2024	09:15:00	1.5	2.2	6	242
3/30/2024	09:16:00	2.3	3.5	6	242
3/30/2024	09:17:00	2.3	3.6	6	219
3/30/2024	09:18:00	2.1	3.6	6	232
3/30/2024	09:19:00	2.1	3.4	6	232
3/30/2024	09:20:00	2.1	4.8	6	226

3/30/2024	09:21:00	2.2	3.0	6	238
3/30/2024	09:22:00	2.1	3.3	6	233
3/30/2024	09:23:00	1.4	2.4	6	215
3/30/2024	09:24:00	1.7	3.1	6	234
3/30/2024	09:25:00	2.2	3.7	6	231
3/30/2024	09:26:00	1.9	3.0	6	239
3/30/2024	09:27:00	2.2	3.2	6	237
3/30/2024	09:28:00	1.7	2.9	6	232
3/30/2024	09:29:00	2.1	3.2	6	251
3/30/2024	09:30:00	1.8	3.9	6	240
3/30/2024	09:31:00	1.8	3.5	6	220
3/30/2024	09:32:00	1.3	2.1	6	213
3/30/2024	09:33:00	1.8	2.9	6	229
3/30/2024	09:34:00	1.8	2.7	6	218
3/30/2024	09:35:00	1.8	3.6	6	216
3/30/2024	09:36:00	1.9	3.3	6	244
3/30/2024	09:37:00	1.7	2.8	6	236
3/30/2024	09:38:00	1.4	2.2	6	229
3/30/2024	09:39:00	1.7	2.9	6	235
3/30/2024	09:40:00	1.7	3.1	6	231
3/30/2024	09:41:00	2.3	3.5	6	239
3/30/2024	09:42:00	2.6	4.0	6	236
3/30/2024	09:43:00	2.5	3.8	6	229
3/30/2024	09:44:00	2.6	3.5	6	232
3/30/2024	09:45:00	2.0	3.0	6	227
3/30/2024	09:46:00	2.2	3.6	6	238
3/30/2024	09:47:00	1.8	2.9	6	254
3/30/2024	09:48:00	2.1	3.9	6	230
3/30/2024	09:49:00	1.8	2.8	6	228
3/30/2024	09:50:00	2.2	3.4	6	233
3/30/2024	09:51:00	2.4	3.2	6	238
3/30/2024	09:52:00	2.5	3.7	6	252
3/30/2024	09:53:00	2.1	3.4	6	241
3/30/2024	09:54:00	2.0	3.0	6	260
3/30/2024	09:55:00	1.6	2.6	6	234
3/30/2024	09:56:00	1.8	2.4	6	242
3/30/2024	09:57:00	1.4	1.9	6	249
3/30/2024	09:58:00	1.7	2.5	6	273
3/30/2024	09:59:00	1.9	3.4	6	238
3/30/2024	10:00:00	2.1	3.4	6	244
3/30/2024	10:01:00	2.3	4.2	6	240
3/30/2024	10:02:00	1.8	2.5	6	234
3/30/2024	10:03:00	1.6	2.4	6	224
3/30/2024	10:04:00	1.7	2.6	6	228
3/30/2024	10:05:00	2.4	3.8	6	226
3/30/2024	10:06:00	2.1	2.7	6	226

3/30/2024	10:07:00	2.1	3.8	6	252
3/30/2024	10:08:00	2.5	3.5	6	229
3/30/2024	10:09:00	2.7	4.6	6	227
3/30/2024	10:10:00	2.8	4.6	6	237
3/30/2024	10:11:00	2.5	4.2	6	232
3/30/2024	10:12:00	2.0	3.2	6	257
3/30/2024	10:13:00	2.1	4.0	6	229
3/30/2024	10:14:00	2.4	4.3	6	245
3/30/2024	10:15:00	2.0	2.9	6	243
3/30/2024	10:16:00	2.6	4.7	6	242
3/30/2024	10:17:00	2.2	3.6	6	238
3/30/2024	10:18:00	2.0	4.3	6	235
3/30/2024	10:19:00	1.6	2.9	6	246
3/30/2024	10:20:00	2.0	2.6	6	250
3/30/2024	10:21:00	2.0	3.2	6	247
3/30/2024	10:22:00	2.0	3.7	7	238
3/30/2024	10:23:00	2.4	4.2	7	241

Data for N 10 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
4/6/2024	9:44:32	58.9	86.7	76.7	36	63.1	45
4/6/2024	9:54:32	57.7	85.5	70.8	32.7	61.2	41.4
4/6/2024	10:04:32	58.3	86.1	71.6	34.2	62.3	42.9
4/6/2024	10:14:32	60	87.8	73.4	39.8	64.1	45.7
4/6/2024	10:24:32	58.8	86.6	72.8	34.9	62.5	40.4
4/6/2024	10:34:32	59.6	87.4	73.2	36.2	63.6	42.6
4/6/2024	10:44:32	58.1	85.9	72.5	36.4	62.5	43.8
4/6/2024	10:54:32	58.9	86.7	72.3	35.2	63.3	43.3
4/6/2024	11:04:32	59.2	87	75.8	35.4	62.8	41.7
4/6/2024	11:14:32	60.9	88.7	72.7	43.1	65.1	50.5
4/6/2024	11:24:32	58.5	86.3	71.5	40.5	62.5	46.1
4/6/2024	11:34:32	58.9	86.7	72.8	35.8	62.9	45.3
4/6/2024	11:44:32	57.8	85.6	68.1	35.1	62.7	43.7
4/6/2024	11:54:32	59.4	87.2	78.4	35.4	63.5	41.6
4/6/2024	12:04:32	59.3	87.1	73.1	34.5	62.9	41.4
4/6/2024	12:14:32	58.9	86.7	68.5	38.3	62.9	45.1
4/6/2024	12:24:32	58.7	86.5	71.1	33.7	62.8	42
4/6/2024	12:34:32	59.3	87.1	70.8	37.1	63.9	44
4/6/2024	12:44:32	57	84.8	69.4	31.4	61.5	39.4
4/6/2024	12:54:32	58	85.8	70.6	36.5	62.7	44.2
4/6/2024	13:04:32	57	84.8	69.1	35.8	60.5	43.5
4/6/2024	13:14:32	57.6	85.4	69.2	35.2	61.7	40.1
4/6/2024	13:24:32	59.3	87.1	72.1	32.2	63.5	39.5
4/6/2024	13:34:32	59.5	87.3	76.8	32.3	62.4	38.5

4/6/2024	13:44:32	60.5	88.3	76.6	40.7	64.3	46.6
4/6/2024	13:54:32	56.6	84.4	69.8	31.6	60.9	38.5
4/6/2024	14:04:32	57.7	85.5	69.2	35.7	62.4	41.1
4/6/2024	14:14:32	58.6	86.4	74.3	32.2	62.9	41.5
4/6/2024	14:24:32	58.2	86	71.9	33.9	62.2	40
4/6/2024	14:34:32	58.8	86.6	71.6	33.6	63.3	43.8
4/6/2024	14:44:32	58.6	86.4	73.2	31.4	63.3	41.1
4/6/2024	14:54:32	58.5	86.3	73.2	32.3	63	44
4/6/2024	15:04:32	59.3	87.1	71.8	41	63.7	47.6
4/6/2024	15:14:32	55.4	83.2	69.5	31.6	59.8	36.3
4/6/2024	15:24:32	57.1	84.9	76.5	31.8	61.6	36.2
4/6/2024	15:34:32	58.4	86.2	72.1	34.5	62.9	41.7
4/6/2024	15:44:32	59.6	87.4	72.6	30.9	64.2	43.2
4/6/2024	15:54:32	59.7	87.5	72.1	32.8	64.4	41.5
4/6/2024	16:04:32	60.3	88.1	76.9	40.2	64.3	46.6
4/6/2024	16:14:32	57.6	85.4	71.2	35.3	61.2	41.5
4/6/2024	16:24:32	57.9	85.7	75.8	44	61.3	46.8
4/6/2024	16:34:32	57.8	85.6	70.8	45.3	61.4	48.7
4/6/2024	16:44:32	59.6	87.4	73.7	38.8	63.9	46.2
4/6/2024	16:54:32	59.7	87.5	78	30.3	62.1	38
4/6/2024	17:04:32	56.6	84.4	73.4	32.1	60.5	39.1
4/6/2024	17:14:32	60.8	88.6	71.7	35.2	65.2	44
4/6/2024	17:24:32	58.6	86.4	72.9	34.3	62.3	41.1
4/6/2024	17:34:32	59.1	86.9	71.7	35.5	63.3	42.4
4/6/2024	17:44:32	60.6	88.4	72	31.8	65.9	38.6
4/6/2024	17:54:32	60.7	88.5	76.3	33.2	65.5	41.5
4/6/2024	18:04:32	58.9	86.7	70.3	37.8	63.5	43.6
4/6/2024	18:14:32	60.2	88	71.5	38.1	65.1	43.9
4/6/2024	18:24:32	59	86.8	69.7	33.6	63.4	40.4
4/6/2024	18:34:32	57.7	85.5	70.1	34.5	62.1	40.9
4/6/2024	18:44:32	61.2	89	73.4	40.9	65.8	47.9
4/6/2024	18:54:32	57.9	85.7	69.9	38.2	62.1	43.6
4/6/2024	19:04:32	59.2	87	74.2	39.4	63.8	45
4/6/2024	19:14:32	61.9	89.7	79.7	34.8	65.5	40.9
4/6/2024	19:24:32	61.6	89.4	72.6	37.4	66.2	44.1
4/6/2024	19:34:32	59.3	87.1	73.1	36.7	63.5	43.6
4/6/2024	19:44:32	59.3	87.1	70.5	31.8	64.4	39.9
4/6/2024	19:54:32	57.9	85.7	70.7	34.6	62.1	42.9
4/6/2024	20:04:32	63.6	91.4	83.9	32.3	64.8	48.2
4/6/2024	20:14:32	60.7	88.5	74.2	32.3	65.6	41.1
4/6/2024	20:24:32	56.1	83.9	69.6	36	60	41.4
4/6/2024	20:34:32	56.7	84.5	67.7	38.7	61.1	44.2
4/6/2024	20:44:32	57.8	85.6	72.9	40.3	61.7	44.6
4/6/2024	20:54:32	58.4	86.2	72.7	39.7	62.6	42.3
4/6/2024	21:04:32	59.9	87.7	78.3	39.1	64.1	46.4
4/6/2024	21:14:32	55.4	83.2	67.9	39.8	58.7	43.3

4/6/2024	21:24:32	60.4	88.2	71.1	43.1	64.1	49.3
4/6/2024	21:34:32	57.4	85.2	70.5	33.8	61.6	40
4/6/2024	21:44:32	60	87.8	72	37.5	64.5	47.5
4/6/2024	21:54:32	57.1	84.9	71.7	38.8	61.4	43.7
4/6/2024	22:04:32	55	82.8	68	36.6	58.7	41.8
4/6/2024	22:14:32	58.3	86.1	72	38.2	62.8	43.3
4/6/2024	22:24:32	56.5	84.3	69.5	37.8	60.7	42.1
4/6/2024	22:34:32	57.5	85.3	74	36	60.8	42.4
4/6/2024	22:44:32	58.2	86	71	35.9	62.3	43.7
4/6/2024	22:54:32	55.7	83.5	67	33.5	60.6	37
4/6/2024	23:04:32	55.1	82.9	70.7	32.6	60.1	35.7
4/6/2024	23:14:32	58.7	86.5	70.8	33.3	62.8	41.6
4/6/2024	23:24:32	53.2	81	69.1	32.7	57.6	38.8
4/6/2024	23:34:32	55.1	82.9	68.5	34.1	59.3	39.7
4/6/2024	23:44:32	55.5	83.3	69.5	32.9	59.7	36
4/6/2024	23:54:32	56.8	84.6	73.7	37.4	61.2	40.6
4/7/2024	0:04:32	56.7	84.5	71.3	35.5	61.6	39.4
4/7/2024	0:14:32	55.5	83.3	71.4	32.2	60	37.2
4/7/2024	0:24:32	53.9	81.7	69.3	35.8	57	38.3
4/7/2024	0:34:32	57.9	85.7	76.5	35.5	61.6	38.1
4/7/2024	0:44:32	56.4	84.2	69.6	33.3	60.3	36.4
4/7/2024	0:54:32	58.1	85.9	71.1	36.1	62.8	38.8
4/7/2024	1:04:32	47.4	75.2	66.2	31.2	45	34.7
4/7/2024	1:14:32	50.2	78	66.6	34.2	51.2	36.5
4/7/2024	1:24:32	53.6	81.4	67.9	32.8	58.4	36.4
4/7/2024	1:34:32	53.4	81.2	70.7	28.5	55.6	32.6
4/7/2024	1:44:32	56.2	84	71	34.8	60.8	37.3
4/7/2024	1:54:32	53.8	81.6	69.2	29.1	58.4	35.3
4/7/2024	2:04:32	54.8	82.6	72	31.2	57.7	35.8
4/7/2024	2:14:32	53	80.8	70.6	32.8	56.4	36.2
4/7/2024	2:24:32	51.7	79.5	68.3	34.6	53.6	38.7
4/7/2024	2:34:32	52.9	80.7	72.5	30	50.9	36.2
4/7/2024	2:44:32	47.7	75.5	69.2	33.5	43.9	36
4/7/2024	2:54:32	50.4	78.2	67.5	34.3	52.9	37.6
4/7/2024	3:04:32	55.9	83.7	71	35.1	59.9	38.8
4/7/2024	3:14:32	49	76.8	65.8	32.2	51.4	36.7
4/7/2024	3:24:32	54.5	82.3	72.5	35.7	55.1	39.5
4/7/2024	3:34:32	54	81.8	76.6	29.8	53.3	33.4
4/7/2024	3:44:32	55.2	83	74.4	29.5	59.1	36.5
4/7/2024	3:54:32	51.5	79.3	67.5	31.2	55	34.9
4/7/2024	4:04:32	55.1	82.9	70.8	30.8	57.6	34.5
4/7/2024	4:14:32	58.4	86.2	72.8	32.7	60.4	34.3
4/7/2024	4:24:32	52.6	80.4	71.4	29.6	54.8	32
4/7/2024	4:34:32	49.2	77	64.9	28.8	53.6	31.3
4/7/2024	4:44:32	49.7	77.5	65.9	30.1	51.9	33.5
4/7/2024	4:54:32	49	76.8	68.2	28.8	52	31.5

4/7/2024	5:04:32	56.6	84.4	70.4	30.4	61	32.5
4/7/2024	5:14:32	50.6	78.4	67.7	30.8	54.4	33.5
4/7/2024	5:24:32	51.2	79	64	33.7	56.4	37.1
4/7/2024	5:34:32	54.1	81.9	68.7	31.5	58.5	35
4/7/2024	5:44:32	48.9	76.7	67.3	31.8	51	34.3
4/7/2024	5:54:32	53.4	81.2	64.5	34.2	58.2	39.1
4/7/2024	6:04:32	51.8	79.6	64.6	35.8	56.4	38.9
4/7/2024	6:14:32	57.4	85.2	74.2	41.3	61	44.9
4/7/2024	6:24:32	58	85.8	72.8	34.7	62.2	43.9
4/7/2024	6:34:32	58.8	86.6	77.3	40.8	60.8	45.2
4/7/2024	6:44:32	57.3	85.1	72.9	39.3	60.2	45.3
4/7/2024	6:54:32	57.7	85.5	73.2	36.6	62.1	42.3
4/7/2024	7:04:32	54.9	82.7	72.1	40.3	58.7	44.8
4/7/2024	7:14:32	58.4	86.2	71.8	39.5	62.9	43.8
4/7/2024	7:24:32	57.4	85.2	67.5	42	61.9	45.9
4/7/2024	7:34:32	58.5	86.3	72	42.7	62.4	46
4/7/2024	7:44:32	59.1	86.9	70.1	42.8	63.6	46.7
4/7/2024	7:54:32	57.3	85.1	71.8	39.3	61.4	43.6
4/7/2024	8:04:32	58.4	86.2	71.2	39.7	62.5	44
4/7/2024	8:14:32	55.9	83.7	73	38.2	59.9	41.4
4/7/2024	8:24:32	58.1	85.9	70.9	40.1	61.8	44.1
4/7/2024	8:34:32	60.6	88.4	71.9	41.5	65.3	46.1
4/7/2024	8:44:32	58.8	86.6	72.4	39.2	62.9	48.2
4/7/2024	8:54:32	59.2	87	75.2	37.1	63.2	42.4
4/7/2024	9:04:32	58.4	86.2	70.3	35.6	62.7	40.9
4/7/2024	9:14:32	59.5	87.3	71.6	35.2	63.6	45.4
4/7/2024	9:24:32	57.8	85.6	71.4	32.5	61.9	38.7
4/7/2024	9:34:32	60.4	88.2	74	30.9	64.7	40.2
4/7/2024	9:44:32	59.2	87	70.2	37.4	63.3	46.3

Data for N 10 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
06/04/2024	09:44:00	1.7	2.6	14	8
06/04/2024	09:45:00	1.7	2.1	14	1
06/04/2024	09:46:00	1.8	2.5	14	22
06/04/2024	09:47:00	1.7	2.3	14	20
06/04/2024	09:48:00	1.5	1.9	14	28
06/04/2024	09:49:00	2.0	3.0	14	350
06/04/2024	09:50:00	1.9	2.5	14	348
06/04/2024	09:51:00	2.0	2.7	14	5
06/04/2024	09:52:00	2.0	3.0	14	4
06/04/2024	09:53:00	2.1	2.8	14	6
06/04/2024	09:54:00	2.5	3.3	14	10

06/04/2024	09:55:00	2.2	3.2		14	13
06/04/2024	09:56:00	2.0	3.1		14	10
06/04/2024	09:57:00	1.9	2.2		14	7
06/04/2024	09:58:00	1.8	2.3		14	346
06/04/2024	09:59:00	1.8	2.4		14	351
06/04/2024	10:00:00	2.2	2.9		14	339
06/04/2024	10:01:00	2.3	3.4		14	7
06/04/2024	10:02:00	1.7	2.3		14	20
06/04/2024	10:03:00	2.4	3.2		14	18
06/04/2024	10:04:00	2.2	3.1		14	15
06/04/2024	10:05:00	1.8	2.4		14	8
06/04/2024	10:06:00	1.7	2.5		14	6
06/04/2024	10:07:00	2.1	3.1		14	16
06/04/2024	10:08:00	1.7	2.2		14	20
06/04/2024	10:09:00	1.9	2.6		14	25
06/04/2024	10:10:00	2.0		2.6	14	348
06/04/2024	10:11:00	2.0	2.9		14	359
06/04/2024	10:12:00	2.0	3.0		14	8
06/04/2024	10:13:00	1.8	2.5		14	20
06/04/2024	10:14:00	2.4	3.2		15	18
06/04/2024	10:15:00	2.5	3.0		15	19
06/04/2024	10:16:00	1.9	2.5		15	18
06/04/2024	10:17:00	2.2	3.1		15	6
06/04/2024	10:18:00	1.7	2.7		15	352
06/04/2024	10:19:00	1.7	2.4		15	3
06/04/2024	10:20:00	2.2	3.0		15	4
06/04/2024	10:21:00	2.1	3.2		15	354
06/04/2024	10:22:00	2.0	2.9		15	348
06/04/2024	10:23:00	2.5	3.8		15	346
06/04/2024	10:24:00	2.2	2.9		15	344
06/04/2024	10:25:00	1.9	2.8		15	336
06/04/2024	10:26:00	2.0	2.8		15	356
06/04/2024	10:27:00	1.5	2.4		15	355
06/04/2024	10:28:00	2.1	3.1		15	10
06/04/2024	10:29:00	2.6	3.5		15	7
06/04/2024	10:30:00	1.9	3.0		15	6
06/04/2024	10:31:00	1.9	2.8		15	4
06/04/2024	10:32:00	1.7	2.4		15	350
06/04/2024	10:33:00	2.5	3.7		15	355
06/04/2024	10:34:00	2.1	2.9		16	347
06/04/2024	10:35:00	1.4	1.9		16	346
06/04/2024	10:36:00	2.4	3.8		16	353
06/04/2024	10:37:00	3.0	4.0		16	355
06/04/2024	10:38:00	2.2	3.1		16	8
06/04/2024	10:39:00	2.3	3.4		16	11
06/04/2024	10:40:00	2.0	2.7		16	14

06/04/2024	10:41:00	2.0	2.7	16	10
06/04/2024	10:42:00	2.9	3.4	16	25
06/04/2024	10:43:00	2.3	3.3	16	14
06/04/2024	10:44:00	2.5	3.9	16	4
06/04/2024	10:45:00	3.2	4.3	16	12
06/04/2024	10:46:00	2.4	3.3	16	5
06/04/2024	10:47:00	2.2	3.2	16	356
06/04/2024	10:48:00	2.1	3.0	16	351
06/04/2024	10:49:00	1.5	1.8	16	360
06/04/2024	10:50:00	1.7	2.5	16	7
06/04/2024	10:51:00	1.6	2.4	16	353
06/04/2024	10:52:00	1.5	2.6	16	5
06/04/2024	10:53:00	2.2	2.9	16	33
06/04/2024	10:54:00	2.2	2.8	16	32
06/04/2024	10:55:00	2.1	3.5	16	10
06/04/2024	10:56:00	2.4	4.7	16	2
06/04/2024	10:57:00	2.9	4.3	16	8
06/04/2024	10:58:00	1.7	2.5	16	12
06/04/2024	10:59:00	1.7	2.2	16	0
06/04/2024	11:00:00	1.8	2.4	16	26
06/04/2024	11:01:00	1.7	2.6	16	15
06/04/2024	11:02:00	1.2	1.7	16	17
06/04/2024	11:03:00	2.3	3.1	16	355
06/04/2024	11:04:00	2.7	3.4	16	16
06/04/2024	11:05:00	1.9	2.5	16	13
06/04/2024	11:06:00	1.9	2.6	16	346
06/04/2024	11:07:00	2.1	2.9	17	350
06/04/2024	11:08:00	2.3	3.8	17	360
06/04/2024	11:09:00	2.4	3.4	17	334
06/04/2024	11:10:00	2.8	3.6	17	19
06/04/2024	11:11:00	2.5	3.1	17	3
06/04/2024	11:12:00	1.8	2.8	17	3
06/04/2024	11:13:00	2.7	3.8	17	11
06/04/2024	11:14:00	3.0	3.7	17	31
06/04/2024	11:15:00	2.1	2.6	17	39
06/04/2024	11:16:00	2.3	3.3	17	37
06/04/2024	11:17:00	2.6	4.0	17	337
06/04/2024	11:18:00	2.0	2.9	17	353
06/04/2024	11:19:00	2.0	2.9	17	34
06/04/2024	11:20:00	2.6	4.1	17	42
06/04/2024	11:21:00	2.7	4.4	17	47
06/04/2024	11:22:00	2.4	3.1	17	49
06/04/2024	11:23:00	2.0	2.4	17	60
06/04/2024	11:24:00	1.9	3.5	17	48
06/04/2024	11:25:00	1.8	2.7	17	48
06/04/2024	11:26:00	1.8	3.0	17	31

06/04/2024	11:27:00	2.7	4.3	17	29
06/04/2024	11:28:00	3.3	4.6	17	58
06/04/2024	11:29:00	2.9	3.7	17	63
06/04/2024	11:30:00	2.0	2.8	17	49
06/04/2024	11:31:00	2.1	3.2	17	37
06/04/2024	11:32:00	2.4	3.5	17	50
06/04/2024	11:33:00	3.1	3.9	17	60
06/04/2024	11:34:00	2.7	3.2	17	54
06/04/2024	11:35:00	2.4	4.0	17	48
06/04/2024	11:36:00	1.8	2.4	17	35
06/04/2024	11:37:00	2.5	3.9	17	22
06/04/2024	11:38:00	2.6	3.3	17	26
06/04/2024	11:39:00	2.2	4.0	17	36
06/04/2024	11:40:00	2.9	4.6	17	41
06/04/2024	11:41:00	2.6	3.7	18	34
06/04/2024	11:42:00	2.5	3.4	18	38
06/04/2024	11:43:00	1.9	2.3	18	21
06/04/2024	11:44:00	3.1	4.2	18	62
06/04/2024	11:45:00	2.7	3.6	18	66
06/04/2024	11:46:00	3.1	4.1	18	48
06/04/2024	11:47:00	2.5	4.0	18	62
06/04/2024	11:48:00	2.6	3.9	18	39
06/04/2024	11:49:00	3.2	3.8	18	11
06/04/2024	11:50:00	2.4	3.5	18	24
06/04/2024	11:51:00	2.1	2.9	18	39
06/04/2024	11:52:00	2.3	3.8	18	40
06/04/2024	11:53:00	2.8	3.9	18	39
06/04/2024	11:54:00	2.2	3.9	18	35
06/04/2024	11:55:00	2.1	3.0	18	37
06/04/2024	11:56:00	2.6	4.0	18	66
06/04/2024	11:57:00	2.2	3.0	18	54
06/04/2024	11:58:00	1.8	3.6	18	40
06/04/2024	11:59:00	3.5	4.9	18	37
06/04/2024	12:00:00	3.1	4.6	18	24
06/04/2024	12:01:00	3.0	4.4	18	42
06/04/2024	12:02:00	1.9	2.7	18	40
06/04/2024	12:03:00	3.1	4.1	18	54
06/04/2024	12:04:00	1.9	2.8	18	40
06/04/2024	12:05:00	2.0	3.1	18	52
06/04/2024	12:06:00	1.7	2.5	18	51
06/04/2024	12:07:00	2.0	2.9	18	41
06/04/2024	12:08:00	2.8	3.6	18	26
06/04/2024	12:09:00	2.2	3.3	18	23
06/04/2024	12:10:00	1.4	2.4	18	14
06/04/2024	12:11:00	2.2	3.3	18	20
06/04/2024	12:12:00	1.6	2.1	18	27

06/04/2024	12:13:00	2.5	3.9	18	31
06/04/2024	12:14:00	3.0	4.1	18	35
06/04/2024	12:15:00	3.6	4.6	18	32
06/04/2024	12:16:00	3.1	4.3	18	34
06/04/2024	12:17:00	2.7	3.7	18	36
06/04/2024	12:18:00	2.7	3.6	18	48
06/04/2024	12:19:00	1.9	2.6	18	34
06/04/2024	12:20:00	1.8	2.5	18	28
06/04/2024	12:21:00	3.1	4.3	18	46
06/04/2024	12:22:00	3.5	5.0	18	47
06/04/2024	12:23:00	3.0	3.9	18	34
06/04/2024	12:24:00	2.5	3.6	18	46
06/04/2024	12:25:00	2.2	3.1	18	41
06/04/2024	12:26:00	2.7	3.5	18	57
06/04/2024	12:27:00	2.3	3.3	18	19
06/04/2024	12:28:00	1.9	2.4	18	19
06/04/2024	12:29:00	2.3	3.5	18	11
06/04/2024	12:30:00	3.3	5.0	18	26
06/04/2024	12:31:00	2.9	5.4	18	39
06/04/2024	12:32:00	2.0	3.1	18	24
06/04/2024	12:33:00	1.9	2.6	18	26
06/04/2024	12:34:00	1.7	2.4	18	31
06/04/2024	12:35:00	3.3	3.9	18	30
06/04/2024	12:36:00	3.3	4.3	18	31
06/04/2024	12:37:00	2.9	4.3	18	18
06/04/2024	12:38:00	2.9	4.5	18	13
06/04/2024	12:39:00	2.3	3.5	18	5
06/04/2024	12:40:00	2.0	2.5	18	358
06/04/2024	12:41:00	1.7	2.2	18	3
06/04/2024	12:42:00	1.9	3.6	18	2
06/04/2024	12:43:00	2.9	4.2	18	19
06/04/2024	12:44:00	2.9	4.0	18	359
06/04/2024	12:45:00	2.0	2.8	18	359
06/04/2024	12:46:00	2.6	3.4	18	5
06/04/2024	12:47:00	2.4	3.2	18	358
06/04/2024	12:48:00	1.9	2.4	18	15
06/04/2024	12:49:00	1.2	1.9	18	20
06/04/2024	12:50:00	2.4	3.9	18	359
06/04/2024	12:51:00	1.2	1.8	18	5
06/04/2024	12:52:00	2.5	4.2	18	13
06/04/2024	12:53:00	2.5	4.0	18	48
06/04/2024	12:54:00	2.4	3.3	18	58
06/04/2024	12:55:00	2.6	3.2	18	54
06/04/2024	12:56:00	1.7	3.0	18	58
06/04/2024	12:57:00	2.5	5.9	18	7
06/04/2024	12:58:00	2.4	3.3	18	352

06/04/2024	12:59:00	1.7	2.6	18	354
06/04/2024	13:00:00	2.2	3.5	18	356
06/04/2024	13:01:00	2.9	4.7	18	334
06/04/2024	13:02:00	2.3	3.2	18	19
06/04/2024	13:03:00	3.5	5.3	18	31
06/04/2024	13:04:00	3.7	4.9	18	32
06/04/2024	13:05:00	2.7	4.4	18	20
06/04/2024	13:06:00	2.9	4.4	18	26
06/04/2024	13:07:00	3.2	4.2	18	37
06/04/2024	13:08:00	3.3	4.3	18	23
06/04/2024	13:09:00	3.2	3.9	18	29
06/04/2024	13:10:00	2.7	3.8	18	29
06/04/2024	13:11:00	1.4	2.0	18	19
06/04/2024	13:12:00	0.3	1.0	19	10
06/04/2024	13:13:00	1.4	1.7	19	1
06/04/2024	13:14:00	1.5	2.2	19	350
06/04/2024	13:15:00	1.2	2.0	19	24
06/04/2024	13:16:00	1.9	2.5	19	37
06/04/2024	13:17:00	1.8	2.3	19	23
06/04/2024	13:18:00	2.5	4.4	19	10
06/04/2024	13:19:00	3.2	4.2	19	21
06/04/2024	13:20:00	2.6	4.2	19	23
06/04/2024	13:21:00	2.7	4.0	19	23
06/04/2024	13:22:00	3.0	4.0	19	354
06/04/2024	13:23:00	2.7	3.9	19	10
06/04/2024	13:24:00	2.1	3.2	19	4
06/04/2024	13:25:00	2.8	4.1	19	11
06/04/2024	13:26:00	2.3	2.9	19	10
06/04/2024	13:27:00	2.2	3.1	19	340
06/04/2024	13:28:00	2.3	3.2	19	337
06/04/2024	13:29:00	2.6	3.3	19	352
06/04/2024	13:30:00	1.8	2.8	19	356
06/04/2024	13:31:00	1.9	2.7	19	346
06/04/2024	13:32:00	2.6	3.7	19	335
06/04/2024	13:33:00	2.5	3.5	19	344
06/04/2024	13:34:00	1.3	2.1	19	351
06/04/2024	13:35:00	1.7	2.6	19	333
06/04/2024	13:36:00	1.3	1.7	19	330
06/04/2024	13:37:00	1.1	1.5	19	336
06/04/2024	13:38:00	1.3	1.9	19	346
06/04/2024	13:39:00	1.6	2.1	19	8
06/04/2024	13:40:00	1.4	2.1	19	17
06/04/2024	13:41:00	2.1	2.7	19	26
06/04/2024	13:42:00	1.7	2.1	19	39
06/04/2024	13:43:00	1.3	1.8	19	166
06/04/2024	13:44:00	1.1	1.7	19	322

06/04/2024	13:45:00	0.4	1.0	19	332
06/04/2024	13:46:00	1.2	3.6	19	350
06/04/2024	13:47:00	2.2	3.1	19	27
06/04/2024	13:48:00	1.7	2.6	19	30
06/04/2024	13:49:00	1.3	1.7	19	36
06/04/2024	13:50:00	1.7	3.6	19	21
06/04/2024	13:51:00	2.7	4.6	19	345
06/04/2024	13:52:00	2.4	3.1	19	346
06/04/2024	13:53:00	2.5	3.8	19	348
06/04/2024	13:54:00	2.2	3.1	19	338
06/04/2024	13:55:00	2.1	4.2	19	352
06/04/2024	13:56:00	1.9	2.7	19	342
06/04/2024	13:57:00	1.6	2.4	19	345
06/04/2024	13:58:00	1.2	1.6	19	352
06/04/2024	13:59:00	1.7	3.0	19	8
06/04/2024	14:00:00	1.8	2.5	19	1
06/04/2024	14:01:00	1.8	2.2	19	18
06/04/2024	14:02:00	1.7	2.3	19	34
06/04/2024	14:03:00	1.0	1.5	19	36
06/04/2024	14:04:00	0.7	1.5	19	27
06/04/2024	14:05:00	1.1	2.3	19	18
06/04/2024	14:06:00	1.5	2.8	19	350
06/04/2024	14:07:00	2.2	3.3	19	10
06/04/2024	14:08:00	2.3	3.6	19	8
06/04/2024	14:09:00	1.5	2.5	19	359
06/04/2024	14:10:00	2.9	5.0	19	21
06/04/2024	14:11:00	3.0	3.9	19	23
06/04/2024	14:12:00	2.0	2.5	19	10
06/04/2024	14:13:00	2.3	3.4	19	344
06/04/2024	14:14:00	1.9	2.8	19	350
06/04/2024	14:15:00	2.0	3.4	19	16
06/04/2024	14:16:00	1.6	2.4	19	4
06/04/2024	14:17:00	1.3	1.8	19	9
06/04/2024	14:18:00	1.1	1.6	19	9
06/04/2024	14:19:00	1.7	3.0	19	355
06/04/2024	14:20:00	2.7	3.5	19	7
06/04/2024	14:21:00	2.5	3.3	19	17
06/04/2024	14:22:00	1.8	2.4	19	13
06/04/2024	14:23:00	1.2	1.6	19	10
06/04/2024	14:24:00	1.0	2.2	19	12
06/04/2024	14:25:00	1.6	2.0	19	37
06/04/2024	14:26:00	1.5	2.5	19	23
06/04/2024	14:27:00	2.1	3.0	19	343
06/04/2024	14:28:00	2.0	3.4	19	335
06/04/2024	14:29:00	2.3	3.1	19	335
06/04/2024	14:30:00	2.4	3.1	19	301

06/04/2024	14:31:00	1.7	2.6	19	316
06/04/2024	14:32:00	2.3	2.9	19	348
06/04/2024	14:33:00	2.7	3.8	19	351
06/04/2024	14:34:00	4.1	5.7	19	355
06/04/2024	14:35:00	3.5	4.9	19	17
06/04/2024	14:36:00	3.5	4.5	19	10
06/04/2024	14:37:00	2.9	3.8	19	4
06/04/2024	14:38:00	2.8	3.4	20	15
06/04/2024	14:39:00	2.8	3.9	20	354
06/04/2024	14:40:00	2.3	3.1	20	356
06/04/2024	14:41:00	1.7	2.4	20	357
06/04/2024	14:42:00	2.2	3.2	20	16
06/04/2024	14:43:00	1.4	2.0	20	22
06/04/2024	14:44:00	1.7	2.5	20	24
06/04/2024	14:45:00	1.0	1.4	20	25
06/04/2024	14:46:00	1.4	2.8	20	351
06/04/2024	14:47:00	2.5	3.1	20	289
06/04/2024	14:48:00	2.6	3.3	20	288
06/04/2024	14:49:00	2.1	2.6	20	292
06/04/2024	14:50:00	1.5	2.2	20	305
06/04/2024	14:51:00	2.2	2.8	20	297
06/04/2024	14:52:00	1.9	2.6	20	276
06/04/2024	14:53:00	0.9	1.8	20	302
06/04/2024	14:54:00	1.2	1.8	20	287
06/04/2024	14:55:00	0.8	1.2	20	278
06/04/2024	14:56:00	0.8	1.3	20	314
06/04/2024	14:57:00	2.0	3.3	20	6
06/04/2024	14:58:00	2.0	2.7	20	39
06/04/2024	14:59:00	2.6	3.5	20	26
06/04/2024	15:00:00	2.1	2.5	20	42
06/04/2024	15:01:00	1.6	2.2	20	39
06/04/2024	15:02:00	1.5	2.5	21	23
06/04/2024	15:03:00	2.6	3.4	21	329
06/04/2024	15:04:00	2.3	2.9	21	314
06/04/2024	15:05:00	2.2	3.0	21	318
06/04/2024	15:06:00	1.8	2.6	21	340
06/04/2024	15:07:00	2.2	3.0	21	326
06/04/2024	15:08:00	1.6	2.5	21	343
06/04/2024	15:09:00	1.4	1.9	21	347
06/04/2024	15:10:00	1.6	2.7	21	357
06/04/2024	15:11:00	2.1	3.1	21	336
06/04/2024	15:12:00	2.3	3.4	21	350
06/04/2024	15:13:00	2.0	2.7	21	330
06/04/2024	15:14:00	1.8	2.7	21	339
06/04/2024	15:15:00	1.1	1.7	21	354
06/04/2024	15:16:00	1.0	1.6	21	359

06/04/2024	15:17:00	1.9	3.2	21	7
06/04/2024	15:18:00	1.2	1.8	21	359
06/04/2024	15:19:00	0.5	0.8	21	4
06/04/2024	15:20:00	1.0	2.1	21	1
06/04/2024	15:21:00	1.9	2.5	21	339
06/04/2024	15:22:00	1.3	2.0	21	311
06/04/2024	15:23:00	0.6	1.0	21	325
06/04/2024	15:24:00	1.4	1.9	21	7
06/04/2024	15:25:00	2.4	3.0	21	63
06/04/2024	15:26:00	2.0	2.9	21	56
06/04/2024	15:27:00	1.2	1.6	21	15
06/04/2024	15:28:00	0.7	1.0	21	15
06/04/2024	15:29:00	0.8	1.1	21	15
06/04/2024	15:30:00	0.9	1.6	21	16
06/04/2024	15:31:00	0.5	1.1	21	16
06/04/2024	15:32:00	1.3	2.8	21	17
06/04/2024	15:33:00	1.2	1.9	21	16
06/04/2024	15:34:00	1.2	2.0	21	4
06/04/2024	15:35:00	2.7	3.5	21	309
06/04/2024	15:36:00	2.0	3.0	21	279
06/04/2024	15:37:00	1.1	1.9	21	275
06/04/2024	15:38:00	1.1	1.4	21	338
06/04/2024	15:39:00	1.8	3.1	21	1
06/04/2024	15:40:00	2.3	3.2	21	19
06/04/2024	15:41:00	2.7	3.6	21	3
06/04/2024	15:42:00	2.3	3.3	21	353
06/04/2024	15:43:00	2.8	3.9	21	19
06/04/2024	15:44:00	2.6	3.4	21	19
06/04/2024	15:45:00	2.2	2.8	21	5
06/04/2024	15:46:00	2.1	2.7	21	18
06/04/2024	15:47:00	1.3	1.9	21	20
06/04/2024	15:48:00	1.4	1.7	21	13
06/04/2024	15:49:00	1.5	1.9	21	16
06/04/2024	15:50:00	1.4	2.2	21	3
06/04/2024	15:51:00	1.2	1.8	21	9
06/04/2024	15:52:00	0.8	1.5	21	11
06/04/2024	15:53:00	1.2	1.6	21	13
06/04/2024	15:54:00	1.1	2.5	21	10
06/04/2024	15:55:00	2.1	3.2	20	358
06/04/2024	15:56:00	2.1	2.9	20	342
06/04/2024	15:57:00	2.0	3.2	20	342
06/04/2024	15:58:00	1.8	2.8	20	2
06/04/2024	15:59:00	1.4	2.2	20	11
06/04/2024	16:00:00	1.7	2.3	20	317
06/04/2024	16:01:00	1.4	1.7	20	320
06/04/2024	16:02:00	1.7	2.2	20	302

06/04/2024	16:03:00	1.5	2.1	20	286
06/04/2024	16:04:00	1.2	1.5	20	305
06/04/2024	16:05:00	1.2	1.7	20	329
06/04/2024	16:06:00	1.8	2.3	21	38
06/04/2024	16:07:00	1.9	2.3	21	54
06/04/2024	16:08:00	2.0	2.7	21	54
06/04/2024	16:09:00	2.6	3.8	21	39
06/04/2024	16:10:00	3.0	4.1	21	27
06/04/2024	16:11:00	3.1	3.9	21	14
06/04/2024	16:12:00	2.4	3.3	21	24
06/04/2024	16:13:00	2.0	2.8	21	25
06/04/2024	16:14:00	2.5	3.5	21	24
06/04/2024	16:15:00	1.5	2.4	21	36
06/04/2024	16:16:00	1.7	2.2	21	28
06/04/2024	16:17:00	1.6	2.1	21	22
06/04/2024	16:18:00	1.9	2.7	21	18
06/04/2024	16:19:00	1.6	2.0	21	16
06/04/2024	16:20:00	1.2	1.8	21	22
06/04/2024	16:21:00	1.3	1.9	21	42
06/04/2024	16:22:00	1.8	2.2	21	63
06/04/2024	16:23:00	1.5	2.1	21	32
06/04/2024	16:24:00	1.5	2.4	21	26
06/04/2024	16:25:00	1.7	2.5	21	24
06/04/2024	16:26:00	1.3	1.9	21	37
06/04/2024	16:27:00	1.3	1.5	21	33
06/04/2024	16:28:00	1.2	1.6	21	19
06/04/2024	16:29:00	0.9	1.3	21	23
06/04/2024	16:30:00	1.3	1.8	21	48
06/04/2024	16:31:00	1.2	1.6	21	53
06/04/2024	16:32:00	1.4	2.0	21	67
06/04/2024	16:33:00	1.1	1.4	21	72
06/04/2024	16:34:00	1.0	1.4	21	79
06/04/2024	16:35:00	1.1	2.1	21	161
06/04/2024	16:36:00	0.6	1.2	21	169
06/04/2024	16:37:00	1.5	1.9	21	16
06/04/2024	16:38:00	1.4	1.7	21	16
06/04/2024	16:39:00	1.0	1.3	21	11
06/04/2024	16:40:00	0.5	1.0	21	11
06/04/2024	16:41:00	0.6	1.9	21	11
06/04/2024	16:42:00	1.2	2.0	21	354
06/04/2024	16:43:00	1.5	3.2	21	354
06/04/2024	16:44:00	2.1	2.6	21	25
06/04/2024	16:45:00	2.1	2.9	21	17
06/04/2024	16:46:00	1.8	2.4	21	350
06/04/2024	16:47:00	1.9	2.5	21	347
06/04/2024	16:48:00	2.1	3.0	21	356

06/04/2024	16:49:00	1.7	2.6	21	6
06/04/2024	16:50:00	2.5	3.5	21	344
06/04/2024	16:51:00	2.6	3.3	21	345
06/04/2024	16:52:00	2.2	2.8	21	342
06/04/2024	16:53:00	1.6	2.3	21	339
06/04/2024	16:54:00	1.3	2.1	21	344
06/04/2024	16:55:00	1.5	2.2	21	353
06/04/2024	16:56:00	1.3	2.2	21	2
06/04/2024	16:57:00	1.0	1.3	21	4
06/04/2024	16:58:00	1.2	1.5	21	7
06/04/2024	16:59:00	1.0	1.3	21	5
06/04/2024	17:00:00	0.9	1.3	21	6
06/04/2024	17:01:00	0.9	1.2	21	6
06/04/2024	17:02:00	1.3	2.1	21	10
06/04/2024	17:03:00	1.3	1.9	21	19
06/04/2024	17:04:00	1.2	2.1	21	25
06/04/2024	17:05:00	2.1	2.7	21	35
06/04/2024	17:06:00	2.4	3.1	21	39
06/04/2024	17:07:00	2.1	2.8	21	32
06/04/2024	17:08:00	2.1	2.7	21	27
06/04/2024	17:09:00	1.8	2.6	21	10
06/04/2024	17:10:00	1.4	2.9	21	9
06/04/2024	17:11:00	2.9	3.6	21	17
06/04/2024	17:12:00	1.8	2.5	21	6
06/04/2024	17:13:00	1.4	2.3	21	11
06/04/2024	17:14:00	1.2	1.6	21	6
06/04/2024	17:15:00	1.6	2.2	21	351
06/04/2024	17:16:00	1.4	2.3	21	349
06/04/2024	17:17:00	1.5	2.0	21	349
06/04/2024	17:18:00	1.3	1.7	21	360
06/04/2024	17:19:00	1.4	2.1	21	5
06/04/2024	17:20:00	1.6	2.4	21	356
06/04/2024	17:21:00	1.9	2.4	21	348
06/04/2024	17:22:00	2.0	3.2	21	1
06/04/2024	17:23:00	2.0	2.7	21	350
06/04/2024	17:24:00	1.8	2.3	21	346
06/04/2024	17:25:00	0.9	1.4	21	349
06/04/2024	17:26:00	0.5	1.4	21	346
06/04/2024	17:27:00	0.9	1.3	21	336
06/04/2024	17:28:00	1.1	1.5	21	332
06/04/2024	17:29:00	0.9	1.3	21	353
06/04/2024	17:30:00	0.8	1.8	21	358
06/04/2024	17:31:00	1.2	1.8	21	40
06/04/2024	17:32:00	0.8	1.4	21	38
06/04/2024	17:33:00	1.7	2.2	21	37
06/04/2024	17:34:00	1.6	2.0	21	34

06/04/2024	17:35:00	1.0	1.4	21	31
06/04/2024	17:36:00	0.6	0.8	21	30
06/04/2024	17:37:00	1.1	1.8	21	21
06/04/2024	17:38:00	1.0	1.4	21	7
06/04/2024	17:39:00	1.0	1.4	21	9
06/04/2024	17:40:00	1.1	1.8	21	325
06/04/2024	17:41:00	1.4	1.8	21	335
06/04/2024	17:42:00	1.0	2.3	21	348
06/04/2024	17:43:00	1.9	2.6	21	355
06/04/2024	17:44:00	1.8	2.6	21	2
06/04/2024	17:45:00	1.1	2.0	21	7
06/04/2024	17:46:00	1.7	2.1	21	25
06/04/2024	17:47:00	1.4	1.7	21	36
06/04/2024	17:48:00	1.4	1.9	21	30
06/04/2024	17:49:00	1.4	1.6	21	37
06/04/2024	17:50:00	2.0	2.8	21	25
06/04/2024	17:51:00	2.1	2.8	21	21
06/04/2024	17:52:00	2.1	2.6	21	25
06/04/2024	17:53:00	1.6	2.1	21	8
06/04/2024	17:54:00	1.2	1.7	21	7
06/04/2024	17:55:00	1.6	2.2	21	14
06/04/2024	17:56:00	1.5	1.9	21	13
06/04/2024	17:57:00	1.0	1.3	21	13
06/04/2024	17:58:00	0.9	1.3	21	11
06/04/2024	17:59:00	0.4	0.9	21	14
06/04/2024	18:00:00	1.2	1.6	21	22
06/04/2024	18:01:00	1.0	1.5	21	29
06/04/2024	18:02:00	0.8	1.1	21	32
06/04/2024	18:03:00	0.0	0.6	21	nW
06/04/2024	18:04:00	0.8	1.1	21	32
06/04/2024	18:05:00	1.4	2.0	21	27
06/04/2024	18:06:00	1.1	1.6	21	20
06/04/2024	18:07:00	0.9	1.2	21	22
06/04/2024	18:08:00	0.8	1.1	21	22
06/04/2024	18:09:00	0.1	0.8	21	20
06/04/2024	18:10:00	0.4	0.7	21	19
06/04/2024	18:11:00	0.6	1.0	21	12
06/04/2024	18:12:00	1.2	1.6	21	7
06/04/2024	18:13:00	0.9	1.2	21	8
06/04/2024	18:14:00	0.9	1.2	20	7
06/04/2024	18:15:00	0.9	1.4	20	7
06/04/2024	18:16:00	0.8	1.0	20	7
06/04/2024	18:17:00	1.5	2.1	20	337
06/04/2024	18:18:00	1.5	2.0	20	333
06/04/2024	18:19:00	1.3	2.2	20	331
06/04/2024	18:20:00	1.3	1.6	20	329

06/04/2024	18:21:00	1.2	1.7	20	328
06/04/2024	18:22:00	1.2	1.6	20	338
06/04/2024	18:23:00	1.6	2.0	20	328
06/04/2024	18:24:00	1.5	1.8	20	334
06/04/2024	18:25:00	1.6	1.9	19	328
06/04/2024	18:26:00	1.5	1.9	19	329
06/04/2024	18:27:00	1.6	2.0	19	329
06/04/2024	18:28:00	1.5	1.9	19	327
06/04/2024	18:29:00	1.7	2.1	19	326
06/04/2024	18:30:00	1.5	1.8	19	326
06/04/2024	18:31:00	1.2	1.5	19	327
06/04/2024	18:32:00	1.0	1.4	19	327
06/04/2024	18:33:00	1.0	1.3	19	327
06/04/2024	18:34:00	1.2	1.5	19	327
06/04/2024	18:35:00	1.2	1.5	19	327
06/04/2024	18:36:00	1.3	1.6	19	325
06/04/2024	18:37:00	1.2	1.6	18	326
06/04/2024	18:38:00	1.0	1.4	18	327
06/04/2024	18:39:00	1.2	1.5	18	327
06/04/2024	18:40:00	1.1	1.4	18	327
06/04/2024	18:41:00	0.8	1.0	18	327
06/04/2024	18:42:00	0.8	1.0	18	327
06/04/2024	18:43:00	0.9	1.1	18	327
06/04/2024	18:44:00	0.8	1.0	18	327
06/04/2024	18:45:00	0.8	1.1	18	327
06/04/2024	18:46:00	0.9	1.1	18	327
06/04/2024	18:47:00	0.9	1.2	18	327
06/04/2024	18:48:00	1.2	1.5	18	326
06/04/2024	18:49:00	1.1	1.3	18	326
06/04/2024	18:50:00	0.9	1.2	18	327
06/04/2024	18:51:00	1.0	1.3	18	327
06/04/2024	18:52:00	0.7	0.9	18	327
06/04/2024	18:53:00	0.7	1.0	18	327
06/04/2024	18:54:00	0.9	1.1	18	327
06/04/2024	18:55:00	0.7	1.0	18	327
06/04/2024	18:56:00	0.8	1.1	18	327
06/04/2024	18:57:00	0.6	1.0	18	327
06/04/2024	18:58:00	0.7	0.8	18	327
06/04/2024	18:59:00	0.8	1.0	18	327
06/04/2024	19:00:00	0.5	0.8	18	327
06/04/2024	19:01:00	0.7	0.9	18	327
06/04/2024	19:02:00	0.6	0.8	18	327
06/04/2024	19:03:00	0.6	0.7	18	327
06/04/2024	19:04:00	0.7	0.8	18	327
06/04/2024	19:05:00	0.5	0.9	18	327
06/04/2024	19:06:00	0.6	0.8	18	327

06/04/2024	19:07:00	0.3	0.7	18	327
06/04/2024	19:08:00	0.7	1.0	18	327
06/04/2024	19:09:00	0.8	1.1	18	327
06/04/2024	19:10:00	0.7	1.0	18	327
06/04/2024	19:11:00	0.8	1.0	18	327
06/04/2024	19:12:00	0.8	1.1	17	327
06/04/2024	19:13:00	0.8	1.1	17	327
06/04/2024	19:14:00	0.9	1.0	17	327
06/04/2024	19:15:00	0.8	1.6	17	334
06/04/2024	19:16:00	0.2	1.0	17	346
06/04/2024	19:17:00	0.0	0.0	17	nW
06/04/2024	19:18:00	0.2	0.7	17	343
06/04/2024	19:19:00	0.5	0.9	17	343
06/04/2024	19:20:00	0.5	0.7	17	343
06/04/2024	19:21:00	0.3	0.9	17	343
06/04/2024	19:22:00	0.4	0.7	17	343
06/04/2024	19:23:00	0.3	0.8	17	343
06/04/2024	19:24:00	0.0	0.0	17	nW
06/04/2024	19:25:00	0.0	0.0	17	nW
06/04/2024	19:26:00	0.0	0.0	17	nW
06/04/2024	19:27:00	0.1	0.6	17	343
06/04/2024	19:28:00	0.1	0.7	17	343
06/04/2024	19:29:00	0.5	0.7	17	343
06/04/2024	19:30:00	0.2	0.7	17	343
06/04/2024	19:31:00	0.7	0.8	17	343
06/04/2024	19:32:00	0.4	0.8	17	343
06/04/2024	19:33:00	0.0	0.6	17	nW
06/04/2024	19:34:00	0.3	0.7	17	343
06/04/2024	19:35:00	0.2	0.7	17	343
06/04/2024	19:36:00	0.3	0.7	17	343
06/04/2024	19:37:00	0.3	0.7	17	343
06/04/2024	19:38:00	0.7	0.8	17	343
06/04/2024	19:39:00	0.7	0.8	17	343
06/04/2024	19:40:00	0.6	0.8	16	343
06/04/2024	19:41:00	0.7	0.9	16	343
06/04/2024	19:42:00	0.7	0.9	16	343
06/04/2024	19:43:00	0.6	0.9	16	343
06/04/2024	19:44:00	0.7	0.9	16	343
06/04/2024	19:45:00	0.3	0.7	16	343
06/04/2024	19:46:00	0.7	0.8	16	343
06/04/2024	19:47:00	0.6	0.8	16	343
06/04/2024	19:48:00	0.1	0.7	16	343
06/04/2024	19:49:00	0.0	0.0	16	nW
06/04/2024	19:50:00	0.1	0.7	16	343
06/04/2024	19:51:00	0.7	0.8	16	343
06/04/2024	19:52:00	0.5	0.7	16	343

06/04/2024	19:53:00	0.7	0.9	16	343
06/04/2024	19:54:00	0.8	0.9	16	343
06/04/2024	19:55:00	0.8	0.9	16	343
06/04/2024	19:56:00	0.9	1.1	16	342
06/04/2024	19:57:00	0.9	1.1	16	338
06/04/2024	19:58:00	0.6	0.8	16	339
06/04/2024	19:59:00	0.7	0.9	16	339
06/04/2024	20:00:00	0.7	0.9	16	339
06/04/2024	20:01:00	0.8	1.1	16	339
06/04/2024	20:02:00	0.7	1.0	16	339
06/04/2024	20:03:00	0.8	1.1	16	339
06/04/2024	20:04:00	0.9	1.2	16	338
06/04/2024	20:05:00	1.0	1.2	16	338
06/04/2024	20:06:00	0.9	1.1	16	338
06/04/2024	20:07:00	0.8	1.0	16	338
06/04/2024	20:08:00	0.7	0.9	16	338
06/04/2024	20:09:00	0.8	1.0	16	338
06/04/2024	20:10:00	0.8	1.0	16	338
06/04/2024	20:11:00	0.8	1.1	16	338
06/04/2024	20:12:00	0.7	1.1	16	338
06/04/2024	20:13:00	0.9	1.1	16	338
06/04/2024	20:14:00	0.7	1.0	16	339
06/04/2024	20:15:00	0.3	0.7	16	339
06/04/2024	20:16:00	0.4	0.8	16	339
06/04/2024	20:17:00	0.0	0.6	16	nW
06/04/2024	20:18:00	0.2	0.7	16	339
06/04/2024	20:19:00	0.1	0.7	16	339
06/04/2024	20:20:00	0.0	0.0	16	nW
06/04/2024	20:21:00	0.0	0.0	16	nW
06/04/2024	20:22:00	0.1	0.6	16	339
06/04/2024	20:23:00	0.0	0.0	16	nW
06/04/2024	20:24:00	0.0	0.7	16	nW
06/04/2024	20:25:00	0.7	0.9	15	338
06/04/2024	20:26:00	0.7	0.9	15	338
06/04/2024	20:27:00	0.3	0.9	15	338
06/04/2024	20:28:00	0.2	0.6	15	339
06/04/2024	20:29:00	0.0	0.0	15	nW
06/04/2024	20:30:00	0.0	0.0	15	nW
06/04/2024	20:31:00	0.0	0.6	15	nW
06/04/2024	20:32:00	0.0	0.0	15	nW
06/04/2024	20:33:00	0.0	0.0	15	nW
06/04/2024	20:34:00	0.0	0.0	15	nW
06/04/2024	20:35:00	0.0	0.0	15	nW
06/04/2024	20:36:00	0.0	0.0	15	nW
06/04/2024	20:37:00	0.0	0.0	15	nW
06/04/2024	20:38:00	0.0	0.0	15	nW

06/04/2024	20:39:00	0.0	0.0	15	nW
06/04/2024	20:40:00	0.0	0.0	15	nW
06/04/2024	20:41:00	0.0	0.0	14	nW
06/04/2024	20:42:00	0.0	0.0	14	nW
06/04/2024	20:43:00	0.0	0.0	14	nW
06/04/2024	20:44:00	0.0	0.0	14	nW
06/04/2024	20:45:00	0.0	0.0	14	nW
06/04/2024	20:46:00	0.0	0.0	14	nW
06/04/2024	20:47:00	0.0	0.0	14	nW
06/04/2024	20:48:00	0.0	0.0	14	nW
06/04/2024	20:49:00	0.0	0.0	14	nW
06/04/2024	20:50:00	0.0	0.0	14	nW
06/04/2024	20:51:00	0.0	0.0	14	nW
06/04/2024	20:52:00	0.0	0.0	14	nW
06/04/2024	20:53:00	0.0	0.0	14	nW
06/04/2024	20:54:00	0.0	0.0	14	nW
06/04/2024	20:55:00	0.0	0.0	14	nW
06/04/2024	20:56:00	0.0	0.0	14	nW
06/04/2024	20:57:00	0.0	0.0	14	nW
06/04/2024	20:58:00	0.0	0.0	14	nW
06/04/2024	20:59:00	0.0	0.0	14	nW
06/04/2024	21:00:00	0.0	0.0	14	nW
06/04/2024	21:01:00	0.0	0.0	14	nW
06/04/2024	21:02:00	0.0	0.6	14	nW
06/04/2024	21:03:00	0.0	0.0	13	nW
06/04/2024	21:04:00	0.0	0.0	13	nW
06/04/2024	21:05:00	0.1	0.7	13	343
06/04/2024	21:06:00	0.0	0.0	13	nW
06/04/2024	21:07:00	0.1	0.8	13	343
06/04/2024	21:08:00	0.1	0.8	13	344
06/04/2024	21:09:00	0.1	0.7	13	343
06/04/2024	21:10:00	0.0	0.7	13	nW
06/04/2024	21:11:00	0.0	0.0	13	nW
06/04/2024	21:12:00	0.0	0.0	13	nW
06/04/2024	21:13:00	0.0	0.0	13	nW
06/04/2024	21:14:00	0.0	0.0	13	nW
06/04/2024	21:15:00	0.0	0.0	13	nW
06/04/2024	21:16:00	0.0	0.0	13	nW
06/04/2024	21:17:00	0.0	0.0	13	nW
06/04/2024	21:18:00	0.0	0.0	13	nW
06/04/2024	21:19:00	0.0	0.0	13	nW
06/04/2024	21:20:00	0.0	0.0	13	nW
06/04/2024	21:21:00	0.0	0.0	13	nW
06/04/2024	21:22:00	0.0	0.0	13	nW
06/04/2024	21:23:00	0.0	0.0	13	nW
06/04/2024	21:24:00	0.0	0.0	13	nW

06/04/2024	21:25:00	0.0	0.0	13	nW
06/04/2024	21:26:00	0.0	0.0	13	nW
06/04/2024	21:27:00	0.0	0.0	13	nW
06/04/2024	21:28:00	0.0	0.0	13	nW
06/04/2024	21:29:00	0.0	0.0	13	nW
06/04/2024	21:30:00	0.0	0.0	13	nW
06/04/2024	21:31:00	0.0	0.0	13	nW
06/04/2024	21:32:00	0.0	0.0	13	nW
06/04/2024	21:33:00	0.0	0.0	12	nW
06/04/2024	21:34:00	0.0	0.0	12	nW
06/04/2024	21:35:00	0.0	0.0	12	nW
06/04/2024	21:36:00	0.0	0.0	12	nW
06/04/2024	21:37:00	0.0	0.0	12	nW
06/04/2024	21:38:00	0.0	0.0	12	nW
06/04/2024	21:39:00	0.0	0.0	12	nW
06/04/2024	21:40:00	0.0	0.0	12	nW
06/04/2024	21:41:00	0.0	0.0	12	nW
06/04/2024	21:42:00	0.0	0.0	12	nW
06/04/2024	21:43:00	0.0	0.0	12	nW
06/04/2024	21:44:00	0.0	0.0	12	nW
06/04/2024	21:45:00	0.0	0.0	12	nW
06/04/2024	21:46:00	0.0	0.0	12	nW
06/04/2024	21:47:00	0.0	0.0	12	nW
06/04/2024	21:48:00	0.0	0.0	12	nW
06/04/2024	21:49:00	0.0	0.0	12	nW
06/04/2024	21:50:00	0.0	0.0	12	nW
06/04/2024	21:51:00	0.0	0.0	12	nW
06/04/2024	21:52:00	0.0	0.0	12	nW
06/04/2024	21:53:00	0.0	0.0	12	nW
06/04/2024	21:54:00	0.0	0.0	12	nW
06/04/2024	21:55:00	0.0	0.0	12	nW
06/04/2024	21:56:00	0.0	0.0	12	nW
06/04/2024	21:57:00	0.0	0.0	12	nW
06/04/2024	21:58:00	0.0	0.0	12	nW
06/04/2024	21:59:00	0.0	0.0	12	nW
06/04/2024	22:00:00	0.0	0.0	12	nW
06/04/2024	22:01:00	0.0	0.0	12	nW
06/04/2024	22:02:00	0.0	0.0	12	nW
06/04/2024	22:03:00	0.0	0.0	12	nW
06/04/2024	22:04:00	0.0	0.0	12	nW
06/04/2024	22:05:00	0.0	0.0	12	nW
06/04/2024	22:06:00	0.0	0.0	12	nW
06/04/2024	22:07:00	0.0	0.0	12	nW
06/04/2024	22:08:00	0.0	0.0	12	nW
06/04/2024	22:09:00	0.0	0.0	12	nW
06/04/2024	22:10:00	0.0	0.0	12	nW

06/04/2024	22:11:00	0.0	0.0	12	nW
06/04/2024	22:12:00	0.0	0.0	12	nW
06/04/2024	22:13:00	0.0	0.0	12	nW
06/04/2024	22:14:00	0.0	0.0	12	nW
06/04/2024	22:15:00	0.0	0.0	12	nW
06/04/2024	22:16:00	0.0	0.0	11	nW
06/04/2024	22:17:00	0.0	0.0	11	nW
06/04/2024	22:18:00	0.0	0.0	11	nW
06/04/2024	22:19:00	0.0	0.0	11	nW
06/04/2024	22:20:00	0.0	0.0	11	nW
06/04/2024	22:21:00	0.0	0.0	11	nW
06/04/2024	22:22:00	0.0	0.0	11	nW
06/04/2024	22:23:00	0.0	0.0	11	nW
06/04/2024	22:24:00	0.0	0.0	11	nW
06/04/2024	22:25:00	0.0	0.0	11	nW
06/04/2024	22:26:00	0.0	0.0	11	nW
06/04/2024	22:27:00	0.0	0.0	11	nW
06/04/2024	22:28:00	0.0	0.0	11	nW
06/04/2024	22:29:00	0.0	0.0	11	nW
06/04/2024	22:30:00	0.0	0.0	11	nW
06/04/2024	22:31:00	0.0	0.0	11	nW
06/04/2024	22:32:00	0.0	0.0	11	nW
06/04/2024	22:33:00	0.1	0.7	11	343
06/04/2024	22:34:00	0.7	0.8	11	343
06/04/2024	22:35:00	0.3	0.8	11	343
06/04/2024	22:36:00	0.3	0.9	11	343
06/04/2024	22:37:00	0.8	1.0	11	340
06/04/2024	22:38:00	0.5	0.8	11	339
06/04/2024	22:39:00	0.3	0.7	11	342
06/04/2024	22:40:00	0.1	0.7	11	343
06/04/2024	22:41:00	0.0	0.0	11	nW
06/04/2024	22:42:00	0.3	0.7	11	343
06/04/2024	22:43:00	0.3	0.7	11	343
06/04/2024	22:44:00	0.0	0.7	11	nW
06/04/2024	22:45:00	0.2	0.8	11	343
06/04/2024	22:46:00	0.5	0.8	11	343
06/04/2024	22:47:00	0.2	0.7	11	343
06/04/2024	22:48:00	0.2	0.7	11	343
06/04/2024	22:49:00	0.0	0.6	11	nW
06/04/2024	22:50:00	0.0	0.0	11	nW
06/04/2024	22:51:00	0.1	0.7	11	343
06/04/2024	22:52:00	0.0	0.7	12	nW
06/04/2024	22:53:00	0.0	0.6	12	nW
06/04/2024	22:54:00	0.0	0.6	12	nW
06/04/2024	22:55:00	0.0	0.0	12	nW
06/04/2024	22:56:00	0.0	0.0	12	nW

06/04/2024	22:57:00	0.0	0.6	12	nW
06/04/2024	22:58:00	0.4	0.8	12	343
06/04/2024	22:59:00	0.6	0.7	12	343
06/04/2024	23:00:00	0.7	0.7	12	343
06/04/2024	23:01:00	0.7	0.8	12	343
06/04/2024	23:02:00	0.6	0.7	12	343
06/04/2024	23:03:00	0.1	0.7	12	343
06/04/2024	23:04:00	0.0	0.0	12	nW
06/04/2024	23:05:00	0.0	0.0	12	nW
06/04/2024	23:06:00	0.0	0.0	12	nW
06/04/2024	23:07:00	0.0	0.0	12	nW
06/04/2024	23:08:00	0.0	0.0	12	nW
06/04/2024	23:09:00	0.0	0.0	12	nW
06/04/2024	23:10:00	0.1	0.7	12	343
06/04/2024	23:11:00	0.4	0.7	12	343
06/04/2024	23:12:00	0.5	0.8	12	343
06/04/2024	23:13:00	0.7	0.9	12	342
06/04/2024	23:14:00	0.7	0.9	12	341
06/04/2024	23:15:00	0.8	0.9	12	341
06/04/2024	23:16:00	0.7	0.9	12	342
06/04/2024	23:17:00	0.7	0.8	12	342
06/04/2024	23:18:00	0.5	0.8	12	342
06/04/2024	23:19:00	0.6	0.8	12	342
06/04/2024	23:20:00	0.6	0.8	12	342
06/04/2024	23:21:00	0.4	0.7	12	342
06/04/2024	23:22:00	0.4	0.8	12	342
06/04/2024	23:23:00	0.5	0.8	12	342
06/04/2024	23:24:00	0.6	0.8	12	342
06/04/2024	23:25:00	0.6	0.8	12	342
06/04/2024	23:26:00	0.2	0.7	12	342
06/04/2024	23:27:00	0.3	0.7	12	342
06/04/2024	23:28:00	0.4	0.7	12	342
06/04/2024	23:29:00	0.2	0.8	12	342
06/04/2024	23:30:00	0.3	0.7	12	342
06/04/2024	23:31:00	0.6	0.8	12	342
06/04/2024	23:32:00	0.7	0.8	12	342
06/04/2024	23:33:00	0.7	0.9	12	342
06/04/2024	23:34:00	0.7	0.9	12	342
06/04/2024	23:35:00	0.7	0.9	12	342
06/04/2024	23:36:00	0.7	1.0	12	342
06/04/2024	23:37:00	0.7	0.9	12	342
06/04/2024	23:38:00	0.3	0.8	12	342
06/04/2024	23:39:00	0.3	0.8	12	339
06/04/2024	23:40:00	0.5	0.8	12	339
06/04/2024	23:41:00	0.1	0.6	12	339
06/04/2024	23:42:00	0.3	0.7	12	339

06/04/2024	23:43:00	0.1	0.7	12	339
06/04/2024	23:44:00	0.0	0.6	12	nW
06/04/2024	23:45:00	0.1	0.6	12	339
06/04/2024	23:46:00	0.3	0.7	12	339
06/04/2024	23:47:00	0.2	0.7	11	339
06/04/2024	23:48:00	0.0	0.0	11	nW
06/04/2024	23:49:00	0.0	0.0	11	nW
06/04/2024	23:50:00	0.0	0.0	11	nW
06/04/2024	23:51:00	0.0	0.0	11	nW
06/04/2024	23:52:00	0.0	0.0	11	nW
06/04/2024	23:53:00	0.0	0.0	11	nW
06/04/2024	23:54:00	0.0	0.0	11	nW
06/04/2024	23:55:00	0.0	0.0	11	nW
06/04/2024	23:56:00	0.0	0.0	11	nW
06/04/2024	23:57:00	0.0	0.0	11	nW
06/04/2024	23:58:00	0.0	0.0	11	nW
06/04/2024	23:59:00	0.0	0.0	11	nW
07/04/2024	00:00:00	0.0	0.0	11	nW
07/04/2024	00:01:00	0.0	0.0	11	nW
07/04/2024	00:02:00	0.0	0.0	11	nW
07/04/2024	00:03:00	0.0	0.0	11	nW
07/04/2024	00:04:00	0.0	0.0	11	nW
07/04/2024	00:05:00	0.0	0.0	11	nW
07/04/2024	00:06:00	0.0	0.0	11	nW
07/04/2024	00:07:00	0.0	0.0	11	nW
07/04/2024	00:08:00	0.0	0.0	11	nW
07/04/2024	00:09:00	0.0	0.0	11	nW
07/04/2024	00:10:00	0.0	0.0	11	nW
07/04/2024	00:11:00	0.0	0.0	11	nW
07/04/2024	00:12:00	0.0	0.0	11	nW
07/04/2024	00:13:00	0.0	0.0	11	nW
07/04/2024	00:14:00	0.0	0.0	11	nW
07/04/2024	00:15:00	0.4	0.8	11	342
07/04/2024	00:16:00	0.5	0.7	11	342
07/04/2024	00:17:00	0.6	0.8	11	342
07/04/2024	00:18:00	0.8	1.0	11	342
07/04/2024	00:19:00	0.7	0.9	11	342
07/04/2024	00:20:00	0.7	1.0	11	338
07/04/2024	00:21:00	0.6	0.8	11	341
07/04/2024	00:22:00	0.3	0.8	11	342
07/04/2024	00:23:00	0.0	0.7	11	nW
07/04/2024	00:24:00	0.2	0.6	11	343
07/04/2024	00:25:00	0.1	0.7	11	343
07/04/2024	00:26:00	0.5	0.7	11	343
07/04/2024	00:27:00	0.6	0.8	11	342
07/04/2024	00:28:00	0.6	0.9	11	342

07/04/2024	00:29:00	0.4	0.9	11	342
07/04/2024	00:30:00	0.6	0.7	11	343
07/04/2024	00:31:00	0.6	0.8	11	343
07/04/2024	00:32:00	0.0	0.0	11	nW
07/04/2024	00:33:00	0.0	0.0	11	nW
07/04/2024	00:34:00	0.2	0.8	11	343
07/04/2024	00:35:00	0.6	0.9	11	343
07/04/2024	00:36:00	0.5	0.8	11	343
07/04/2024	00:37:00	0.5	0.7	11	343
07/04/2024	00:38:00	0.3	0.7	11	343
07/04/2024	00:39:00	0.6	0.8	11	343
07/04/2024	00:40:00	0.4	0.7	11	343
07/04/2024	00:41:00	0.0	0.0	11	nW
07/04/2024	00:42:00	0.0	0.0	11	nW
07/04/2024	00:43:00	0.1	0.6	11	343
07/04/2024	00:44:00	0.0	0.0	11	nW
07/04/2024	00:45:00	0.0	0.0	11	nW
07/04/2024	00:46:00	0.0	0.0	11	nW
07/04/2024	00:47:00	0.0	0.0	11	nW
07/04/2024	00:48:00	0.2	0.7	11	343
07/04/2024	00:49:00	0.0	0.7	11	nW
07/04/2024	00:50:00	0.0	0.0	11	nW
07/04/2024	00:51:00	0.0	0.0	11	nW
07/04/2024	00:52:00	0.1	0.8	11	343
07/04/2024	00:53:00	0.0	0.0	11	nW
07/04/2024	00:54:00	0.1	0.7	11	343
07/04/2024	00:55:00	0.0	0.0	11	nW
07/04/2024	00:56:00	0.0	0.0	11	nW
07/04/2024	00:57:00	0.0	0.0	11	nW
07/04/2024	00:58:00	0.0	0.0	11	nW
07/04/2024	00:59:00	0.0	0.0	11	nW
07/04/2024	01:00:00	0.0	0.0	11	nW
07/04/2024	01:01:00	0.0	0.0	11	nW
07/04/2024	01:02:00	0.0	0.7	11	nW
07/04/2024	01:03:00	0.0	0.0	11	nW
07/04/2024	01:04:00	0.0	0.0	11	nW
07/04/2024	01:05:00	0.0	0.0	11	nW
07/04/2024	01:06:00	0.0	0.0	11	nW
07/04/2024	01:07:00	0.0	0.0	11	nW
07/04/2024	01:08:00	0.0	0.0	11	nW
07/04/2024	01:09:00	0.0	0.0	11	nW
07/04/2024	01:10:00	0.0	0.0	11	nW
07/04/2024	01:11:00	0.0	0.0	11	nW
07/04/2024	01:12:00	0.0	0.0	11	nW
07/04/2024	01:13:00	0.0	0.0	11	nW
07/04/2024	01:14:00	0.0	0.0	11	nW

07/04/2024	01:15:00	0.0	0.0	11	nW
07/04/2024	01:16:00	0.0	0.0	11	nW
07/04/2024	01:17:00	0.0	0.0	11	nW
07/04/2024	01:18:00	0.0	0.0	11	nW
07/04/2024	01:19:00	0.0	0.0	11	nW
07/04/2024	01:20:00	0.0	0.0	11	nW
07/04/2024	01:21:00	0.0	0.0	11	nW
07/04/2024	01:22:00	0.0	0.0	10	nW
07/04/2024	01:23:00	0.0	0.0	10	nW
07/04/2024	01:24:00	0.1	0.7	10	343
07/04/2024	01:25:00	0.0	0.0	10	nW
07/04/2024	01:26:00	0.0	0.0	10	nW
07/04/2024	01:27:00	0.0	0.0	10	nW
07/04/2024	01:28:00	0.2	0.7	10	343
07/04/2024	01:29:00	0.3	0.7	10	343
07/04/2024	01:30:00	0.2	0.7	10	343
07/04/2024	01:31:00	0.7	0.8	10	343
07/04/2024	01:32:00	0.7	1.0	10	343
07/04/2024	01:33:00	0.7	0.9	10	341
07/04/2024	01:34:00	0.5	0.9	10	341
07/04/2024	01:35:00	0.3	0.7	10	342
07/04/2024	01:36:00	0.1	0.6	10	342
07/04/2024	01:37:00	0.1	0.6	10	342
07/04/2024	01:38:00	0.5	0.8	10	342
07/04/2024	01:39:00	0.2	0.7	10	342
07/04/2024	01:40:00	0.5	0.8	10	342
07/04/2024	01:41:00	0.4	0.7	10	343
07/04/2024	01:42:00	0.0	0.6	10	nW
07/04/2024	01:43:00	0.2	0.7	10	343
07/04/2024	01:44:00	0.2	0.7	10	343
07/04/2024	01:45:00	0.0	0.0	10	nW
07/04/2024	01:46:00	0.1	0.7	10	343
07/04/2024	01:47:00	0.0	0.6	10	nW
07/04/2024	01:48:00	0.2	0.7	11	343
07/04/2024	01:49:00	0.0	0.0	11	nW
07/04/2024	01:50:00	0.0	0.0	10	nW
07/04/2024	01:51:00	0.1	0.7	10	343
07/04/2024	01:52:00	0.1	0.6	10	343
07/04/2024	01:53:00	0.1	0.7	10	343
07/04/2024	01:54:00	0.0	0.0	10	nW
07/04/2024	01:55:00	0.0	0.0	10	nW
07/04/2024	01:56:00	0.1	0.6	10	343
07/04/2024	01:57:00	0.2	0.7	10	343
07/04/2024	01:58:00	0.2	0.7	10	343
07/04/2024	01:59:00	0.1	0.6	10	343
07/04/2024	02:00:00	0.6	0.7	10	343

07/04/2024	02:01:00	0.3	0.7	10	343
07/04/2024	02:02:00	0.1	0.6	10	343
07/04/2024	02:03:00	0.0	0.0	10	nW
07/04/2024	02:04:00	0.0	0.0	10	nW
07/04/2024	02:05:00	0.0	0.0	10	nW
07/04/2024	02:06:00	0.0	0.0	10	nW
07/04/2024	02:07:00	0.0	0.0	10	nW
07/04/2024	02:08:00	0.0	0.0	10	nW
07/04/2024	02:09:00	0.0	0.0	10	nW
07/04/2024	02:10:00	0.0	0.0	10	nW
07/04/2024	02:11:00	0.0	0.0	10	nW
07/04/2024	02:12:00	0.0	0.0	10	nW
07/04/2024	02:13:00	0.0	0.0	10	nW
07/04/2024	02:14:00	0.0	0.0	10	nW
07/04/2024	02:15:00	0.0	0.0	10	nW
07/04/2024	02:16:00	0.0	0.0	10	nW
07/04/2024	02:17:00	0.1	0.7	10	343
07/04/2024	02:18:00	0.0	0.6	10	nW
07/04/2024	02:19:00	0.0	0.0	10	nW
07/04/2024	02:20:00	0.2	0.7	10	343
07/04/2024	02:21:00	0.4	0.8	10	343
07/04/2024	02:22:00	0.1	0.6	10	343
07/04/2024	02:23:00	0.0	0.6	10	nW
07/04/2024	02:24:00	0.3	0.7	10	343
07/04/2024	02:25:00	0.3	0.8	10	343
07/04/2024	02:26:00	0.0	0.0	10	nW
07/04/2024	02:27:00	0.0	0.7	10	nW
07/04/2024	02:28:00	0.4	0.8	10	343
07/04/2024	02:29:00	0.2	0.8	10	343
07/04/2024	02:30:00	0.4	0.9	10	343
07/04/2024	02:31:00	0.4	0.8	10	343
07/04/2024	02:32:00	0.7	0.8	10	341
07/04/2024	02:33:00	0.8	1.0	10	338
07/04/2024	02:34:00	0.5	0.9	10	338
07/04/2024	02:35:00	0.6	0.8	10	339
07/04/2024	02:36:00	0.4	0.8	10	339
07/04/2024	02:37:00	0.7	0.9	10	339
07/04/2024	02:38:00	0.8	1.2	10	338
07/04/2024	02:39:00	0.8	1.2	10	338
07/04/2024	02:40:00	0.7	1.0	10	338
07/04/2024	02:41:00	0.3	0.7	10	338
07/04/2024	02:42:00	0.7	0.8	10	338
07/04/2024	02:43:00	0.8	1.2	10	331
07/04/2024	02:44:00	0.7	1.0	10	327
07/04/2024	02:45:00	0.7	0.9	10	327
07/04/2024	02:46:00	0.3	0.8	10	327

07/04/2024	02:47:00	0.4	0.7	10	327
07/04/2024	02:48:00	0.5	0.7	10	327
07/04/2024	02:49:00	0.4	0.8	10	327
07/04/2024	02:50:00	0.1	0.7	10	327
07/04/2024	02:51:00	0.3	0.9	10	327
07/04/2024	02:52:00	0.2	0.6	10	327
07/04/2024	02:53:00	0.7	0.9	10	327
07/04/2024	02:54:00	0.7	0.9	10	327
07/04/2024	02:55:00	0.6	0.8	10	327
07/04/2024	02:56:00	0.3	0.7	10	327
07/04/2024	02:57:00	0.0	0.0	10	nW
07/04/2024	02:58:00	0.0	0.0	10	nW
07/04/2024	02:59:00	0.0	0.0	10	nW
07/04/2024	03:00:00	0.0	0.0	10	nW
07/04/2024	03:01:00	0.0	0.0	10	nW
07/04/2024	03:02:00	0.0	0.0	10	nW
07/04/2024	03:03:00	0.0	0.0	10	nW
07/04/2024	03:04:00	0.0	0.0	10	nW
07/04/2024	03:05:00	0.0	0.0	10	nW
07/04/2024	03:06:00	0.0	0.0	10	nW
07/04/2024	03:07:00	0.0	0.0	10	nW
07/04/2024	03:08:00	0.0	0.0	10	nW
07/04/2024	03:09:00	0.7	0.9	10	327
07/04/2024	03:10:00	0.7	0.8	10	327
07/04/2024	03:11:00	0.7	0.9	10	327
07/04/2024	03:12:00	0.7	0.9	10	327
07/04/2024	03:13:00	0.7	0.9	10	327
07/04/2024	03:14:00	0.7	1.0	10	327
07/04/2024	03:15:00	0.4	0.8	10	327
07/04/2024	03:16:00	0.2	0.7	10	327
07/04/2024	03:17:00	0.0	0.6	10	nW
07/04/2024	03:18:00	0.0	0.0	10	nW
07/04/2024	03:19:00	0.0	0.0	10	nW
07/04/2024	03:20:00	0.0	0.0	10	nW
07/04/2024	03:21:00	0.0	0.0	10	nW
07/04/2024	03:22:00	0.0	0.0	10	nW
07/04/2024	03:23:00	0.0	0.0	10	nW
07/04/2024	03:24:00	0.0	0.0	10	nW
07/04/2024	03:25:00	0.0	0.0	10	nW
07/04/2024	03:26:00	0.0	0.0	10	nW
07/04/2024	03:27:00	0.0	0.0	10	nW
07/04/2024	03:28:00	0.0	0.0	10	nW
07/04/2024	03:29:00	0.1	0.6	10	327
07/04/2024	03:30:00	0.5	0.7	9	327
07/04/2024	03:31:00	0.2	0.7	9	327
07/04/2024	03:32:00	0.6	0.7	9	327

07/04/2024	03:33:00	0.4	0.8	9	327
07/04/2024	03:34:00	0.5	0.8	9	327
07/04/2024	03:35:00	0.1	0.6	9	327
07/04/2024	03:36:00	0.1	0.8	9	327
07/04/2024	03:37:00	0.4	0.7	9	327
07/04/2024	03:38:00	0.0	0.0	9	nW
07/04/2024	03:39:00	0.0	0.0	9	nW
07/04/2024	03:40:00	0.0	0.0	9	nW
07/04/2024	03:41:00	0.0	0.0	9	nW
07/04/2024	03:42:00	0.0	0.0	9	nW
07/04/2024	03:43:00	0.0	0.0	9	nW
07/04/2024	03:44:00	0.0	0.0	9	nW
07/04/2024	03:45:00	0.0	0.0	9	nW
07/04/2024	03:46:00	0.0	0.0	9	nW
07/04/2024	03:47:00	0.0	0.0	9	nW
07/04/2024	03:48:00	0.0	0.0	8	nW
07/04/2024	03:49:00	0.0	0.0	8	nW
07/04/2024	03:50:00	0.0	0.0	8	nW
07/04/2024	03:51:00	0.0	0.0	8	nW
07/04/2024	03:52:00	0.0	0.0	8	nW
07/04/2024	03:53:00	0.0	0.0	8	nW
07/04/2024	03:54:00	0.0	0.0	8	nW
07/04/2024	03:55:00	0.0	0.0	8	nW
07/04/2024	03:56:00	0.0	0.0	8	nW
07/04/2024	03:57:00	0.0	0.0	8	nW
07/04/2024	03:58:00	0.0	0.0	8	nW
07/04/2024	03:59:00	0.0	0.0	8	nW
07/04/2024	04:00:00	0.0	0.0	8	nW
07/04/2024	04:01:00	0.0	0.0	8	nW
07/04/2024	04:02:00	0.0	0.0	8	nW
07/04/2024	04:03:00	0.0	0.0	8	nW
07/04/2024	04:04:00	0.1	0.6	8	327
07/04/2024	04:05:00	0.0	0.0	8	nW
07/04/2024	04:06:00	0.0	0.0	8	nW
07/04/2024	04:07:00	0.0	0.6	8	nW
07/04/2024	04:08:00	0.0	0.0	8	nW
07/04/2024	04:09:00	0.0	0.0	8	nW
07/04/2024	04:10:00	0.0	0.0	8	nW
07/04/2024	04:11:00	0.0	0.0	8	nW
07/04/2024	04:12:00	0.0	0.0	8	nW
07/04/2024	04:13:00	0.0	0.0	8	nW
07/04/2024	04:14:00	0.0	0.0	8	nW
07/04/2024	04:15:00	0.0	0.0	8	nW
07/04/2024	04:16:00	0.0	0.0	8	nW
07/04/2024	04:17:00	0.0	0.0	8	nW
07/04/2024	04:18:00	0.0	0.0	8	nW

07/04/2024	04:19:00	0.0	0.0	8	nW
07/04/2024	04:20:00	0.0	0.0	8	nW
07/04/2024	04:21:00	0.0	0.0	8	nW
07/04/2024	04:22:00	0.0	0.0	8	nW
07/04/2024	04:23:00	0.0	0.0	8	nW
07/04/2024	04:24:00	0.2	0.7	8	327
07/04/2024	04:25:00	0.2	0.7	8	327
07/04/2024	04:26:00	0.0	0.0	8	nW
07/04/2024	04:27:00	0.0	0.0	8	nW
07/04/2024	04:28:00	0.0	0.0	8	nW
07/04/2024	04:29:00	0.0	0.0	8	nW
07/04/2024	04:30:00	0.0	0.0	8	nW
07/04/2024	04:31:00	0.0	0.0	8	nW
07/04/2024	04:32:00	0.0	0.0	8	nW
07/04/2024	04:33:00	0.0	0.0	8	nW
07/04/2024	04:34:00	0.0	0.0	8	nW
07/04/2024	04:35:00	0.0	0.0	8	nW
07/04/2024	04:36:00	0.0	0.0	8	nW
07/04/2024	04:37:00	0.0	0.0	8	nW
07/04/2024	04:38:00	0.0	0.0	8	nW
07/04/2024	04:39:00	0.2	0.6	8	327
07/04/2024	04:40:00	0.4	0.7	8	327
07/04/2024	04:41:00	0.4	0.7	8	327
07/04/2024	04:42:00	0.2	0.6	8	327
07/04/2024	04:43:00	0.6	0.7	8	327
07/04/2024	04:44:00	0.3	0.6	8	327
07/04/2024	04:45:00	0.6	0.7	8	327
07/04/2024	04:46:00	0.6	0.7	8	327
07/04/2024	04:47:00	0.6	0.7	8	327
07/04/2024	04:48:00	0.7	0.7	8	327
07/04/2024	04:49:00	0.7	0.8	8	327
07/04/2024	04:50:00	0.6	0.7	8	327
07/04/2024	04:51:00	0.2	0.7	8	327
07/04/2024	04:52:00	0.0	0.0	8	nW
07/04/2024	04:53:00	0.0	0.0	8	nW
07/04/2024	04:54:00	0.0	0.0	8	nW
07/04/2024	04:55:00	0.0	0.0	8	nW
07/04/2024	04:56:00	0.0	0.0	8	nW
07/04/2024	04:57:00	0.0	0.0	8	nW
07/04/2024	04:58:00	0.0	0.0	8	nW
07/04/2024	04:59:00	0.0	0.0	8	nW
07/04/2024	05:00:00	0.3	0.7	8	327
07/04/2024	05:01:00	0.1	0.6	8	327
07/04/2024	05:02:00	0.5	0.8	8	327
07/04/2024	05:03:00	0.4	0.7	8	327
07/04/2024	05:04:00	0.6	0.8	8	327

07/04/2024	05:05:00	0.7	0.8	8	327
07/04/2024	05:06:00	0.8	1.0	8	327
07/04/2024	05:07:00	0.9	1.1	8	340
07/04/2024	05:08:00	0.9	1.1	8	350
07/04/2024	05:09:00	0.8	1.0	8	350
07/04/2024	05:10:00	0.7	1.0	8	348
07/04/2024	05:11:00	0.5	0.8	8	348
07/04/2024	05:12:00	0.4	0.8	8	348
07/04/2024	05:13:00	0.7	0.8	8	348
07/04/2024	05:14:00	0.8	1.0	8	348
07/04/2024	05:15:00	1.0	1.1	8	352
07/04/2024	05:16:00	0.9	1.1	8	352
07/04/2024	05:17:00	1.0	1.1	8	352
07/04/2024	05:18:00	0.9	1.1	8	352
07/04/2024	05:19:00	0.9	1.0	8	352
07/04/2024	05:20:00	0.8	0.9	8	351
07/04/2024	05:21:00	0.8	0.9	8	351
07/04/2024	05:22:00	0.8	0.9	8	351
07/04/2024	05:23:00	0.8	1.0	8	351
07/04/2024	05:24:00	0.9	1.0	8	351
07/04/2024	05:25:00	0.8	1.0	8	350
07/04/2024	05:26:00	0.7	0.9	8	348
07/04/2024	05:27:00	0.7	0.9	8	348
07/04/2024	05:28:00	0.6	0.7	8	348
07/04/2024	05:29:00	0.5	0.7	8	348
07/04/2024	05:30:00	0.7	0.8	8	348
07/04/2024	05:31:00	0.6	0.9	8	348
07/04/2024	05:32:00	0.4	0.8	8	348
07/04/2024	05:33:00	0.5	0.7	8	348
07/04/2024	05:34:00	0.7	0.8	8	348
07/04/2024	05:35:00	0.7	0.7	8	348
07/04/2024	05:36:00	0.7	0.8	8	348
07/04/2024	05:37:00	0.9	1.0	8	348
07/04/2024	05:38:00	0.9	1.0	8	349
07/04/2024	05:39:00	0.9	1.1	8	349
07/04/2024	05:40:00	0.9	1.1	8	349
07/04/2024	05:41:00	0.8	1.0	8	349
07/04/2024	05:42:00	0.8	0.9	8	349
07/04/2024	05:43:00	0.9	1.1	8	351
07/04/2024	05:44:00	0.9	1.1	8	351
07/04/2024	05:45:00	0.8	0.9	8	350
07/04/2024	05:46:00	0.7	0.9	8	350
07/04/2024	05:47:00	0.8	1.0	8	350
07/04/2024	05:48:00	0.9	1.0	8	352
07/04/2024	05:49:00	0.8	1.0	8	351
07/04/2024	05:50:00	0.7	0.9	8	349

07/04/2024	05:51:00	0.7	0.9	8	348
07/04/2024	05:52:00	0.4	0.7	8	348
07/04/2024	05:53:00	0.3	0.8	8	346
07/04/2024	05:54:00	0.0	0.7	8	nW
07/04/2024	05:55:00	0.5	0.7	8	343
07/04/2024	05:56:00	0.6	0.8	8	344
07/04/2024	05:57:00	0.6	0.8	8	344
07/04/2024	05:58:00	0.7	0.9	8	348
07/04/2024	05:59:00	0.6	0.7	8	348
07/04/2024	06:00:00	0.4	0.7	8	348
07/04/2024	06:01:00	0.0	0.0	8	nW
07/04/2024	06:02:00	0.2	0.7	7	348
07/04/2024	06:03:00	0.1	0.6	7	348
07/04/2024	06:04:00	0.0	0.0	7	nW
07/04/2024	06:05:00	0.0	0.0	7	nW
07/04/2024	06:06:00	0.0	0.0	7	nW
07/04/2024	06:07:00	0.1	0.7	7	346
07/04/2024	06:08:00	0.1	0.7	7	343
07/04/2024	06:09:00	0.0	0.6	7	nW
07/04/2024	06:10:00	0.1	0.7	7	343
07/04/2024	06:11:00	0.0	0.0	7	nW
07/04/2024	06:12:00	0.0	0.0	7	nW
07/04/2024	06:13:00	0.1	0.6	7	343
07/04/2024	06:14:00	0.0	0.0	7	nW
07/04/2024	06:15:00	0.0	0.0	7	nW
07/04/2024	06:16:00	0.0	0.0	7	nW
07/04/2024	06:17:00	0.0	0.0	7	nW
07/04/2024	06:18:00	0.2	0.6	7	343
07/04/2024	06:19:00	0.5	0.7	7	344
07/04/2024	06:20:00	0.0	0.6	7	nW
07/04/2024	06:21:00	0.0	0.0	7	nW
07/04/2024	06:22:00	0.3	0.8	7	343
07/04/2024	06:23:00	0.2	0.7	7	343
07/04/2024	06:24:00	0.3	0.8	7	343
07/04/2024	06:25:00	0.0	0.0	7	nW
07/04/2024	06:26:00	0.2	0.7	7	343
07/04/2024	06:27:00	0.2	0.7	7	343
07/04/2024	06:28:00	0.4	0.8	7	343
07/04/2024	06:29:00	0.3	0.7	7	343
07/04/2024	06:30:00	0.2	0.8	7	343
07/04/2024	06:31:00	0.3	0.7	7	343
07/04/2024	06:32:00	0.7	0.8	7	343
07/04/2024	06:33:00	0.3	0.7	7	343
07/04/2024	06:34:00	0.0	0.0	7	nW
07/04/2024	06:35:00	0.1	0.8	7	343
07/04/2024	06:36:00	0.1	0.7	7	343

07/04/2024	06:37:00	0.1	0.8	7	342
07/04/2024	06:38:00	0.6	1.1	7	340
07/04/2024	06:39:00	0.2	0.7	7	327
07/04/2024	06:40:00	0.3	0.8	7	327
07/04/2024	06:41:00	0.1	0.7	7	327
07/04/2024	06:42:00	0.0	0.0	7	nW
07/04/2024	06:43:00	0.1	0.6	7	327
07/04/2024	06:44:00	0.0	0.7	7	nW
07/04/2024	06:45:00	0.2	0.7	7	327
07/04/2024	06:46:00	0.0	0.0	7	nW
07/04/2024	06:47:00	0.3	0.8	7	327
07/04/2024	06:48:00	0.0	0.0	7	nW
07/04/2024	06:49:00	0.0	0.0	7	nW
07/04/2024	06:50:00	0.0	0.0	7	nW
07/04/2024	06:51:00	0.0	0.0	7	nW
07/04/2024	06:52:00	0.0	0.0	7	nW
07/04/2024	06:53:00	0.0	0.0	7	nW
07/04/2024	06:54:00	0.0	0.0	7	nW
07/04/2024	06:55:00	0.0	0.0	7	nW
07/04/2024	06:56:00	0.0	0.0	7	nW
07/04/2024	06:57:00	0.5	0.9	7	327
07/04/2024	06:58:00	0.4	0.9	7	327
07/04/2024	06:59:00	0.0	0.6	7	nW
07/04/2024	07:00:00	0.5	0.8	7	327
07/04/2024	07:01:00	0.2	0.7	7	327
07/04/2024	07:02:00	0.1	0.7	7	327
07/04/2024	07:03:00	0.3	0.8	7	327
07/04/2024	07:04:00	0.4	0.8	7	327
07/04/2024	07:05:00	0.3	0.8	7	327
07/04/2024	07:06:00	0.4	0.7	7	327
07/04/2024	07:07:00	0.5	0.7	7	327
07/04/2024	07:08:00	0.2	0.8	7	327
07/04/2024	07:09:00	0.0	0.7	7	nW
07/04/2024	07:10:00	0.2	0.7	7	327
07/04/2024	07:11:00	0.0	0.0	7	nW
07/04/2024	07:12:00	0.0	0.0	7	nW
07/04/2024	07:13:00	0.0	0.0	7	nW
07/04/2024	07:14:00	0.0	0.0	7	nW
07/04/2024	07:15:00	0.0	0.0	7	nW
07/04/2024	07:16:00	0.0	0.0	7	nW
07/04/2024	07:17:00	0.0	0.0	7	nW
07/04/2024	07:18:00	0.0	0.0	7	nW
07/04/2024	07:19:00	0.0	0.0	7	nW
07/04/2024	07:20:00	0.0	0.0	7	nW
07/04/2024	07:21:00	0.0	0.0	7	nW
07/04/2024	07:22:00	0.5	0.7	7	327

07/04/2024	07:23:00	0.2	0.7	8	327
07/04/2024	07:24:00	0.1	0.8	8	327
07/04/2024	07:25:00	0.3	0.7	8	327
07/04/2024	07:26:00	0.0	0.0	8	nW
07/04/2024	07:27:00	0.0	0.0	8	nW
07/04/2024	07:28:00	0.2	0.8	8	327
07/04/2024	07:29:00	0.2	0.9	8	327
07/04/2024	07:30:00	0.3	0.7	8	327
07/04/2024	07:31:00	0.2	0.7	8	327
07/04/2024	07:32:00	0.3	0.7	8	327
07/04/2024	07:33:00	0.2	0.9	8	327
07/04/2024	07:34:00	0.1	0.6	8	327
07/04/2024	07:35:00	0.2	0.7	8	327
07/04/2024	07:36:00	0.3	0.8	8	327
07/04/2024	07:37:00	0.2	0.7	8	327
07/04/2024	07:38:00	0.3	0.7	8	327
07/04/2024	07:39:00	0.2	0.7	8	327
07/04/2024	07:40:00	0.1	0.7	8	327
07/04/2024	07:41:00	0.0	0.6	8	nW
07/04/2024	07:42:00	0.2	0.7	8	327
07/04/2024	07:43:00	0.2	0.7	8	327
07/04/2024	07:44:00	0.5	1.0	8	327
07/04/2024	07:45:00	0.5	0.8	8	327
07/04/2024	07:46:00	0.4	0.8	8	327
07/04/2024	07:47:00	0.4	0.9	8	327
07/04/2024	07:48:00	0.5	0.9	9	327
07/04/2024	07:49:00	0.5	0.8	9	327
07/04/2024	07:50:00	0.5	0.9	9	327
07/04/2024	07:51:00	0.6	0.9	9	327
07/04/2024	07:52:00	0.0	0.6	9	nW
07/04/2024	07:53:00	0.4	0.8	9	327
07/04/2024	07:54:00	0.7	1.0	9	327
07/04/2024	07:55:00	0.9	1.1	9	327
07/04/2024	07:56:00	0.8	1.1	9	327
07/04/2024	07:57:00	0.9	1.2	9	327
07/04/2024	07:58:00	0.4	0.8	10	327
07/04/2024	07:59:00	0.6	0.9	10	327
07/04/2024	08:00:00	0.7	1.0	10	327
07/04/2024	08:01:00	0.5	0.8	10	327
07/04/2024	08:02:00	0.2	0.9	10	328
07/04/2024	08:03:00	0.6	1.0	10	342
07/04/2024	08:04:00	0.6	0.8	10	343
07/04/2024	08:05:00	0.7	1.2	10	333
07/04/2024	08:06:00	0.7	1.0	10	327
07/04/2024	08:07:00	0.6	0.8	10	327
07/04/2024	08:08:00	0.8	1.3	10	327

07/04/2024	08:09:00	0.7	0.8	10	343
07/04/2024	08:10:00	0.9	1.3	10	124
07/04/2024	08:11:00	0.8	1.2	10	129
07/04/2024	08:12:00	0.9	1.4	10	132
07/04/2024	08:13:00	0.8	1.2	11	132
07/04/2024	08:14:00	0.9	1.2	11	133
07/04/2024	08:15:00	0.7	0.9	11	121
07/04/2024	08:16:00	0.8	1.3	11	131
07/04/2024	08:17:00	0.8	1.3	11	133
07/04/2024	08:18:00	0.3	0.7	11	130
07/04/2024	08:19:00	0.6	1.1	11	131
07/04/2024	08:20:00	0.3	0.8	11	118
07/04/2024	08:21:00	0.5	0.8	11	117
07/04/2024	08:22:00	0.1	0.7	11	117
07/04/2024	08:23:00	0.2	0.7	12	117
07/04/2024	08:24:00	0.1	0.7	12	117
07/04/2024	08:25:00	0.0	0.7	12	nW
07/04/2024	08:26:00	0.2	1.0	12	118
07/04/2024	08:27:00	0.4	0.9	12	117
07/04/2024	08:28:00	0.3	0.9	12	117
07/04/2024	08:29:00	0.6	0.9	12	117
07/04/2024	08:30:00	0.5	0.9	12	124
07/04/2024	08:31:00	0.8	1.4	12	133
07/04/2024	08:32:00	0.9	1.4	13	137
07/04/2024	08:33:00	1.3	1.7	13	245
07/04/2024	08:34:00	0.9	1.4	13	261
07/04/2024	08:35:00	0.7	1.1	13	244
07/04/2024	08:36:00	0.8	1.2	13	238
07/04/2024	08:37:00	0.9	1.2	13	218
07/04/2024	08:38:00	0.8	1.2	13	223
07/04/2024	08:39:00	0.5	0.9	13	223
07/04/2024	08:40:00	0.8	1.0	13	225
07/04/2024	08:41:00	0.7	1.1	13	219
07/04/2024	08:42:00	0.8	1.1	13	218
07/04/2024	08:43:00	0.5	0.9	13	193
07/04/2024	08:44:00	0.7	1.2	14	194
07/04/2024	08:45:00	0.6	1.0	14	194
07/04/2024	08:46:00	0.5	1.2	14	194
07/04/2024	08:47:00	0.7	1.1	14	194
07/04/2024	08:48:00	0.7	1.1	14	194
07/04/2024	08:49:00	0.7	1.0	14	196
07/04/2024	08:50:00	0.8	1.1	14	198
07/04/2024	08:51:00	0.7	1.0	14	198
07/04/2024	08:52:00	0.6	1.3	14	197
07/04/2024	08:53:00	0.6	1.4	14	197
07/04/2024	08:54:00	0.8	1.1	14	197

07/04/2024	08:55:00	0.7	1.1	14	197
07/04/2024	08:56:00	0.8	1.4	14	197
07/04/2024	08:57:00	0.7	1.3	14	197
07/04/2024	08:58:00	0.6	1.0	14	197
07/04/2024	08:59:00	0.9	1.3	14	197
07/04/2024	09:00:00	0.9	1.2	14	200
07/04/2024	09:01:00	0.7	1.0	14	197
07/04/2024	09:02:00	1.0	1.5	14	198
07/04/2024	09:03:00	0.7	1.0	14	203
07/04/2024	09:04:00	0.8	1.0	14	198
07/04/2024	09:05:00	0.8	1.2	14	197
07/04/2024	09:06:00	1.0	1.4	14	198
07/04/2024	09:07:00	1.0	1.5	14	203
07/04/2024	09:08:00	0.9	1.5	15	199
07/04/2024	09:09:00	0.7	1.3	15	202
07/04/2024	09:10:00	1.2	1.9	15	214
07/04/2024	09:11:00	1.0	1.5	15	256
07/04/2024	09:12:00	1.1	1.6	15	250
07/04/2024	09:13:00	0.9	1.3	15	262
07/04/2024	09:14:00	0.9	1.3	15	253
07/04/2024	09:15:00	1.1	1.7	15	246
07/04/2024	09:16:00	0.7	0.9	16	250
07/04/2024	09:17:00	1.0	1.5	16	251
07/04/2024	09:18:00	0.7	1.0	16	248
07/04/2024	09:19:00	0.7	1.2	16	249
07/04/2024	09:20:00	1.1	1.7	16	245
07/04/2024	09:21:00	1.0	1.5	16	243
07/04/2024	09:22:00	1.3	1.9	16	259
07/04/2024	09:23:00	0.9	1.4	16	272
07/04/2024	09:24:00	0.4	1.0	16	272
07/04/2024	09:25:00	0.5	1.2	16	245
07/04/2024	09:26:00	0.8	1.4	16	249
07/04/2024	09:27:00	1.1	1.5	16	260
07/04/2024	09:28:00	1.2	1.6	16	257
07/04/2024	09:29:00	1.1	1.5	16	257
07/04/2024	09:30:00	1.3	1.8	17	258
07/04/2024	09:31:00	1.1	1.5	17	254
07/04/2024	09:32:00	1.3	2.2	17	259
07/04/2024	09:33:00	1.3	1.9	17	250
07/04/2024	09:34:00	1.2	1.7	17	246
07/04/2024	09:35:00	1.1	1.6	17	255
07/04/2024	09:36:00	1.2	1.6	17	258
07/04/2024	09:37:00	1.0	1.9	17	253
07/04/2024	09:38:00	1.4	2.0	17	258
07/04/2024	09:39:00	0.9	1.4	17	256
07/04/2024	09:40:00	0.7	1.6	17	265

07/04/2024	09:41:00	0.9	1.5	17	256	
07/04/2024	09:42:00	1.2	1.9	17	257	
07/04/2024	09:43:00	1.4	1.8	17	257	
07/04/2024	09:44:00	1.1	1.6	17	254	

Data for N 11 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
3/30/2024	11:33:27	54.1	81.9	87	33.1	55.5	39.9
3/30/2024	11:43:27	51.9	79.7	65.4	31.8	55.8	40
3/30/2024	11:53:27	47.9	75.7	57.2	31.1	52.2	39.3
3/30/2024	12:03:27	50.8	78.6	62.5	34.8	54.9	40.2
3/30/2024	12:13:27	50.6	78.4	61.9	30.6	54.1	40
3/30/2024	12:23:27	52.4	80.2	65.4	34.3	56.8	40.1
3/30/2024	12:33:27	51.4	79.2	66.4	32.8	54.5	40.6
3/30/2024	12:43:27	49.7	77.5	61	31.4	53.9	37.7
3/30/2024	12:53:27	51.8	79.6	63	34.7	55.8	39.6
3/30/2024	13:03:27	50.2	78	64.1	32.5	54.3	36.5
3/30/2024	13:13:27	50.7	78.5	61.4	33.8	54.3	40.4
3/30/2024	13:23:27	51.7	79.5	64.1	30.2	55.9	34.8
3/30/2024	13:33:27	49	76.8	63.9	30.4	52.8	37
3/30/2024	13:43:27	50	77.8	60.7	30.3	54.3	36.6
3/30/2024	13:53:27	47.4	75.2	60	29.8	51.3	35.5
3/30/2024	14:03:27	59.1	86.9	87.8	33	54.4	41.1
3/30/2024	14:13:27	52.8	80.6	81	32.5	53.9	37.8
3/30/2024	14:23:27	50.3	78.1	72.1	33.5	54	39.9
3/30/2024	14:33:27	49.4	77.2	65	35.2	53.3	39.8
3/30/2024	14:43:27	49.2	77	70.8	33.4	52.7	36.9
3/30/2024	14:53:27	50.6	78.4	62	35	54.5	39.3
3/30/2024	15:03:27	50.1	77.9	71.9	32.3	53.5	36.2
3/30/2024	15:13:27	50.6	78.4	64.9	34	54.4	41
3/30/2024	15:23:27	50.4	78.2	65.6	30.5	55.2	37.4
3/30/2024	15:33:27	48.5	76.3	63.3	30.3	52.4	36.2
3/30/2024	15:43:27	49.6	77.4	63.4	32.8	52.9	37.7
3/30/2024	15:53:27	51.5	79.3	65.9	30.9	56	36.4
3/30/2024	16:03:27	50	77.8	62.5	32.5	54	39.6
3/30/2024	16:13:27	49.2	77	61.2	32.1	53.5	35.8
3/30/2024	16:23:27	48	75.8	62.6	32	52.5	37.9
3/30/2024	16:33:27	50.7	78.5	62.2	33.4	55.6	37.2
3/30/2024	16:43:27	49.7	77.5	62.5	30.2	53.8	35.6
3/30/2024	16:53:27	47.4	75.2	70.8	29.1	51	35.5
3/30/2024	17:03:27	50.7	78.5	64.3	32.3	54.5	36.9
3/30/2024	17:13:27	48.2	76	60.1	30.9	52.8	37.3
3/30/2024	17:23:27	46.6	74.4	59	32	50.2	35.7
3/30/2024	17:33:27	48.5	76.3	66.9	31.5	51.7	33.9

3/30/2024	17:43:27	45.5	73.3	57.1	30.4	50.1	33.4
3/30/2024	17:53:27	46.8	74.6	68	30.8	51.8	34.7
3/30/2024	18:03:27	47.7	75.5	63.7	31.4	52.2	36.8
3/30/2024	18:13:27	48.8	76.6	66.9	30.2	52.2	35.1
3/30/2024	18:23:27	46.7	74.5	62.6	32.2	49.9	36.4
3/30/2024	18:33:27	46.7	74.5	59.3	31.4	51.4	34.1
3/30/2024	18:43:27	50.3	78.1	68.4	32.3	53.6	37.6
3/30/2024	18:53:27	47.8	75.6	64.4	34.4	51.1	38.9
3/30/2024	19:03:27	52.3	80.1	74.7	34.1	53.8	39
3/30/2024	19:13:27	47.4	75.2	59.1	29.5	51.8	34.4
3/30/2024	19:23:27	48.6	76.4	58.9	31.6	52.8	36.9
3/30/2024	19:33:27	47.7	75.5	62.7	32.5	51.7	36.5
3/30/2024	19:43:27	45.4	73.2	65.3	30.4	49.1	34.7
3/30/2024	19:53:27	46	73.8	62	31.8	50.2	36.9
3/30/2024	20:03:27	50	77.8	66.4	30.9	52.7	37.1
3/30/2024	20:13:27	44.4	72.2	60.4	28.5	46.9	31.3
3/30/2024	20:23:27	46.9	74.7	59.6	29.3	50.3	34
3/30/2024	20:33:27	46.4	74.2	58	30.2	49.3	37.7
3/30/2024	20:43:27	49.2	77	60.2	34.4	53	39.5
3/30/2024	20:53:27	46.9	74.7	59.3	31.3	50.8	36.4
3/30/2024	21:03:27	47	74.8	57.7	33.8	51	36.9
3/30/2024	21:13:27	47.5	75.3	60	31.6	51.4	35.6
3/30/2024	21:23:27	43.9	71.7	57	30.6	48.1	33.9
3/30/2024	21:33:27	42.6	70.4	58.6	29.4	46.1	33
3/30/2024	21:43:27	42.1	69.9	54.6	30.2	45.9	33.7
3/30/2024	21:53:27	40.9	68.7	53.1	31.3	44.4	33.7
3/30/2024	22:03:27	44.2	72	57.9	31.4	48.2	35.2
3/30/2024	22:13:27	41.3	69.1	55.3	29.1	45.8	32.4
3/30/2024	22:23:27	43.5	71.3	57.9	30.7	48.1	33.3
3/30/2024	22:33:27	40.6	68.4	55.5	30.4	43.9	32.2
3/30/2024	22:43:27	43.5	71.3	54	31.6	48.1	33.6
3/30/2024	22:53:27	44.5	72.3	67	31.4	43.1	33.2
3/30/2024	23:03:27	43.5	71.3	57.2	30.3	48.2	32.7
3/30/2024	23:13:27	39.4	67.2	57.8	30.1	43.8	32.1
3/30/2024	23:23:27	39.9	67.7	53.7	30.4	44.3	32.1
3/30/2024	23:33:27	38.7	66.5	52.1	29.1	42.3	32.2
3/30/2024	23:43:27	43.5	71.3	59.1	30.2	47.6	32.6
3/30/2024	23:53:27	41	68.8	54.7	30.6	44.4	32.7
3/31/2024	0:03:27	43.5	71.3	55	31.1	48.1	33.6
3/31/2024	0:13:27	39.1	66.9	54.9	28.6	40.5	31.6
3/31/2024	0:23:27	44.1	71.9	60.2	29.3	46.5	31.8
3/31/2024	0:33:27	41	68.8	55.4	30.6	43.4	33.4
3/31/2024	0:43:27	40.3	68.1	54.3	29.6	43.8	32.2
3/31/2024	0:53:27	37.1	64.9	52.9	30	39.4	32.3
3/31/2024	1:03:27	37.3	65.1	51.2	29.6	39.4	31.9
3/31/2024	1:13:27	41.6	69.4	56.8	31.3	45	33.7

3/31/2024	1:23:27	37.7	65.5	50	29.7	41	32
3/31/2024	1:33:27	43.6	71.4	59	30.1	46.3	32.8
3/31/2024	1:43:27	38.8	66.6	53.5	28.9	42.2	31.6
3/31/2024	1:53:27	37.6	65.4	49.9	29.4	41.6	32
3/31/2024	2:03:27	36.3	64.1	49.3	29.3	39.4	31.2
3/31/2024	2:13:27	35.7	63.5	50.4	29.1	37.5	31.7
3/31/2024	2:23:27	39.3	67.1	53.3	29.3	42.8	32.4
3/31/2024	2:33:27	39.4	67.2	66	29	42.1	31.3
3/31/2024	2:43:27	37.6	65.4	55	28.3	40.2	30.6
3/31/2024	2:53:27	40.2	68	53.4	29.1	42.9	32
3/31/2024	3:03:27	35.3	63.1	49.8	27.9	37.8	30.7
3/31/2024	3:13:27	41.9	69.7	57.9	30	42.7	32.3
3/31/2024	3:23:27	36	63.8	52.1	29.4	38.1	31.7
3/31/2024	3:33:27	39.2	67	55.4	29.4	41.5	31.9
3/31/2024	3:43:27	39.2	67	53.9	30.2	41.2	31.9
3/31/2024	3:53:27	35.5	63.3	51.5	30.4	37.5	31.9
3/31/2024	4:03:27	45.2	73	62.3	29.9	45.3	32.4
3/31/2024	4:13:27	36	63.8	54.1	29.1	36.4	30.9
3/31/2024	4:23:27	40.3	68.1	55.9	28.9	44.5	31.2
3/31/2024	4:33:27	39.9	67.7	61.4	29.2	42.5	31.9
3/31/2024	4:43:27	42.9	70.7	58.3	29.4	45.5	31.9
3/31/2024	4:53:27	36.9	64.7	51.1	29.5	39.1	31.6
3/31/2024	5:03:27	41.6	69.4	57.5	29.8	45.5	32.2
3/31/2024	5:13:27	37.7	65.5	51.7	29.1	40.5	30.8
3/31/2024	5:23:27	36.5	64.3	52.6	28.8	39.2	30.5
3/31/2024	5:33:27	46.3	74.1	62.5	28.9	45.6	30.7
3/31/2024	5:43:27	36.6	64.4	50.5	29.1	39	30.7
3/31/2024	5:53:27	38.7	66.5	52.3	29.9	41.2	31.9
3/31/2024	6:03:27	42.7	70.5	64.7	30.7	45.3	33.3
3/31/2024	6:13:27	43.1	70.9	58.3	32.6	46.4	35
3/31/2024	6:23:27	39.4	67.2	51	32.3	42.8	34.3
3/31/2024	6:33:27	41.8	69.6	56.7	32.8	45.5	35.6
3/31/2024	6:43:27	41.1	68.9	54.2	32.8	44.1	35.5
3/31/2024	6:53:27	44.4	72.2	58.3	33.5	47.8	36.8
3/31/2024	7:03:27	43.4	71.2	58.5	33.4	47.3	35.8
3/31/2024	7:13:27	41.9	69.7	54.7	32.2	44.6	36.2
3/31/2024	7:23:27	46.2	74	58.3	35.6	50.1	38.8
3/31/2024	7:33:27	44	71.8	65.3	34.6	46.8	38.8
3/31/2024	7:43:27	44.5	72.3	55.9	34	48.3	37.2
3/31/2024	7:53:27	46.4	74.2	60.8	34.8	50.1	37.8
3/31/2024	8:03:27	44.3	72.1	59	34.8	47.2	37.5
3/31/2024	8:13:27	43.4	71.2	70.4	33.1	44.6	35.7
3/31/2024	8:23:27	45.7	73.5	63.9	35.7	49.1	39.1
3/31/2024	8:33:27	44.1	71.9	60.4	36	47.3	38
3/31/2024	8:43:27	59.9	87.7	83.5	34.5	51.6	38.1
3/31/2024	8:53:27	51.9	79.7	80.4	36.2	54.6	40.7

3/31/2024	9:03:27	51.3	79.1	67.2	36.6	53.2	45.2
3/31/2024	9:13:27	48.3	76.1	62.1	34.2	51	38.1
3/31/2024	9:23:27	48.7	76.5	68.1	36	50.7	41.9
3/31/2024	9:33:27	49.6	77.4	66.8	47.3	50.5	48.4
3/31/2024	9:43:27	45.6	73.4	56.9	32.3	49.7	35
3/31/2024	9:53:27	54.2	82	80.5	32.6	50.1	36.4
3/31/2024	10:03:27	56.3	84.1	80.1	32	56.3	38.5
3/31/2024	10:13:27	46.5	74.3	72.1	31.7	48.6	36.5
3/31/2024	10:23:27	49.3	77.1	73.2	32.6	52	36.3
3/31/2024	10:33:27	45.1	72.9	63.2	31.9	48.9	35.9
3/31/2024	10:43:27	44.4	72.2	58.2	31.4	47.7	36.4
3/31/2024	10:53:27	43.7	71.5	62	31.9	46.5	36.8
3/31/2024	11:03:27	45.8	73.6	67.3	34.3	49.3	36.9
3/31/2024	11:13:27	46.8	74.6	61.4	35.4	49.9	38.8
3/31/2024	11:23:27	42.1	69.9	57.5	31	45.5	33.9
3/31/2024	11:33:27	44.9	72.7	61.5	30.2	48.4	34.2

Data for N 11 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
30/03/2024	11:33:00	2.1	2.7	13	279
30/03/2024	11:34:00	1.8	2.6	13	279
30/03/2024	11:35:00	2.1	2.9	13	283
30/03/2024	11:36:00	1.6	2.5	13	260
30/03/2024	11:37:00	2.1	2.7	13	260
30/03/2024	11:38:00	1.9	2.9	13	272
30/03/2024	11:39:00	1.6	2.1	12	271
30/03/2024	11:40:00	3.2	4.6	12	281
30/03/2024	11:41:00	2.3	3.7	12	264
30/03/2024	11:42:00	1.8	2.4	12	262
30/03/2024	11:43:00	1.3	2	12	265
30/03/2024	11:44:00	1.7	2.5	11	238
30/03/2024	11:45:00	1.8	2.6	11	244
30/03/2024	11:46:00	2.1	2.8	11	231
30/03/2024	11:47:00	2.3	3.5	11	245
30/03/2024	11:48:00	2.2	3.4	11	241
30/03/2024	11:49:00	1.8	2.3	11	254
30/03/2024	11:50:00	1.5	2.2	11	255
30/03/2024	11:51:00	2.3	3.1	11	262
30/03/2024	11:52:00	1.9	3.1	11	239
30/03/2024	11:53:00	1.6	2.2	11	224
30/03/2024	11:54:00	1.5	1.9	11	246
30/03/2024	11:55:00	1.8	2.4	11	242
30/03/2024	11:56:00	1.8	2.5	11	227

30/03/2024	11:57:00	2.1	4	11	243
30/03/2024	11:58:00	2.3	4.2	11	248
30/03/2024	11:59:00	2.3	3	11	256
30/03/2024	12:00:00	1.7	2.1	11	256
30/03/2024	12:01:00	1.8	2.6	11	269
30/03/2024	12:02:00	2.1	2.7	11	268
30/03/2024	12:03:00	1.8	2.7	11	251
30/03/2024	12:04:00	1.8	2.6	11	253
30/03/2024	12:05:00	1.8	2.5	11	252
30/03/2024	12:06:00	1.8	2.5	11	250
30/03/2024	12:07:00	2.2	3.5	11	275
30/03/2024	12:08:00	2.2	3.2	12	260
30/03/2024	12:09:00	2	2.6	12	250
30/03/2024	12:10:00	1.8	2.4	12	263
30/03/2024	12:11:00	1.5	1.8	12	256
30/03/2024	12:12:00	2	3.1	12	228
30/03/2024	12:13:00	2.8	4.7	12	246
30/03/2024	12:14:00	2.8	3.8	12	239
30/03/2024	12:15:00	2.1	2.7	12	252
30/03/2024	12:16:00	2.5	3.3	12	280
30/03/2024	12:17:00	2.6	3.1	12	284
30/03/2024	12:18:00	2.6	3.1	12	283
30/03/2024	12:19:00	2.4	3.3	12	264
30/03/2024	12:20:00	2.4	3.5	12	242
30/03/2024	12:21:00	1.7	3.5	12	215
30/03/2024	12:22:00	1.5	2.6	12	213
30/03/2024	12:23:00	2.4	3.4	12	227
30/03/2024	12:24:00	2.2	3.1	12	230
30/03/2024	12:25:00	2.2	3.1	12	228
30/03/2024	12:26:00	1.5	2.1	12	249
30/03/2024	12:27:00	1.4	2.2	12	223
30/03/2024	12:28:00	1.5	2	12	220
30/03/2024	12:29:00	2.2	3.2	12	247
30/03/2024	12:30:00	1.8	2.3	12	230
30/03/2024	12:31:00	2	3.4	12	231
30/03/2024	12:32:00	2	2.6	12	236
30/03/2024	12:33:00	1.3	2.3	12	197
30/03/2024	12:34:00	1.6	2.2	12	245
30/03/2024	12:35:00	1.7	2.7	12	238
30/03/2024	12:36:00	1.9	2.9	12	265
30/03/2024	12:37:00	2.5	3.2	12	277
30/03/2024	12:38:00	2.4	3.5	12	255
30/03/2024	12:39:00	2.2	3.6	12	251
30/03/2024	12:40:00	1.8	2.7	12	245
30/03/2024	12:41:00	1.6	2.3	12	231
30/03/2024	12:42:00	2.1	3.1	12	256

30/03/2024	12:43:00	2.1	3.5	12	282
30/03/2024	12:44:00	3.4	4.5	12	274
30/03/2024	12:45:00	1.6	2.3	12	270
30/03/2024	12:46:00	1.1	2.3	12	210
30/03/2024	12:47:00	1.3	1.9	12	188
30/03/2024	12:48:00	1.6	2.3	12	232
30/03/2024	12:49:00	1.4	1.9	12	230
30/03/2024	12:50:00	0.9	1.6	12	186
30/03/2024	12:51:00	0.9	1.6	12	141
30/03/2024	12:52:00	1.1	1.9	12	162
30/03/2024	12:53:00	1.5	2.2	12	244
30/03/2024	12:54:00	1.8	2.7	12	236
30/03/2024	12:55:00	1.9	2.7	12	259
30/03/2024	12:56:00	2.3	3	12	252
30/03/2024	12:57:00	2.8	3.8	12	256
30/03/2024	12:58:00	2.7	3.7	12	272
30/03/2024	12:59:00	2.7	3.7	12	257
30/03/2024	13:00:00	2.6	3.3	12	242
30/03/2024	13:01:00	1.5	2.2	12	253
30/03/2024	13:02:00	1.3	1.7	12	285
30/03/2024	13:03:00	1.2	1.7	12	251
30/03/2024	13:04:00	2.2	2.8	12	245
30/03/2024	13:05:00	1.9	2.8	12	233
30/03/2024	13:06:00	1.3	2.2	12	184
30/03/2024	13:07:00	1.4	1.9	12	228
30/03/2024	13:08:00	1.6	2.5	12	286
30/03/2024	13:09:00	1.5	2.3	12	243
30/03/2024	13:10:00	1.7	2.6	12	237
30/03/2024	13:11:00	2.6	4.1	12	240
30/03/2024	13:12:00	2	3.1	12	234
30/03/2024	13:13:00	2.1	3.1	12	254
30/03/2024	13:14:00	2.2	3.2	12	250
30/03/2024	13:15:00	2.3	3.5	12	265
30/03/2024	13:16:00	2.3	3.1	12	263
30/03/2024	13:17:00	2	2.6	12	256
30/03/2024	13:18:00	2.3	3	12	280
30/03/2024	13:19:00	1.8	2.6	12	253
30/03/2024	13:20:00	1.4	2.5	12	254
30/03/2024	13:21:00	1.2	1.7	12	261
30/03/2024	13:22:00	1.7	3.3	12	253
30/03/2024	13:23:00	1.6	2.2	12	276
30/03/2024	13:24:00	1.9	3.4	12	233
30/03/2024	13:25:00	2.3	3.8	12	261
30/03/2024	13:26:00	2.1	2.9	12	248
30/03/2024	13:27:00	2.3	3.5	12	244
30/03/2024	13:28:00	2	2.9	12	241

30/03/2024	13:29:00	2.1	3.4	12	253
30/03/2024	13:30:00	2.2	3.8	12	242
30/03/2024	13:31:00	1.5	1.9	12	263
30/03/2024	13:32:00	1.3	2	12	237
30/03/2024	13:33:00	1.5	2.4	12	228
30/03/2024	13:34:00	2.1	3.4	12	212
30/03/2024	13:35:00	2.3	3.5	12	235
30/03/2024	13:36:00	2.5	4.1	12	243
30/03/2024	13:37:00	2.3	3.2	12	244
30/03/2024	13:38:00	2.1	2.9	12	238
30/03/2024	13:39:00	2.4	3.2	12	263
30/03/2024	13:40:00	2.2	3.1	12	253
30/03/2024	13:41:00	2.5	3.4	12	265
30/03/2024	13:42:00	2.2	3.2	12	273
30/03/2024	13:43:00	2.1	3.2	12	254
30/03/2024	13:44:00	1.8	2.7	12	270
30/03/2024	13:45:00	2	3.1	12	267
30/03/2024	13:46:00	1.7	2.4	12	235
30/03/2024	13:47:00	1.4	2	12	259
30/03/2024	13:48:00	1.8	2.4	12	266
30/03/2024	13:49:00	2.2	3.2	12	282
30/03/2024	13:50:00	1.8	2.5	12	288
30/03/2024	13:51:00	1.3	2	12	266
30/03/2024	13:52:00	2.5	4.1	12	240
30/03/2024	13:53:00	2.1	3.1	12	257
30/03/2024	13:54:00	1.9	3	12	287
30/03/2024	13:55:00	1.5	2.4	12	270
30/03/2024	13:56:00	1.3	1.8	12	239
30/03/2024	13:57:00	1.5	2.1	12	215
30/03/2024	13:58:00	2	2.7	12	221
30/03/2024	13:59:00	2	3.2	12	236
30/03/2024	14:00:00	1.8	2.4	12	252
30/03/2024	14:01:00	1.5	2.4	12	293
30/03/2024	14:02:00	1.4	1.8	12	301
30/03/2024	14:03:00	1.4	1.8	12	265
30/03/2024	14:04:00	1	1.4	12	254
30/03/2024	14:05:00	1.1	2	12	265
30/03/2024	14:06:00	2.7	4.3	12	274
30/03/2024	14:07:00	2.6	3.5	12	275
30/03/2024	14:08:00	2.2	2.9	12	260
30/03/2024	14:09:00	2.1	3.7	12	248
30/03/2024	14:10:00	2.6	3.6	12	261
30/03/2024	14:11:00	2.2	3.1	12	259
30/03/2024	14:12:00	1.7	2.8	13	272
30/03/2024	14:13:00	1.8	2.7	13	250
30/03/2024	14:14:00	2.7	4	13	243

30/03/2024	14:15:00	2.3	4	13	235
30/03/2024	14:16:00	1.7	2	13	263
30/03/2024	14:17:00	2.5	3.8	13	280
30/03/2024	14:18:00	1.8	2.6	13	273
30/03/2024	14:19:00	2.1	3	13	284
30/03/2024	14:20:00	2.4	3.2	13	290
30/03/2024	14:21:00	2.4	3.4	13	255
30/03/2024	14:22:00	2.1	2.9	13	260
30/03/2024	14:23:00	2	2.6	13	258
30/03/2024	14:24:00	1.3	2.1	13	215
30/03/2024	14:25:00	1.6	2.2	13	271
30/03/2024	14:26:00	1.8	2.5	13	254
30/03/2024	14:27:00	1.5	2.4	13	256
30/03/2024	14:28:00	1.9	2.8	13	249
30/03/2024	14:29:00	1.5	2.2	13	241
30/03/2024	14:30:00	1.5	2.5	13	238
30/03/2024	14:31:00	1.2	1.6	13	287
30/03/2024	14:32:00	1.2	1.7	13	220
30/03/2024	14:33:00	1.6	2.3	13	232
30/03/2024	14:34:00	1.8	2.7	13	231
30/03/2024	14:35:00	1.2	1.7	13	212
30/03/2024	14:36:00	1.9	2.7	13	224
30/03/2024	14:37:00	1.7	2.6	13	247
30/03/2024	14:38:00	1.5	2.2	13	240
30/03/2024	14:39:00	1.2	1.6	13	236
30/03/2024	14:40:00	1.4	2.5	13	238
30/03/2024	14:41:00	1.5	1.9	13	232
30/03/2024	14:42:00	1.3	1.7	13	243
30/03/2024	14:43:00	2.1	3.1	13	272
30/03/2024	14:44:00	2.5	3.2	13	277
30/03/2024	14:45:00	2.3	2.8	13	285
30/03/2024	14:46:00	1.8	2.4	13	275
30/03/2024	14:47:00	1.7	2.4	13	226
30/03/2024	14:48:00	2.1	3	13	229
30/03/2024	14:49:00	1.9	2.8	14	242
30/03/2024	14:50:00	2.3	3.3	14	267
30/03/2024	14:51:00	2	2.6	14	274
30/03/2024	14:52:00	1.9	3	14	263
30/03/2024	14:53:00	2.3	2.8	14	264
30/03/2024	14:54:00	1.7	2.3	14	279
30/03/2024	14:55:00	1.8	2.2	14	286
30/03/2024	14:56:00	1.7	2.5	14	261
30/03/2024	14:57:00	2.2	3.3	14	276
30/03/2024	14:58:00	2.4	3.6	14	293
30/03/2024	14:59:00	1.5	2.7	14	320
30/03/2024	15:00:00	2.2	2.8	14	287

30/03/2024	15:01:00	2.7	3.7	14	285
30/03/2024	15:02:00	2.1	2.9	14	287
30/03/2024	15:03:00	2.7	3.8	14	290
30/03/2024	15:04:00	1.5	1.9	14	273
30/03/2024	15:05:00	1.2	1.8	14	249
30/03/2024	15:06:00	1.6	2.7	14	291
30/03/2024	15:07:00	2.2	3.4	14	282
30/03/2024	15:08:00	1.2	2	14	287
30/03/2024	15:09:00	1	1.7	14	269
30/03/2024	15:10:00	1.2	1.6	14	289
30/03/2024	15:11:00	1.2	1.7	14	252
30/03/2024	15:12:00	0.7	1.2	14	154
30/03/2024	15:13:00	1.2	2.5	14	189
30/03/2024	15:14:00	1.5	2.1	14	247
30/03/2024	15:15:00	1.8	2.6	14	243
30/03/2024	15:16:00	2.3	3.6	14	240
30/03/2024	15:17:00	1.8	2.4	14	229
30/03/2024	15:18:00	2	3	14	237
30/03/2024	15:19:00	1.4	2.3	14	255
30/03/2024	15:20:00	1.3	2	14	224
30/03/2024	15:21:00	1.7	2.5	14	243
30/03/2024	15:22:00	2.1	2.9	14	260
30/03/2024	15:23:00	2.3	3	14	253
30/03/2024	15:24:00	1.8	2.3	14	262
30/03/2024	15:25:00	1.9	2.7	14	263
30/03/2024	15:26:00	2	2.8	14	264
30/03/2024	15:27:00	2.3	3.9	14	247
30/03/2024	15:28:00	2	2.7	14	255
30/03/2024	15:29:00	1.9	2.6	14	229
30/03/2024	15:30:00	2.2	3.1	14	252
30/03/2024	15:31:00	2.2	3.4	14	241
30/03/2024	15:32:00	1.8	2.4	14	243
30/03/2024	15:33:00	1.6	2.6	14	242
30/03/2024	15:34:00	1.4	1.9	14	271
30/03/2024	15:35:00	1.5	2	14	279
30/03/2024	15:36:00	1.3	2	14	276
30/03/2024	15:37:00	1	1.9	14	312
30/03/2024	15:38:00	1	1.4	14	243
30/03/2024	15:39:00	1.2	2.1	14	260
30/03/2024	15:40:00	0.7	1.4	14	280
30/03/2024	15:41:00	1	1.3	14	75
30/03/2024	15:42:00	0.9	1.6	14	247
30/03/2024	15:43:00	1	1.6	14	307
30/03/2024	15:44:00	0.9	1.3	14	348
30/03/2024	15:45:00	1	1.3	14	254
30/03/2024	15:46:00	1.2	1.5	14	227

30/03/2024	15:47:00	0.7	1	14	243
30/03/2024	15:48:00	0.4	1.5	14	305
30/03/2024	15:49:00	1.5	2.6	14	299
30/03/2024	15:50:00	2	3.1	14	288
30/03/2024	15:51:00	2.1	2.9	14	278
30/03/2024	15:52:00	2.1	3.1	14	275
30/03/2024	15:53:00	1.8	2.2	14	250
30/03/2024	15:54:00	1.8	2.9	14	257
30/03/2024	15:55:00	1.4	2.3	14	246
30/03/2024	15:56:00	1.3	1.9	14	243
30/03/2024	15:57:00	1.9	3.4	14	240
30/03/2024	15:58:00	1.6	2.2	14	233
30/03/2024	15:59:00	1.5	2.4	15	264
30/03/2024	16:00:00	1.5	2.4	15	256
30/03/2024	16:01:00	1.7	2.5	15	253
30/03/2024	16:02:00	1.7	2.8	15	258
30/03/2024	16:03:00	1.4	1.9	15	254
30/03/2024	16:04:00	1.2	2	15	239
30/03/2024	16:05:00	0.9	1.2	15	285
30/03/2024	16:06:00	1.1	2.7	15	256
30/03/2024	16:07:00	2.1	2.6	15	279
30/03/2024	16:08:00	2	2.7	15	282
30/03/2024	16:09:00	1.3	1.8	15	251
30/03/2024	16:10:00	1.4	2.1	15	237
30/03/2024	16:11:00	1.4	2	15	258
30/03/2024	16:12:00	1.8	2.5	15	249
30/03/2024	16:13:00	2	2.7	15	241
30/03/2024	16:14:00	1.7	2.2	15	226
30/03/2024	16:15:00	1.4	2.2	15	204
30/03/2024	16:16:00	1.7	2.8	15	209
30/03/2024	16:17:00	1.9	2.4	15	266
30/03/2024	16:18:00	1.5	1.9	14	223
30/03/2024	16:19:00	1.3	1.9	14	187
30/03/2024	16:20:00	0.7	1	14	171
30/03/2024	16:21:00	1.6	2.4	14	243
30/03/2024	16:22:00	1.8	2.4	14	281
30/03/2024	16:23:00	1.6	2.5	14	271
30/03/2024	16:24:00	2.6	3.8	14	272
30/03/2024	16:25:00	2.9	3.3	14	287
30/03/2024	16:26:00	2.5	3.5	14	279
30/03/2024	16:27:00	1.9	2.5	14	258
30/03/2024	16:28:00	1.5	2.3	14	266
30/03/2024	16:29:00	2.5	3.6	14	287
30/03/2024	16:30:00	1.7	3.2	14	275
30/03/2024	16:31:00	1.4	3.3	14	259
30/03/2024	16:32:00	2.7	3.9	14	298

30/03/2024	16:33:00	2.4	3.7	14	289
30/03/2024	16:34:00	1	1.9	14	283
30/03/2024	16:35:00	1.3	2.4	14	275
30/03/2024	16:36:00	2	2.9	14	288
30/03/2024	16:37:00	1.8	2.3	14	271
30/03/2024	16:38:00	1.2	2	14	341
30/03/2024	16:39:00	1.4	2	14	316
30/03/2024	16:40:00	1.5	1.8	14	287
30/03/2024	16:41:00	1.8	2.6	14	286
30/03/2024	16:42:00	1.5	2.1	14	289
30/03/2024	16:43:00	1.5	2.2	14	276
30/03/2024	16:44:00	1.6	2.1	14	253
30/03/2024	16:45:00	0.8	1.3	14	225
30/03/2024	16:46:00	0.2	0.8	14	353
30/03/2024	16:47:00	0.7	0.9	14	6
30/03/2024	16:48:00	0.9	1.1	14	67
30/03/2024	16:49:00	0.9	1.3	14	354
30/03/2024	16:50:00	0.8	1.5	14	66
30/03/2024	16:51:00	1	1.6	14	85
30/03/2024	16:52:00	1.9	2.6	14	262
30/03/2024	16:53:00	2.2	3.2	14	276
30/03/2024	16:54:00	2.5	3.3	14	287
30/03/2024	16:55:00	2.3	3.1	14	280
30/03/2024	16:56:00	1.6	2.2	14	274
30/03/2024	16:57:00	1.7	2.4	14	275
30/03/2024	16:58:00	1.5	2.2	14	293
30/03/2024	16:59:00	1.2	2.7	14	275
30/03/2024	17:00:00	1.2	1.8	14	243
30/03/2024	17:01:00	0.8	1.7	14	244
30/03/2024	17:02:00	1.2	1.5	14	269
30/03/2024	17:03:00	1.1	1.5	14	288
30/03/2024	17:04:00	0.8	1	14	323
30/03/2024	17:05:00	0.8	1.5	14	6
30/03/2024	17:06:00	0.9	1.5	14	60
30/03/2024	17:07:00	0.8	1.1	14	6
30/03/2024	17:08:00	0.7	1.1	14	317
30/03/2024	17:09:00	1	1.5	14	284
30/03/2024	17:10:00	0.8	1.4	14	11
30/03/2024	17:11:00	0.7	1.6	14	10
30/03/2024	17:12:00	1.6	2.2	14	278
30/03/2024	17:13:00	1.7	2.1	14	284
30/03/2024	17:14:00	1.3	1.8	14	292
30/03/2024	17:15:00	1.7	3	14	285
30/03/2024	17:16:00	2.1	3.1	14	277
30/03/2024	17:17:00	1.8	3.1	14	267
30/03/2024	17:18:00	1.1	1.4	14	272

30/03/2024	17:19:00	1.3	2.5	14	287
30/03/2024	17:20:00	1.3	2.3	14	248
30/03/2024	17:21:00	0.6	0.9	14	204
30/03/2024	17:22:00	0.8	1.2	14	203
30/03/2024	17:23:00	0.8	1.1	14	32
30/03/2024	17:24:00	0.6	0.9	14	308
30/03/2024	17:25:00	0.5	1.1	14	105
30/03/2024	17:26:00	0.9	1.6	14	51
30/03/2024	17:27:00	1	1.4	14	86
30/03/2024	17:28:00	1.1	1.3	14	49
30/03/2024	17:29:00	1.1	1.7	13	29
30/03/2024	17:30:00	0.9	1.3	13	107
30/03/2024	17:31:00	0.9	1.4	13	292
30/03/2024	17:32:00	1.4	2.4	13	265
30/03/2024	17:33:00	1.8	2.6	13	297
30/03/2024	17:34:00	1.1	1.8	13	293
30/03/2024	17:35:00	1.1	1.7	13	287
30/03/2024	17:36:00	0.9	1.4	13	282
30/03/2024	17:37:00	0.8	1.2	13	198
30/03/2024	17:38:00	0.8	1.4	13	263
30/03/2024	17:39:00	0.8	1.3	13	52
30/03/2024	17:40:00	0.7	1	14	12
30/03/2024	17:41:00	0.5	0.9	14	143
30/03/2024	17:42:00	0.7	0.9	14	248
30/03/2024	17:43:00	0.7	1.1	14	232
30/03/2024	17:44:00	0.3	0.8	14	326
30/03/2024	17:45:00	0.8	1.2	14	347
30/03/2024	17:46:00	0.7	1.3	14	164
30/03/2024	17:47:00	0.9	1.3	14	188
30/03/2024	17:48:00	1	1.3	14	311
30/03/2024	17:49:00	0.9	1.5	14	318
30/03/2024	17:50:00	0.8	1.7	14	145
30/03/2024	17:51:00	1.1	1.7	13	300
30/03/2024	17:52:00	1.6	2	13	283
30/03/2024	17:53:00	1.6	2.1	13	288
30/03/2024	17:54:00	0.8	1.3	13	131
30/03/2024	17:55:00	0.9	1.2	13	196
30/03/2024	17:56:00	0.8	1.1	13	134
30/03/2024	17:57:00	0.9	1.4	13	144
30/03/2024	17:58:00	0.9	1.5	13	6
30/03/2024	17:59:00	0.7	1.1	13	43
30/03/2024	18:00:00	0.7	1	13	39
30/03/2024	18:01:00	0.8	1.1	13	23
30/03/2024	18:02:00	0.9	1.3	13	292
30/03/2024	18:03:00	1	1.2	13	293
30/03/2024	18:04:00	0.9	1.4	13	270

30/03/2024	18:05:00	1	1.6	13	309
30/03/2024	18:06:00	0.7	1.1	13	253
30/03/2024	18:07:00	0.5	0.9	13	199
30/03/2024	18:08:00	0.8	1.6	13	268
30/03/2024	18:09:00	0.7	1	13	69
30/03/2024	18:10:00	0.9	1.4	13	10
30/03/2024	18:11:00	0.5	0.9	13	315
30/03/2024	18:12:00	0.3	1.3	13	25
30/03/2024	18:13:00	0.8	1.5	13	12
30/03/2024	18:14:00	0.7	1	12	49
30/03/2024	18:15:00	0.5	0.9	12	352
30/03/2024	18:16:00	0.7	1	12	154
30/03/2024	18:17:00	0.9	1.3	12	301
30/03/2024	18:18:00	0.6	1	12	324
30/03/2024	18:19:00	0.4	1	12	187
30/03/2024	18:20:00	0.7	0.9	12	104
30/03/2024	18:21:00	0.7	1	12	65
30/03/2024	18:22:00	0.7	1.1	12	28
30/03/2024	18:23:00	0.7	1.2	12	18
30/03/2024	18:24:00	0.7	1.4	12	340
30/03/2024	18:25:00	0.8	1.2	12	39
30/03/2024	18:26:00	0.8	1	12	35
30/03/2024	18:27:00	0.6	0.9	12	84
30/03/2024	18:28:00	0	0.7	12	nW
30/03/2024	18:29:00	0.4	0.7	12	329
30/03/2024	18:30:00	0.4	0.8	12	66
30/03/2024	18:31:00	0.3	0.7	12	70
30/03/2024	18:32:00	0.4	1	11	275
30/03/2024	18:33:00	0.4	0.9	11	123
30/03/2024	18:34:00	0.3	0.8	11	71
30/03/2024	18:35:00	0.7	0.9	11	35
30/03/2024	18:36:00	0.7	1	11	356
30/03/2024	18:37:00	0.7	1.1	11	300
30/03/2024	18:38:00	0.7	0.9	11	57
30/03/2024	18:39:00	0.8	1.3	11	300
30/03/2024	18:40:00	0.4	0.8	11	314
30/03/2024	18:41:00	0.3	0.8	11	23
30/03/2024	18:42:00	0.6	0.8	11	257
30/03/2024	18:43:00	0.8	1.4	11	172
30/03/2024	18:44:00	0.3	0.8	11	232
30/03/2024	18:45:00	0.3	0.8	11	73
30/03/2024	18:46:00	0.4	0.8	11	128
30/03/2024	18:47:00	0.3	0.9	11	253
30/03/2024	18:48:00	0.4	0.9	11	31
30/03/2024	18:49:00	0.2	0.7	11	49
30/03/2024	18:50:00	0.3	0.7	11	47

30/03/2024	18:51:00	0.6	1	11		24
30/03/2024	18:52:00	0.7	1	11		48
30/03/2024	18:53:00	0.8	0.9	11		149
30/03/2024	18:54:00	0.6	0.8	11		173
30/03/2024	18:55:00	0.3	0.8	11		141
30/03/2024	18:56:00	0.5	0.8	11		134
30/03/2024	18:57:00	0.4	0.8	11		56
30/03/2024	18:58:00	0.1	0.7	11		242
30/03/2024	18:59:00	0.4	0.8	11		110
30/03/2024	19:00:00	0	0	11	nW	
30/03/2024	19:01:00	0.3	0.7	11		154
30/03/2024	19:02:00	0.6	1.1	10		37
30/03/2024	19:03:00	0.6	0.8	10		37
30/03/2024	19:04:00	0.3	0.8	10		9
30/03/2024	19:05:00	0.6	0.9	10		30
30/03/2024	19:06:00	0.7	1	10		10
30/03/2024	19:07:00	0.7	0.8	10		27
30/03/2024	19:08:00	0.3	0.8	10		36
30/03/2024	19:09:00	0.2	0.8	10		28
30/03/2024	19:10:00	0.1	0.7	10		51
30/03/2024	19:11:00	0.5	0.7	10		45
30/03/2024	19:12:00	0.3	0.8	10		29
30/03/2024	19:13:00	0.1	0.7	10		34
30/03/2024	19:14:00	0.4	0.7	10		39
30/03/2024	19:15:00	0.5	0.9	10		32
30/03/2024	19:16:00	0.4	0.8	10		44
30/03/2024	19:17:00	0.3	0.7	10		46
30/03/2024	19:18:00	0.1	0.7	10		56
30/03/2024	19:19:00	0	0	10	nW	
30/03/2024	19:20:00	0	0	10	nW	
30/03/2024	19:21:00	0	0	10	nW	
30/03/2024	19:22:00	0	0	10	nW	
30/03/2024	19:23:00	0.2	0.7	10		127
30/03/2024	19:24:00	0.4	0.8	10		124
30/03/2024	19:25:00	0	0	10	nW	
30/03/2024	19:26:00	0	0.6	10	nW	
30/03/2024	19:27:00	0.3	0.8	10		33
30/03/2024	19:28:00	0	0.6	10	nW	
30/03/2024	19:29:00	0	0	10	nW	
30/03/2024	19:30:00	0	0	9	nW	
30/03/2024	19:31:00	0.1	0.7	9		43
30/03/2024	19:32:00	0	0	9	nW	
30/03/2024	19:33:00	0.1	0.7	9		43
30/03/2024	19:34:00	0.2	0.7	9		53
30/03/2024	19:35:00	0.3	0.7	9		45
30/03/2024	19:36:00	0.3	0.7	9		42

30/03/2024	19:37:00	0	0.6	9	nW	
30/03/2024	19:38:00	0	0.7	9	nW	
30/03/2024	19:39:00	0	0	9	nW	
30/03/2024	19:40:00	0.3	0.8	9		47
30/03/2024	19:41:00	0.1	0.8	9		79
30/03/2024	19:42:00	0.3	0.7	9		54
30/03/2024	19:43:00	0.3	0.9	9		76
30/03/2024	19:44:00	0.5	0.8	9		75
30/03/2024	19:45:00	0	0	9	nW	
30/03/2024	19:46:00	0	0	8	nW	
30/03/2024	19:47:00	0	0.6	8	nW	
30/03/2024	19:48:00	0	0	8	nW	
30/03/2024	19:49:00	0	0	8	nW	
30/03/2024	19:50:00	0	0	8	nW	
30/03/2024	19:51:00	0	0.6	8	nW	
30/03/2024	19:52:00	0	0.6	8	nW	
30/03/2024	19:53:00	0.4	0.8	8		69
30/03/2024	19:54:00	0	0.6	8	nW	
30/03/2024	19:55:00	0.2	0.7	8		155
30/03/2024	19:56:00	0	0	8	nW	
30/03/2024	19:57:00	0	0	8	nW	
30/03/2024	19:58:00	0	0	8	nW	
30/03/2024	19:59:00	0	0	8	nW	
30/03/2024	20:00:00	0	0	8	nW	
30/03/2024	20:01:00	0	0	8	nW	
30/03/2024	20:02:00	0	0	8	nW	
30/03/2024	20:03:00	0	0.6	8	nW	
30/03/2024	20:04:00	0	0.6	8	nW	
30/03/2024	20:05:00	0.2	0.7	8		3
30/03/2024	20:06:00	0.3	0.8	8		15
30/03/2024	20:07:00	0	0.7	8	nW	
30/03/2024	20:08:00	0.1	0.7	8		55
30/03/2024	20:09:00	0	0	8	nW	
30/03/2024	20:10:00	0.3	0.7	8		81
30/03/2024	20:11:00	0.4	0.8	8		8
30/03/2024	20:12:00	0.1	0.7	8		324
30/03/2024	20:13:00	0	0	8	nW	
30/03/2024	20:14:00	0	0.6	8	nW	
30/03/2024	20:15:00	0	0	8	nW	
30/03/2024	20:16:00	0	0	8	nW	
30/03/2024	20:17:00	0	0	8	nW	
30/03/2024	20:18:00	0	0	8	nW	
30/03/2024	20:19:00	0	0	8	nW	
30/03/2024	20:20:00	0	0	8	nW	
30/03/2024	20:21:00	0	0	8	nW	
30/03/2024	20:22:00	0	0	8	nW	

30/03/2024	20:23:00	0	0.6	8	nW	
30/03/2024	20:24:00	0	0	8	nW	
30/03/2024	20:25:00	0	0	8	nW	
30/03/2024	20:26:00	0	0	8	nW	
30/03/2024	20:27:00	0	0	8	nW	
30/03/2024	20:28:00	0	0	8	nW	
30/03/2024	20:29:00	0	0	7	nW	
30/03/2024	20:30:00	0.4	0.8	7		75
30/03/2024	20:31:00	0.7	0.8	7		55
30/03/2024	20:32:00	0.7	0.8	7		54
30/03/2024	20:33:00	0.8	0.9	7		57
30/03/2024	20:34:00	0.7	0.8	7		60
30/03/2024	20:35:00	0.6	0.8	7		57
30/03/2024	20:36:00	0.6	0.7	7		56
30/03/2024	20:37:00	0.6	0.7	7		54
30/03/2024	20:38:00	0.1	0.7	7		56
30/03/2024	20:39:00	0.3	0.7	7		55
30/03/2024	20:40:00	0.7	0.8	7		53
30/03/2024	20:41:00	0.7	0.8	7		54
30/03/2024	20:42:00	0.8	0.9	7		55
30/03/2024	20:43:00	0.8	0.9	7		53
30/03/2024	20:44:00	0.6	0.9	7		54
30/03/2024	20:45:00	0.2	0.8	7		55
30/03/2024	20:46:00	0.3	0.7	7		54
30/03/2024	20:47:00	0	0	7	nW	
30/03/2024	20:48:00	0	0	7	nW	
30/03/2024	20:49:00	0	0	7	nW	
30/03/2024	20:50:00	0	0	7	nW	
30/03/2024	20:51:00	0.3	0.7	7		61
30/03/2024	20:52:00	0.5	0.9	7		54
30/03/2024	20:53:00	0.7	0.8	7		59
30/03/2024	20:54:00	0.7	0.9	7		56
30/03/2024	20:55:00	0.7	0.8	7		57
30/03/2024	20:56:00	0.6	0.8	7		59
30/03/2024	20:57:00	0.4	0.7	7		71
30/03/2024	20:58:00	0.2	0.7	7		68
30/03/2024	20:59:00	0.5	0.7	7		65
30/03/2024	21:00:00	0.6	0.8	7		61
30/03/2024	21:01:00	0.7	0.8	7		57
30/03/2024	21:02:00	0.6	0.8	7		52
30/03/2024	21:03:00	0.3	0.7	7		54
30/03/2024	21:04:00	0.2	0.7	7		57
30/03/2024	21:05:00	0	0	7	nW	
30/03/2024	21:06:00	0	0	7	nW	
30/03/2024	21:07:00	0	0	7	nW	
30/03/2024	21:08:00	0.4	0.8	7		56

30/03/2024	21:09:00	0	0	7	nW	
30/03/2024	21:10:00	0.2	0.8	7		56
30/03/2024	21:11:00	0	0	7	nW	
30/03/2024	21:12:00	0	0	7	nW	
30/03/2024	21:13:00	0	0	7	nW	
30/03/2024	21:14:00	0	0	7	nW	
30/03/2024	21:15:00	0	0	7	nW	
30/03/2024	21:16:00	0	0.6	7	nW	
30/03/2024	21:17:00	0.6	0.8	7		53
30/03/2024	21:18:00	0	0	7	nW	
30/03/2024	21:19:00	0.1	0.7	7		57
30/03/2024	21:20:00	0	0.6	7	nW	
30/03/2024	21:21:00	0	0	7	nW	
30/03/2024	21:22:00	0.3	0.7	7		129
30/03/2024	21:23:00	0.5	0.8	7		75
30/03/2024	21:24:00	0.7	1	7		97
30/03/2024	21:25:00	0.7	1	7		134
30/03/2024	21:26:00	0.6	1.1	7		99
30/03/2024	21:27:00	0.8	1.2	7		118
30/03/2024	21:28:00	0.9	1.1	7		165
30/03/2024	21:29:00	1	1.4	7		75
30/03/2024	21:30:00	1.1	1.6	7		92
30/03/2024	21:31:00	0.9	1.1	7		176
30/03/2024	21:32:00	1.1	1.5	7		96
30/03/2024	21:33:00	0.8	1.2	7		186
30/03/2024	21:34:00	0.9	1.2	7		216
30/03/2024	21:35:00	0.8	1.1	7		121
30/03/2024	21:36:00	0.8	1.1	7		102
30/03/2024	21:37:00	0.7	1	7		211
30/03/2024	21:38:00	0.8	1.4	7		52
30/03/2024	21:39:00	0.9	1.4	7		302
30/03/2024	21:40:00	0.8	1	7		109
30/03/2024	21:41:00	0.9	1.5	7		52
30/03/2024	21:42:00	0.9	1.1	7		341
30/03/2024	21:43:00	0.7	1	7		295
30/03/2024	21:44:00	0.9	1.3	7		175
30/03/2024	21:45:00	0.8	1.2	7		224
30/03/2024	21:46:00	1	1.6	7		77
30/03/2024	21:47:00	0.8	1.1	7		99
30/03/2024	21:48:00	1	1.6	7		56
30/03/2024	21:49:00	1	1.7	7		341
30/03/2024	21:50:00	0.7	1.6	7		123
30/03/2024	21:51:00	1	1.5	8		348
30/03/2024	21:52:00	0.9	1.4	8		344
30/03/2024	21:53:00	1	1.3	8		314
30/03/2024	21:54:00	0.8	1.4	8		321

30/03/2024	21:55:00	1	1.3	8	2
30/03/2024	21:56:00	0.8	1.6	8	37
30/03/2024	21:57:00	1	1.6	8	113
30/03/2024	21:58:00	0.8	1.2	8	245
30/03/2024	21:59:00	0.8	1.2	8	246
30/03/2024	22:00:00	1	1.4	8	11
30/03/2024	22:01:00	1.1	1.7	8	1
30/03/2024	22:02:00	1	1.5	8	81
30/03/2024	22:03:00	0.9	1.4	7	129
30/03/2024	22:04:00	1	1.8	7	105
30/03/2024	22:05:00	1	1.6	7	3
30/03/2024	22:06:00	1	1.6	7	30
30/03/2024	22:07:00	0.9	1.4	7	356
30/03/2024	22:08:00	1.3	1.8	7	38
30/03/2024	22:09:00	1	1.5	7	22
30/03/2024	22:10:00	1.4	2.3	7	51
30/03/2024	22:11:00	1.7	2.1	7	51
30/03/2024	22:12:00	1.5	2	7	52
30/03/2024	22:13:00	1	1.4	7	44
30/03/2024	22:14:00	0.8	1.4	7	32
30/03/2024	22:15:00	1.1	2.2	7	14
30/03/2024	22:16:00	0.9	1.4	7	46
30/03/2024	22:17:00	1.1	2	7	47
30/03/2024	22:18:00	1.2	2.2	7	45
30/03/2024	22:19:00	0.9	1.6	7	88
30/03/2024	22:20:00	0.9	1.6	7	358
30/03/2024	22:21:00	2	3.4	7	48
30/03/2024	22:22:00	1.9	3	7	56
30/03/2024	22:23:00	1.6	2	7	57
30/03/2024	22:24:00	1.6	2.3	7	57
30/03/2024	22:25:00	1.6	2.3	7	53
30/03/2024	22:26:00	1.7	2.2	7	46
30/03/2024	22:27:00	1.5	2.2	7	54
30/03/2024	22:28:00	1.4	1.7	7	45
30/03/2024	22:29:00	1.2	1.5	7	48
30/03/2024	22:30:00	1.2	1.8	7	48
30/03/2024	22:31:00	0.9	1.3	7	345
30/03/2024	22:32:00	0.8	1.6	7	56
30/03/2024	22:33:00	0.9	1.4	7	50
30/03/2024	22:34:00	1.4	1.9	7	43
30/03/2024	22:35:00	1.3	1.8	7	52
30/03/2024	22:36:00	1.4	2.5	7	54
30/03/2024	22:37:00	1.4	1.8	7	57
30/03/2024	22:38:00	1.6	2.2	7	52
30/03/2024	22:39:00	1.5	2.2	7	55
30/03/2024	22:40:00	1.3	1.7	7	52

30/03/2024	22:41:00	1.2	1.4	7	59
30/03/2024	22:42:00	1.3	1.7	7	50
30/03/2024	22:43:00	1.4	1.9	7	52
30/03/2024	22:44:00	1.2	1.7	7	55
30/03/2024	22:45:00	1.2	1.8	7	50
30/03/2024	22:46:00	1.1	1.6	7	54
30/03/2024	22:47:00	1.2	1.6	7	51
30/03/2024	22:48:00	1.1	1.5	7	59
30/03/2024	22:49:00	1	1.6	7	47
30/03/2024	22:50:00	1.1	1.4	7	54
30/03/2024	22:51:00	1.5	1.9	7	54
30/03/2024	22:52:00	1.6	2.2	6	56
30/03/2024	22:53:00	1.5	2.1	6	65
30/03/2024	22:54:00	1.4	1.9	6	56
30/03/2024	22:55:00	1.5	2.1	6	53
30/03/2024	22:56:00	1.3	1.6	6	59
30/03/2024	22:57:00	1.6	2	6	51
30/03/2024	22:58:00	1.4	1.9	6	51
30/03/2024	22:59:00	1.5	2	6	52
30/03/2024	23:00:00	1.7	2.1	6	51
30/03/2024	23:01:00	1.7	2.3	6	54
30/03/2024	23:02:00	1.5	2.3	6	54
30/03/2024	23:03:00	1.4	1.7	6	53
30/03/2024	23:04:00	1.4	1.9	6	54
30/03/2024	23:05:00	1.5	1.9	6	54
30/03/2024	23:06:00	1.4	1.7	6	54
30/03/2024	23:07:00	1.5	2	6	57
30/03/2024	23:08:00	1.3	2	6	57
30/03/2024	23:09:00	1.3	1.7	6	57
30/03/2024	23:10:00	1.5	1.8	6	55
30/03/2024	23:11:00	1.4	1.9	6	58
30/03/2024	23:12:00	1.3	1.9	6	56
30/03/2024	23:13:00	1.4	1.8	6	56
30/03/2024	23:14:00	1.4	1.8	6	52
30/03/2024	23:15:00	1.5	2	6	53
30/03/2024	23:16:00	1.4	1.8	6	54
30/03/2024	23:17:00	1.3	1.8	6	54
30/03/2024	23:18:00	1.1	1.4	6	57
30/03/2024	23:19:00	1.2	1.5	6	54
30/03/2024	23:20:00	0.8	1.4	6	69
30/03/2024	23:21:00	0.8	1.1	6	55
30/03/2024	23:22:00	0.6	0.9	6	262
30/03/2024	23:23:00	0.8	1.1	6	225
30/03/2024	23:24:00	1	1.3	6	59
30/03/2024	23:25:00	1.2	1.8	6	59
30/03/2024	23:26:00	1.3	1.7	6	50

30/03/2024	23:27:00	1.4	1.9	6	43
30/03/2024	23:28:00	1.5	2.1	6	56
30/03/2024	23:29:00	1.6	2.3	6	52
30/03/2024	23:30:00	1.9	2.5	6	52
30/03/2024	23:31:00	1.4	2	6	43
30/03/2024	23:32:00	0.9	1.3	6	238
30/03/2024	23:33:00	0.9	1.4	6	54
30/03/2024	23:34:00	0.7	1.1	6	94
30/03/2024	23:35:00	0.7	1.2	6	111
30/03/2024	23:36:00	1.1	1.8	6	21
30/03/2024	23:37:00	1.3	1.8	6	50
30/03/2024	23:38:00	1.3	1.7	6	60
30/03/2024	23:39:00	1.5	2.2	6	63
30/03/2024	23:40:00	1.4	1.9	6	55
30/03/2024	23:41:00	1.3	2	6	56
30/03/2024	23:42:00	1.3	1.6	6	50
30/03/2024	23:43:00	1.2	1.5	6	53
30/03/2024	23:44:00	1.2	1.5	6	54
30/03/2024	23:45:00	1.1	1.6	6	57
30/03/2024	23:46:00	1	1.4	6	46
30/03/2024	23:47:00	0.7	1	6	274
30/03/2024	23:48:00	0.6	1.1	5	57
30/03/2024	23:49:00	0.6	1.2	5	120
30/03/2024	23:50:00	0.6	1	5	42
30/03/2024	23:51:00	0.6	1.1	5	26
30/03/2024	23:52:00	0.7	1.2	5	30
30/03/2024	23:53:00	0.5	1.1	5	14
30/03/2024	23:54:00	0.7	0.9	5	23
30/03/2024	23:55:00	0.6	0.9	5	353
30/03/2024	23:56:00	0.8	1.1	5	24
30/03/2024	23:57:00	0.6	1	5	336
30/03/2024	23:58:00	1	1.7	5	352
30/03/2024	23:59:00	1	1.4	5	47
31/03/2024	0:00:00	0.9	1.6	5	56
31/03/2024	0:01:00	0.8	1.1	5	49
31/03/2024	0:02:00	0.9	1.6	5	43
31/03/2024	0:03:00	0.9	1.3	5	43
31/03/2024	0:04:00	0.8	1.2	5	21
31/03/2024	0:05:00	0.7	1.3	5	41
31/03/2024	0:06:00	0.7	1.1	5	13
31/03/2024	0:07:00	0.9	1.4	5	15
31/03/2024	0:08:00	1	1.5	5	58
31/03/2024	0:09:00	1	1.5	5	55
31/03/2024	0:10:00	1.1	1.5	5	53
31/03/2024	0:11:00	1.1	1.4	5	87
31/03/2024	0:12:00	0.9	1.3	5	45

31/03/2024	0:13:00	0.8	1.4	5	22
31/03/2024	0:14:00	1.2	1.5	5	53
31/03/2024	0:15:00	1.1	1.7	5	46
31/03/2024	0:16:00	1.2	1.6	5	48
31/03/2024	0:17:00	1.2	1.6	5	47
31/03/2024	0:18:00	0.8	1.1	5	6
31/03/2024	0:19:00	0.9	1.2	5	98
31/03/2024	0:20:00	1	1.4	5	56
31/03/2024	0:21:00	0.8	1.1	5	113
31/03/2024	0:22:00	0.8	1.3	5	19
31/03/2024	0:23:00	1	1.7	5	63
31/03/2024	0:24:00	1.2	1.5	5	50
31/03/2024	0:25:00	1.2	1.6	5	40
31/03/2024	0:26:00	0.8	1.1	5	9
31/03/2024	0:27:00	0.8	1.2	5	31
31/03/2024	0:28:00	0.9	1.2	5	22
31/03/2024	0:29:00	1	1.5	5	55
31/03/2024	0:30:00	1	1.6	5	46
31/03/2024	0:31:00	1.2	2.1	5	55
31/03/2024	0:32:00	1.4	2	5	48
31/03/2024	0:33:00	1.3	1.9	5	51
31/03/2024	0:34:00	1.4	2	5	38
31/03/2024	0:35:00	1.5	2.1	5	49
31/03/2024	0:36:00	1.5	1.9	5	55
31/03/2024	0:37:00	1.5	2.3	5	51
31/03/2024	0:38:00	1.4	1.9	5	45
31/03/2024	0:39:00	1.1	2	5	16
31/03/2024	0:40:00	1.2	1.8	5	57
31/03/2024	0:41:00	1.2	1.6	5	46
31/03/2024	0:42:00	1.4	1.9	5	47
31/03/2024	0:43:00	1.3	1.7	5	54
31/03/2024	0:44:00	1.6	2	5	50
31/03/2024	0:45:00	1.4	2.1	5	50
31/03/2024	0:46:00	1.3	1.9	5	48
31/03/2024	0:47:00	1.3	1.9	5	39
31/03/2024	0:48:00	1.3	1.9	5	59
31/03/2024	0:49:00	1.5	1.9	5	54
31/03/2024	0:50:00	1.5	1.9	5	53
31/03/2024	0:51:00	1.6	2.5	5	56
31/03/2024	0:52:00	1.8	2.5	5	54
31/03/2024	0:53:00	1.4	1.9	5	57
31/03/2024	0:54:00	1.5	2.1	5	51
31/03/2024	0:55:00	1.5	2	5	52
31/03/2024	0:56:00	1.5	2	5	51
31/03/2024	0:57:00	1.3	1.8	5	56
31/03/2024	0:58:00	1.2	1.8	5	49

31/03/2024	0:59:00	1.4	2.3	5	39
31/03/2024	1:00:00	1.4	2	5	57
31/03/2024	1:01:00	1.6	2.1	5	52
31/03/2024	1:02:00	1.6	2.3	5	49
31/03/2024	1:03:00	1.6	1.9	5	56
31/03/2024	1:04:00	1.6	1.9	5	54
31/03/2024	1:05:00	1.5	1.8	5	50
31/03/2024	1:06:00	1.5	2	5	47
31/03/2024	1:07:00	1.5	2.3	5	52
31/03/2024	1:08:00	1.7	2.3	5	52
31/03/2024	1:09:00	1.6	2.3	5	56
31/03/2024	1:10:00	1.9	2.4	5	51
31/03/2024	1:11:00	1.7	2.5	5	55
31/03/2024	1:12:00	1.8	2.9	5	51
31/03/2024	1:13:00	1.4	2.1	5	53
31/03/2024	1:14:00	1.5	2.2	5	53
31/03/2024	1:15:00	1.7	2.7	5	49
31/03/2024	1:16:00	1.8	2.4	5	49
31/03/2024	1:17:00	1.8	2.5	5	55
31/03/2024	1:18:00	1.5	2.1	5	53
31/03/2024	1:19:00	1.4	1.7	5	53
31/03/2024	1:20:00	1.4	1.8	5	56
31/03/2024	1:21:00	1.5	2.5	5	57
31/03/2024	1:22:00	1.4	1.9	5	58
31/03/2024	1:23:00	1.5	2	5	54
31/03/2024	1:24:00	1.7	2.5	5	57
31/03/2024	1:25:00	1.8	2.2	5	57
31/03/2024	1:26:00	1.7	2.2	5	49
31/03/2024	1:27:00	1.5	2	5	54
31/03/2024	1:28:00	1.4	2	5	52
31/03/2024	1:29:00	1.6	2.3	5	55
31/03/2024	1:30:00	1.6	2.2	4	56
31/03/2024	1:31:00	1.8	2.7	4	58
31/03/2024	1:32:00	1.6	2	4	53
31/03/2024	1:33:00	1.6	2.3	4	54
31/03/2024	1:34:00	1.7	2.2	4	50
31/03/2024	1:35:00	1.6	2.5	4	57
31/03/2024	1:36:00	1.3	1.8	4	55
31/03/2024	1:37:00	1.6	2.7	4	54
31/03/2024	1:38:00	1.7	2.4	4	54
31/03/2024	1:39:00	1.6	2	4	51
31/03/2024	1:40:00	1.5	2.1	4	55
31/03/2024	1:41:00	1.3	1.7	4	53
31/03/2024	1:42:00	1.6	2.1	4	53
31/03/2024	1:43:00	1.5	2.1	4	53
31/03/2024	1:44:00	1.3	1.7	4	56

31/03/2024	1:45:00	1.4	1.9	4	51
31/03/2024	1:46:00	1.6	2.1	4	55
31/03/2024	1:47:00	1.6	2.1	4	53
31/03/2024	1:48:00	1.5	2.2	4	53
31/03/2024	1:49:00	1.7	2.4	4	52
31/03/2024	1:50:00	1.4	2	4	54
31/03/2024	1:51:00	1.6	2	4	55
31/03/2024	1:52:00	1.7	2.2	4	52
31/03/2024	1:53:00	1.6	2.3	4	54
31/03/2024	1:54:00	1.7	2.1	4	51
31/03/2024	1:55:00	1.7	2.3	4	59
31/03/2024	1:56:00	1.5	2	4	58
31/03/2024	1:57:00	1.7	2.4	4	54
31/03/2024	1:58:00	1.4	1.8	4	58
31/03/2024	1:59:00	1.5	2	4	50
31/03/2024	2:00:00	1.7	2.2	4	52
31/03/2024	2:01:00	1.5	2	4	53
31/03/2024	2:02:00	1.6	2.6	4	53
31/03/2024	2:03:00	1.7	2.6	4	57
31/03/2024	2:04:00	1.5	2	4	53
31/03/2024	2:05:00	1.5	2	4	53
31/03/2024	2:06:00	1.5	2	3	53
31/03/2024	2:07:00	1.6	2.1	3	55
31/03/2024	2:08:00	1.4	1.9	3	56
31/03/2024	2:09:00	1.6	2.4	3	56
31/03/2024	2:10:00	1.8	2.5	3	57
31/03/2024	2:11:00	1.7	2.3	3	52
31/03/2024	2:12:00	1.6	2.5	3	53
31/03/2024	2:13:00	1.8	2.6	3	53
31/03/2024	2:14:00	1.5	2.1	3	55
31/03/2024	2:15:00	1.5	2.3	3	56
31/03/2024	2:16:00	1.5	2	3	55
31/03/2024	2:17:00	1.4	2.1	3	37
31/03/2024	2:18:00	1.6	2.3	3	54
31/03/2024	2:19:00	1.5	1.9	3	54
31/03/2024	2:20:00	1.3	1.8	3	55
31/03/2024	2:21:00	1.4	1.9	3	51
31/03/2024	2:22:00	1.4	1.7	3	52
31/03/2024	2:23:00	1.4	2	3	53
31/03/2024	2:24:00	1.2	1.6	3	51
31/03/2024	2:25:00	1.2	2.2	3	39
31/03/2024	2:26:00	1.3	1.9	3	55
31/03/2024	2:27:00	1.6	2	3	50
31/03/2024	2:28:00	1.3	1.7	3	59
31/03/2024	2:29:00	1.4	1.8	3	58
31/03/2024	2:30:00	1.5	2	3	56

31/03/2024	2:31:00	1.5	2	3	51
31/03/2024	2:32:00	1.4	1.7	3	56
31/03/2024	2:33:00	1.7	2.3	3	56
31/03/2024	2:34:00	1.5	2.4	3	56
31/03/2024	2:35:00	1.6	2.2	3	57
31/03/2024	2:36:00	1.5	2.2	3	55
31/03/2024	2:37:00	1.3	1.9	3	59
31/03/2024	2:38:00	1.6	2.1	3	51
31/03/2024	2:39:00	1.4	1.9	3	50
31/03/2024	2:40:00	1.4	2.2	3	50
31/03/2024	2:41:00	1	1.7	3	35
31/03/2024	2:42:00	0.9	1.3	3	35
31/03/2024	2:43:00	1.5	2	3	52
31/03/2024	2:44:00	1.3	1.8	3	50
31/03/2024	2:45:00	1.2	1.8	3	43
31/03/2024	2:46:00	1.1	1.6	3	29
31/03/2024	2:47:00	1.1	1.5	3	13
31/03/2024	2:48:00	1	1.6	3	352
31/03/2024	2:49:00	1.1	1.5	3	35
31/03/2024	2:50:00	1.2	1.7	3	45
31/03/2024	2:51:00	1.5	1.9	3	50
31/03/2024	2:52:00	1.6	1.9	3	52
31/03/2024	2:53:00	1.6	2	3	49
31/03/2024	2:54:00	1.6	2.9	3	52
31/03/2024	2:55:00	1.5	2.6	3	50
31/03/2024	2:56:00	1.6	2.2	3	64
31/03/2024	2:57:00	1.3	2.1	3	34
31/03/2024	2:58:00	1.1	1.6	3	40
31/03/2024	2:59:00	0.8	1.4	3	58
31/03/2024	3:00:00	1.6	2.2	3	41
31/03/2024	3:01:00	1.4	1.8	3	55
31/03/2024	3:02:00	1.4	1.9	3	54
31/03/2024	3:03:00	1.7	2.3	3	49
31/03/2024	3:04:00	1.6	2.1	3	44
31/03/2024	3:05:00	1.8	2.4	3	52
31/03/2024	3:06:00	1.5	2.5	3	45
31/03/2024	3:07:00	0.9	1.2	3	102
31/03/2024	3:08:00	1.2	2	3	76
31/03/2024	3:09:00	1.6	2.7	3	64
31/03/2024	3:10:00	1.2	1.9	3	55
31/03/2024	3:11:00	1.4	1.8	3	54
31/03/2024	3:12:00	1.7	2.9	3	53
31/03/2024	3:13:00	1.3	1.9	3	48
31/03/2024	3:14:00	1.6	2.3	3	53
31/03/2024	3:15:00	1.8	2.5	3	52
31/03/2024	3:16:00	2	2.8	3	51

31/03/2024	3:17:00	1.4	2	3	52
31/03/2024	3:18:00	1.1	1.7	3	52
31/03/2024	3:19:00	1	1.4	3	80
31/03/2024	3:20:00	1.1	1.7	3	76
31/03/2024	3:21:00	1	1.7	3	84
31/03/2024	3:22:00	1.3	1.8	3	53
31/03/2024	3:23:00	1.2	1.7	3	52
31/03/2024	3:24:00	1.3	2	3	53
31/03/2024	3:25:00	1.5	2	3	52
31/03/2024	3:26:00	1.5	1.9	3	56
31/03/2024	3:27:00	1.9	3	3	50
31/03/2024	3:28:00	1.7	2.1	3	49
31/03/2024	3:29:00	1.7	2.5	3	49
31/03/2024	3:30:00	1.3	1.7	3	51
31/03/2024	3:31:00	1.6	2.8	3	55
31/03/2024	3:32:00	1.7	3.1	3	58
31/03/2024	3:33:00	1.8	2.2	3	56
31/03/2024	3:34:00	1.6	2.2	3	57
31/03/2024	3:35:00	1.8	2.5	3	55
31/03/2024	3:36:00	1.8	2.5	3	54
31/03/2024	3:37:00	1.5	1.9	3	49
31/03/2024	3:38:00	1.8	2.6	3	51
31/03/2024	3:39:00	1.5	2.2	3	58
31/03/2024	3:40:00	1.4	2.2	3	53
31/03/2024	3:41:00	1.3	1.6	3	53
31/03/2024	3:42:00	1.6	2.1	3	50
31/03/2024	3:43:00	1.4	2	3	56
31/03/2024	3:44:00	1.4	2.3	3	53
31/03/2024	3:45:00	1.4	2	3	55
31/03/2024	3:46:00	1.5	1.9	3	64
31/03/2024	3:47:00	1.7	2.3	3	59
31/03/2024	3:48:00	1.6	2.2	3	52
31/03/2024	3:49:00	1.5	2.3	3	53
31/03/2024	3:50:00	1.6	2.6	3	52
31/03/2024	3:51:00	1.7	2.3	3	52
31/03/2024	3:52:00	1.3	2	3	53
31/03/2024	3:53:00	1.5	2	3	45
31/03/2024	3:54:00	1.6	2	3	52
31/03/2024	3:55:00	1.5	1.9	3	52
31/03/2024	3:56:00	1.4	2.3	3	56
31/03/2024	3:57:00	1.6	2.2	3	52
31/03/2024	3:58:00	1.6	2.1	3	58
31/03/2024	3:59:00	1.5	2.1	3	52
31/03/2024	4:00:00	1.5	2	2	50
31/03/2024	4:01:00	1.6	2.6	2	41
31/03/2024	4:02:00	1.4	1.9	2	56

31/03/2024	4:03:00	1.5	1.9	2	53
31/03/2024	4:04:00	1.4	2	2	54
31/03/2024	4:05:00	1.6	2.2	2	54
31/03/2024	4:06:00	1.5	1.8	2	50
31/03/2024	4:07:00	1.2	1.7	2	54
31/03/2024	4:08:00	1.3	1.7	2	48
31/03/2024	4:09:00	1.5	2	2	52
31/03/2024	4:10:00	1.9	3.1	2	52
31/03/2024	4:11:00	1.5	2.2	2	49
31/03/2024	4:12:00	1.4	1.8	2	52
31/03/2024	4:13:00	1.4	1.8	2	52
31/03/2024	4:14:00	1.6	2.3	2	52
31/03/2024	4:15:00	1.7	2.3	2	48
31/03/2024	4:16:00	1.7	2.5	2	54
31/03/2024	4:17:00	1.7	2.1	2	51
31/03/2024	4:18:00	1.6	2.3	2	51
31/03/2024	4:19:00	1.7	2.3	2	54
31/03/2024	4:20:00	1.6	2	2	50
31/03/2024	4:21:00	1.7	2.6	2	56
31/03/2024	4:22:00	1.8	2.3	2	56
31/03/2024	4:23:00	1.7	2.6	2	55
31/03/2024	4:24:00	1.6	2.4	2	44
31/03/2024	4:25:00	1.7	2.3	2	53
31/03/2024	4:26:00	1.7	2.6	2	45
31/03/2024	4:27:00	1.5	2	2	50
31/03/2024	4:28:00	1.2	1.9	2	68
31/03/2024	4:29:00	1.2	1.7	2	49
31/03/2024	4:30:00	1.6	2.5	2	44
31/03/2024	4:31:00	1.4	2.1	2	43
31/03/2024	4:32:00	1.6	2	2	45
31/03/2024	4:33:00	1.5	2.4	2	52
31/03/2024	4:34:00	1.3	2	2	50
31/03/2024	4:35:00	1.4	2.1	2	37
31/03/2024	4:36:00	1.3	2.1	2	40
31/03/2024	4:37:00	1.5	2.1	2	42
31/03/2024	4:38:00	1.6	2.3	2	54
31/03/2024	4:39:00	1.6	2	2	52
31/03/2024	4:40:00	1.4	1.9	2	56
31/03/2024	4:41:00	1.6	2.1	2	53
31/03/2024	4:42:00	1.7	2.3	2	53
31/03/2024	4:43:00	1.6	2.1	2	52
31/03/2024	4:44:00	1.6	2.2	2	54
31/03/2024	4:45:00	1.2	1.5	2	59
31/03/2024	4:46:00	1.2	1.7	2	54
31/03/2024	4:47:00	1.4	1.9	2	56
31/03/2024	4:48:00	1.3	1.8	2	56

31/03/2024	4:49:00	1.4	1.9	2	55
31/03/2024	4:50:00	1.5	2.1	2	54
31/03/2024	4:51:00	1.4	2	2	51
31/03/2024	4:52:00	1.5	2	2	54
31/03/2024	4:53:00	1.3	1.6	2	49
31/03/2024	4:54:00	1.2	1.8	2	53
31/03/2024	4:55:00	1.2	1.6	2	53
31/03/2024	4:56:00	1.3	1.7	2	57
31/03/2024	4:57:00	1.6	2.4	2	54
31/03/2024	4:58:00	1.3	1.9	2	52
31/03/2024	4:59:00	1.3	1.8	2	48
31/03/2024	5:00:00	1.2	1.4	2	55
31/03/2024	5:01:00	1.1	1.5	2	54
31/03/2024	5:02:00	1.1	1.4	2	53
31/03/2024	5:03:00	1.2	1.6	2	42
31/03/2024	5:04:00	1.1	1.5	2	58
31/03/2024	5:05:00	1.1	1.6	2	56
31/03/2024	5:06:00	1.4	1.9	2	52
31/03/2024	5:07:00	1.2	1.8	2	55
31/03/2024	5:08:00	1.2	1.6	2	52
31/03/2024	5:09:00	1.2	1.6	2	33
31/03/2024	5:10:00	1.1	1.5	2	62
31/03/2024	5:11:00	1	1.5	2	42
31/03/2024	5:12:00	0.8	1.2	2	10
31/03/2024	5:13:00	0.8	1.3	2	59
31/03/2024	5:14:00	1	1.5	2	33
31/03/2024	5:15:00	0.9	1.6	2	74
31/03/2024	5:16:00	0.9	1.3	2	62
31/03/2024	5:17:00	1.1	1.5	2	54
31/03/2024	5:18:00	1.2	1.6	2	49
31/03/2024	5:19:00	1.1	1.6	2	48
31/03/2024	5:20:00	1.1	1.4	2	50
31/03/2024	5:21:00	1.1	1.3	2	54
31/03/2024	5:22:00	1.1	1.5	2	66
31/03/2024	5:23:00	0.8	1.2	2	35
31/03/2024	5:24:00	0.8	1.2	2	37
31/03/2024	5:25:00	0.8	1.1	2	24
31/03/2024	5:26:00	0.8	1.2	2	47
31/03/2024	5:27:00	0.7	1.2	2	53
31/03/2024	5:28:00	0.7	1.2	2	37
31/03/2024	5:29:00	0.7	1.1	2	26
31/03/2024	5:30:00	0.7	1	2	22
31/03/2024	5:31:00	0.8	1.1	2	30
31/03/2024	5:32:00	0.9	1.3	2	52
31/03/2024	5:33:00	0.8	1.2	1	45
31/03/2024	5:34:00	0.8	1.4	1	47

31/03/2024	5:35:00	0.5	1.2	1	83
31/03/2024	5:36:00	0.7	0.9	1	13
31/03/2024	5:37:00	0.9	1.4	1	7
31/03/2024	5:38:00	0.6	1.1	1	96
31/03/2024	5:39:00	0.8	1.3	1	26
31/03/2024	5:40:00	0.7	0.9	1	25
31/03/2024	5:41:00	0.9	1.4	1	19
31/03/2024	5:42:00	0.7	1	1	19
31/03/2024	5:43:00	0.9	1.3	1	23
31/03/2024	5:44:00	0.9	1.4	1	71
31/03/2024	5:45:00	0.9	1.5	1	335
31/03/2024	5:46:00	1	1.3	1	49
31/03/2024	5:47:00	0.8	1.3	1	60
31/03/2024	5:48:00	0.8	1.1	1	51
31/03/2024	5:49:00	0.8	1.2	1	356
31/03/2024	5:50:00	0.9	1.3	1	47
31/03/2024	5:51:00	0.9	1.5	1	45
31/03/2024	5:52:00	0.9	1.4	1	42
31/03/2024	5:53:00	0.9	1.6	1	28
31/03/2024	5:54:00	0.9	1.5	1	333
31/03/2024	5:55:00	1	1.5	1	45
31/03/2024	5:56:00	0.9	1.2	1	62
31/03/2024	5:57:00	1	1.5	1	47
31/03/2024	5:58:00	1.2	1.6	1	35
31/03/2024	5:59:00	1.1	1.5	1	34
31/03/2024	6:00:00	0.7	1	1	262
31/03/2024	6:01:00	1.1	1.6	1	22
31/03/2024	6:02:00	1	1.6	1	28
31/03/2024	6:03:00	0.9	1.6	1	235
31/03/2024	6:04:00	1	1.3	1	24
31/03/2024	6:05:00	0.8	1.3	1	315
31/03/2024	6:06:00	1.4	1.7	1	55
31/03/2024	6:07:00	1.5	2.1	1	53
31/03/2024	6:08:00	1	1.5	1	39
31/03/2024	6:09:00	1	1.4	1	49
31/03/2024	6:10:00	1	1.8	1	48
31/03/2024	6:11:00	0.9	1.3	1	75
31/03/2024	6:12:00	1.3	2.1	1	51
31/03/2024	6:13:00	1.4	2.1	1	28
31/03/2024	6:14:00	1.1	1.8	1	33
31/03/2024	6:15:00	1.5	2	1	63
31/03/2024	6:16:00	1.6	2.3	1	52
31/03/2024	6:17:00	1.8	2.6	1	49
31/03/2024	6:18:00	1.9	2.5	1	51
31/03/2024	6:19:00	1.7	2.4	1	67
31/03/2024	6:20:00	1.8	2.4	1	54

31/03/2024	6:21:00	1.2	1.8	2	47
31/03/2024	6:22:00	1.3	2.1	2	18
31/03/2024	6:23:00	1.4	2	2	33
31/03/2024	6:24:00	1.6	2.4	2	56
31/03/2024	6:25:00	1.7	3	2	58
31/03/2024	6:26:00	1.6	2.2	2	43
31/03/2024	6:27:00	1.9	3	2	46
31/03/2024	6:28:00	1.6	2.2	2	55
31/03/2024	6:29:00	1.8	2.4	2	52
31/03/2024	6:30:00	1.7	2.3	2	53
31/03/2024	6:31:00	1.1	1.9	2	54
31/03/2024	6:32:00	1.2	1.8	2	60
31/03/2024	6:33:00	1.4	2	2	51
31/03/2024	6:34:00	1.5	1.8	2	55
31/03/2024	6:35:00	1.6	2.4	2	52
31/03/2024	6:36:00	1.8	2.8	2	56
31/03/2024	6:37:00	1.4	2	2	53
31/03/2024	6:38:00	1.4	2.1	2	60
31/03/2024	6:39:00	1.5	1.9	2	50
31/03/2024	6:40:00	1.8	3.1	2	60
31/03/2024	6:41:00	1.6	2.3	2	55
31/03/2024	6:42:00	1.5	1.9	2	57
31/03/2024	6:43:00	1.7	2.2	2	62
31/03/2024	6:44:00	1.7	2.2	2	62
31/03/2024	6:45:00	1.6	2.7	2	53
31/03/2024	6:46:00	1.6	2.4	2	58
31/03/2024	6:47:00	1.5	2	2	58
31/03/2024	6:48:00	1.6	2.1	2	54
31/03/2024	6:49:00	1.4	1.9	2	55
31/03/2024	6:50:00	1.3	1.7	2	58
31/03/2024	6:51:00	1.4	1.8	2	52
31/03/2024	6:52:00	1.4	2	2	57
31/03/2024	6:53:00	1.4	2	2	55
31/03/2024	6:54:00	1.1	1.5	2	57
31/03/2024	6:55:00	1.2	1.4	2	59
31/03/2024	6:56:00	1.3	1.7	2	51
31/03/2024	6:57:00	1.3	1.8	2	53
31/03/2024	6:58:00	1.5	2	2	55
31/03/2024	6:59:00	1.4	2	2	53
31/03/2024	7:00:00	1.5	1.9	2	52
31/03/2024	7:01:00	1.5	2	2	50
31/03/2024	7:02:00	1.2	1.4	2	58
31/03/2024	7:03:00	1.4	1.9	2	56
31/03/2024	7:04:00	1.4	1.8	2	58
31/03/2024	7:05:00	1.4	1.7	2	62
31/03/2024	7:06:00	1.5	1.8	2	57

31/03/2024	7:07:00	1.3	1.7	2	65
31/03/2024	7:08:00	1.3	1.7	2	51
31/03/2024	7:09:00	1.4	2.2	2	53
31/03/2024	7:10:00	1.5	2.3	2	51
31/03/2024	7:11:00	1.4	2	2	42
31/03/2024	7:12:00	1.3	1.6	2	49
31/03/2024	7:13:00	1.5	1.8	2	54
31/03/2024	7:14:00	1.6	2.1	2	55
31/03/2024	7:15:00	1.2	1.5	2	57
31/03/2024	7:16:00	1.6	2.3	2	53
31/03/2024	7:17:00	1.6	2.3	2	61
31/03/2024	7:18:00	1.5	2.2	2	57
31/03/2024	7:19:00	1.7	2.2	2	53
31/03/2024	7:20:00	1.4	1.8	2	55
31/03/2024	7:21:00	1.5	2.1	2	58
31/03/2024	7:22:00	1.8	3.1	2	53
31/03/2024	7:23:00	1.7	2.7	2	59
31/03/2024	7:24:00	1.4	1.8	2	56
31/03/2024	7:25:00	1.4	1.8	2	54
31/03/2024	7:26:00	1.7	2.2	2	55
31/03/2024	7:27:00	1.6	2.4	2	51
31/03/2024	7:28:00	1.8	2.2	2	52
31/03/2024	7:29:00	1.7	2.8	2	48
31/03/2024	7:30:00	1.8	2.8	2	45
31/03/2024	7:31:00	1.3	2.3	2	8
31/03/2024	7:32:00	1.3	2.1	2	42
31/03/2024	7:33:00	1.6	2.8	2	42
31/03/2024	7:34:00	1.6	2.5	2	48
31/03/2024	7:35:00	1.9	2.7	2	51
31/03/2024	7:36:00	1.8	2.6	2	58
31/03/2024	7:37:00	1.9	2.4	2	51
31/03/2024	7:38:00	2.1	3.2	2	55
31/03/2024	7:39:00	1.7	2.7	2	52
31/03/2024	7:40:00	1.3	2.2	2	46
31/03/2024	7:41:00	1.7	2.1	2	51
31/03/2024	7:42:00	1.6	2.5	2	51
31/03/2024	7:43:00	1.7	2.2	3	61
31/03/2024	7:44:00	1.4	2.1	3	45
31/03/2024	7:45:00	1.7	2.5	3	50
31/03/2024	7:46:00	1.4	2.3	3	58
31/03/2024	7:47:00	1.4	1.8	3	61
31/03/2024	7:48:00	1.6	2.1	3	56
31/03/2024	7:49:00	1.5	2.1	3	45
31/03/2024	7:50:00	1.6	2.3	3	49
31/03/2024	7:51:00	1.8	2.5	3	56
31/03/2024	7:52:00	1.4	2	3	55

31/03/2024	7:53:00	1.3	1.7	3	66
31/03/2024	7:54:00	1.4	1.9	3	57
31/03/2024	7:55:00	1.3	1.7	3	69
31/03/2024	7:56:00	1.5	2.4	3	60
31/03/2024	7:57:00	1.3	2.2	3	54
31/03/2024	7:58:00	1.7	2.6	3	60
31/03/2024	7:59:00	1.5	2	3	59
31/03/2024	8:00:00	1.7	2.8	4	49
31/03/2024	8:01:00	1.2	2	4	46
31/03/2024	8:02:00	1.5	2	4	65
31/03/2024	8:03:00	1.7	2.4	4	54
31/03/2024	8:04:00	1.8	2.8	4	70
31/03/2024	8:05:00	1.9	2.7	4	64
31/03/2024	8:06:00	1.6	2.5	4	59
31/03/2024	8:07:00	1.7	2.3	4	55
31/03/2024	8:08:00	1.7	2.9	4	58
31/03/2024	8:09:00	1.9	2.9	4	55
31/03/2024	8:10:00	1.6	2.2	4	58
31/03/2024	8:11:00	1.9	3.1	4	50
31/03/2024	8:12:00	2.3	3.4	4	55
31/03/2024	8:13:00	1.7	3.1	4	58
31/03/2024	8:14:00	1.6	2.1	4	50
31/03/2024	8:15:00	1.4	1.9	4	47
31/03/2024	8:16:00	1.8	2.8	5	55
31/03/2024	8:17:00	1.4	1.9	5	60
31/03/2024	8:18:00	1.8	2.6	5	56
31/03/2024	8:19:00	1.9	3	5	56
31/03/2024	8:20:00	1.6	3.1	5	57
31/03/2024	8:21:00	1.8	2.6	5	58
31/03/2024	8:22:00	2.1	2.7	5	61
31/03/2024	8:23:00	2.3	3	5	64
31/03/2024	8:24:00	1.9	3	5	62
31/03/2024	8:25:00	2.2	3.4	5	51
31/03/2024	8:26:00	1.8	2.9	5	52
31/03/2024	8:27:00	1.8	2.6	5	57
31/03/2024	8:28:00	1.9	2.7	5	59
31/03/2024	8:29:00	1.7	2.5	5	65
31/03/2024	8:30:00	1.9	2.7	5	40
31/03/2024	8:31:00	2.2	3.6	5	55
31/03/2024	8:32:00	1.5	2.3	5	43
31/03/2024	8:33:00	1.8	2.4	5	55
31/03/2024	8:34:00	1.8	2.2	6	55
31/03/2024	8:35:00	2.2	2.9	6	55
31/03/2024	8:36:00	2.5	3.1	6	64
31/03/2024	8:37:00	2	3	6	45
31/03/2024	8:38:00	2	2.6	6	63

31/03/2024	8:39:00	2.4	3.3	6	55
31/03/2024	8:40:00	1.7	2.3	6	52
31/03/2024	8:41:00	1.7	2.1	6	52
31/03/2024	8:42:00	2.1	3.5	6	63
31/03/2024	8:43:00	1.6	2.4	6	55
31/03/2024	8:44:00	2	3	6	48
31/03/2024	8:45:00	1.9	2.9	6	55
31/03/2024	8:46:00	1.7	2.3	6	36
31/03/2024	8:47:00	1.5	2	6	50
31/03/2024	8:48:00	2	2.5	6	40
31/03/2024	8:49:00	1.7	2.1	7	52
31/03/2024	8:50:00	1.5	2.5	7	57
31/03/2024	8:51:00	1.9	2.6	7	62
31/03/2024	8:52:00	1.7	2.2	7	57
31/03/2024	8:53:00	1.6	2.1	7	61
31/03/2024	8:54:00	1.6	2.2	7	54
31/03/2024	8:55:00	2.1	3.1	7	50
31/03/2024	8:56:00	2.1	2.8	7	58
31/03/2024	8:57:00	2.4	3.8	7	56
31/03/2024	8:58:00	2.3	2.9	7	61
31/03/2024	8:59:00	2.2	3.2	7	55
31/03/2024	9:00:00	1.9	2.6	7	58
31/03/2024	9:01:00	1.8	2.4	7	55
31/03/2024	9:02:00	2.4	4.3	7	54
31/03/2024	9:03:00	2.5	4	7	52
31/03/2024	9:04:00	2.7	4.5	7	40
31/03/2024	9:05:00	2.5	3.5	7	56
31/03/2024	9:06:00	2.7	4.2	7	56
31/03/2024	9:07:00	2.5	3.5	7	51
31/03/2024	9:08:00	2.7	3.5	7	55
31/03/2024	9:09:00	2.4	3.6	8	55
31/03/2024	9:10:00	2.1	3.3	8	61
31/03/2024	9:11:00	1.6	2.1	8	59
31/03/2024	9:12:00	2.1	3.5	8	50
31/03/2024	9:13:00	2.1	3	8	51
31/03/2024	9:14:00	2.8	3.7	8	60
31/03/2024	9:15:00	2	2.8	8	60
31/03/2024	9:16:00	2.2	3.2	8	54
31/03/2024	9:17:00	2.4	3.4	8	55
31/03/2024	9:18:00	2.3	3.5	8	55
31/03/2024	9:19:00	2.3	3.1	8	58
31/03/2024	9:20:00	2	2.9	8	57
31/03/2024	9:21:00	2.1	2.9	8	58
31/03/2024	9:22:00	2	3.2	8	60
31/03/2024	9:23:00	2	2.6	8	52
31/03/2024	9:24:00	2	3	8	53

31/03/2024	9:25:00	1.8	3.3	8	60
31/03/2024	9:26:00	2.4	3.5	8	56
31/03/2024	9:27:00	2.4	3.4	8	53
31/03/2024	9:28:00	2.4	3	8	56
31/03/2024	9:29:00	2.3	3.6	9	54
31/03/2024	9:30:00	2.2	3.6	9	56
31/03/2024	9:31:00	2.6	3.4	9	66
31/03/2024	9:32:00	2.1	2.8	9	59
31/03/2024	9:33:00	2.4	4	9	52
31/03/2024	9:34:00	2.4	3.6	9	56
31/03/2024	9:35:00	2.5	3.8	9	44
31/03/2024	9:36:00	1.8	2.8	10	35
31/03/2024	9:37:00	2.2	3.4	10	47
31/03/2024	9:38:00	2.6	3.9	10	55
31/03/2024	9:39:00	2.4	3.5	10	51
31/03/2024	9:40:00	2.4	3.3	10	59
31/03/2024	9:41:00	2.2	3.1	10	60
31/03/2024	9:42:00	2.5	3.3	10	59
31/03/2024	9:43:00	2.7	3.3	10	54
31/03/2024	9:44:00	2.1	3	10	50
31/03/2024	9:45:00	2.1	2.7	10	45
31/03/2024	9:46:00	2.5	3.6	10	50
31/03/2024	9:47:00	2.4	4	10	51
31/03/2024	9:48:00	1.8	2.4	10	61
31/03/2024	9:49:00	2	3.1	10	56
31/03/2024	9:50:00	2.5	3.3	10	51
31/03/2024	9:51:00	2.7	3.6	10	51
31/03/2024	9:52:00	2.4	3.5	10	54
31/03/2024	9:53:00	2.4	3.7	10	59
31/03/2024	9:54:00	2.6	3.6	11	61
31/03/2024	9:55:00	2.7	3.4	11	57
31/03/2024	9:56:00	2.2	2.8	11	55
31/03/2024	9:57:00	2.3	3.3	11	54
31/03/2024	9:58:00	2.4	3.7	11	51
31/03/2024	9:59:00	2.1	3.1	11	48
31/03/2024	10:00:00	1.8	2.3	11	54
31/03/2024	10:01:00	1.5	2.3	11	56
31/03/2024	10:02:00	1.9	3	11	57
31/03/2024	10:03:00	1.9	2.7	11	75
31/03/2024	10:04:00	1.6	2.5	11	53
31/03/2024	10:05:00	2.2	2.7	11	51
31/03/2024	10:06:00	2.4	4.6	11	66
31/03/2024	10:07:00	3.2	4.9	11	68
31/03/2024	10:08:00	2.7	3.7	11	59
31/03/2024	10:09:00	2.3	3.1	11	83
31/03/2024	10:10:00	2.6	3.3	11	92

31/03/2024	10:11:00	2.1	3.1	11	57
31/03/2024	10:12:00	1.9	3.3	11	53
31/03/2024	10:13:00	1.8	3.1	11	60
31/03/2024	10:14:00	3	4.3	12	61
31/03/2024	10:15:00	2.3	3	12	58
31/03/2024	10:16:00	2	2.8	12	61
31/03/2024	10:17:00	2.4	3.5	12	63
31/03/2024	10:18:00	2.4	3.2	12	58
31/03/2024	10:19:00	2.1	3	12	60
31/03/2024	10:20:00	2	2.9	12	53
31/03/2024	10:21:00	2.1	3	12	60
31/03/2024	10:22:00	2.8	3.7	12	79
31/03/2024	10:23:00	2.7	3.3	12	70
31/03/2024	10:24:00	2.7	3.4	12	53
31/03/2024	10:25:00	2.3	3.1	12	48
31/03/2024	10:26:00	2.6	3.7	12	55
31/03/2024	10:27:00	2.7	3.5	12	75
31/03/2024	10:28:00	2.2	3.4	12	65
31/03/2024	10:29:00	2.6	3.2	12	59
31/03/2024	10:30:00	2.1	2.8	12	54
31/03/2024	10:31:00	2.6	4	12	53
31/03/2024	10:32:00	2.4	3.3	12	65
31/03/2024	10:33:00	2	2.8	12	52
31/03/2024	10:34:00	2.4	3.6	12	55
31/03/2024	10:35:00	2.7	3.6	12	71
31/03/2024	10:36:00	2.2	3.2	12	71
31/03/2024	10:37:00	2.2	3.1	12	67
31/03/2024	10:38:00	2.2	3.3	12	71
31/03/2024	10:39:00	2	2.6	12	52
31/03/2024	10:40:00	2	2.6	12	52
31/03/2024	10:41:00	2	3.1	12	54
31/03/2024	10:42:00	1.6	2.2	12	74
31/03/2024	10:43:00	2.7	3.5	12	76
31/03/2024	10:44:00	2.4	2.9	12	57
31/03/2024	10:45:00	1.8	2.5	12	58
31/03/2024	10:46:00	1.8	2.3	12	64
31/03/2024	10:47:00	1.6	2.3	12	74
31/03/2024	10:48:00	1.6	2.7	12	60
31/03/2024	10:49:00	1.9	3.4	12	61
31/03/2024	10:50:00	2.6	3.7	12	56
31/03/2024	10:51:00	2.5	3.7	12	63
31/03/2024	10:52:00	2.8	3.7	12	81
31/03/2024	10:53:00	2.3	3	12	63
31/03/2024	10:54:00	1.9	2.5	13	69
31/03/2024	10:55:00	3.2	4	13	91
31/03/2024	10:56:00	2.4	3.1	13	76

31/03/2024	10:57:00	2.3	3.2	13	75
31/03/2024	10:58:00	2.5	3.8	13	60
31/03/2024	10:59:00	2.8	4.3	13	81
31/03/2024	11:00:00	2.6	3.3	13	72
31/03/2024	11:01:00	2.7	3.3	13	94
31/03/2024	11:02:00	2.5	3	13	90
31/03/2024	11:03:00	2.1	2.6	13	69
31/03/2024	11:04:00	2.1	3.2	13	54
31/03/2024	11:05:00	2.4	3.3	13	68
31/03/2024	11:06:00	2.8	3.4	13	71
31/03/2024	11:07:00	2.5	3.4	13	68
31/03/2024	11:08:00	2.3	3	13	59
31/03/2024	11:09:00	2.1	3	13	84
31/03/2024	11:10:00	2.3	2.9	13	80
31/03/2024	11:11:00	2.5	4.5	13	74
31/03/2024	11:12:00	3.2	4.5	13	95
31/03/2024	11:13:00	3.1	4	13	77
31/03/2024	11:14:00	3.5	4.4	13	78
31/03/2024	11:15:00	4.1	5.1	13	84
31/03/2024	11:16:00	2.9	3.8	13	83
31/03/2024	11:17:00	2.9	4.5	13	89
31/03/2024	11:18:00	3.2	4.2	13	84
31/03/2024	11:19:00	3.2	4.6	13	76
31/03/2024	11:20:00	2.5	3.3	13	65
31/03/2024	11:21:00	2.3	3.1	13	77
31/03/2024	11:22:00	2.4	3.8	13	85
31/03/2024	11:23:00	2.4	3.3	13	83
31/03/2024	11:24:00	2.6	3.4	13	67
31/03/2024	11:25:00	3	4.1	13	70
31/03/2024	11:26:00	2.9	4.3	13	79
31/03/2024	11:27:00	3.2	3.9	13	77
31/03/2024	11:28:00	2.5	4.3	13	85
31/03/2024	11:29:00	2.7	4.7	13	55
31/03/2024	11:30:00	2.7	3.4	13	69
31/03/2024	11:31:00	2.5	3.3	13	54
31/03/2024	11:32:00	2.8	4.6	13	54
31/03/2024	11:33:00	2.3	3.5	13	63

Data for N 12 noise level per 10 min, dB:

Date	Time	Leq	LE	Lmax	Lmin	LA10	LA90
4/6/2024	9:32:22	45.4	73.2	55	35.9	48.9	39.3
4/6/2024	9:42:22	45.4	73.2	56.8	35.8	48.7	39.6
4/6/2024	9:52:22	48.6	76.4	65.3	34.5	51.8	39.4
4/6/2024	10:02:22	48.9	76.7	63.7	35.1	52.3	39.3

4/6/2024	10:12:22	46.8	74.6	61.8	34	49.5	37.6
4/6/2024	10:22:22	44.8	72.6	56.5	34.1	48	38.5
4/6/2024	10:32:22	45.9	73.7	60	34.5	49.3	37.5
4/6/2024	10:42:22	45	72.8	55.6	33.2	48.1	38.7
4/6/2024	10:52:22	47.8	75.6	70.4	34	50.7	38.9
4/6/2024	11:02:22	45.1	72.9	57.9	31.9	48.5	36.5
4/6/2024	11:12:22	47.5	75.3	65.9	37.4	50.3	41.5
4/6/2024	11:22:22	45.9	73.7	66.7	34.6	48.9	39.3
4/6/2024	11:32:22	46.9	74.7	67.6	32.9	49.2	41.1
4/6/2024	11:42:22	44.3	72.1	65.6	34.8	47.3	38.9
4/6/2024	11:52:22	45.2	73	59.8	33.8	48.8	37.8
4/6/2024	12:02:22	45.1	72.9	59.7	34.3	48.4	37.5
4/6/2024	12:12:22	45	72.8	60	35.9	47.9	39.6
4/6/2024	12:22:22	44.8	72.6	62.2	35.5	47.6	39
4/6/2024	12:32:22	48.3	76.1	74.4	33.8	50.6	39.2
4/6/2024	12:42:22	44.6	72.4	62.1	31	48.1	35.2
4/6/2024	12:52:22	48.6	76.4	64	32.9	50.3	37.1
4/6/2024	13:02:22	43.1	70.9	53.3	33.7	46.3	37.4
4/6/2024	13:12:22	43	70.8	59.3	33.2	46.2	36.9
4/6/2024	13:22:22	45.3	73.1	57.7	32.4	49	35.7
4/6/2024	13:32:22	42.6	70.4	56.4	32.2	45.6	35.3
4/6/2024	13:42:22	45.5	73.3	63.5	33.6	49	37.2
4/6/2024	13:52:22	41.9	69.7	52.1	32	45.6	35.1
4/6/2024	14:02:22	41.8	69.6	62.2	32.8	44.9	35.8
4/6/2024	14:12:22	45.7	73.5	62.4	32.1	48	36.4
4/6/2024	14:22:22	41.6	69.4	54.8	32.7	44.6	36.7
4/6/2024	14:32:22	47.2	75	69.5	35.1	49.8	39.2
4/6/2024	14:42:22	43.2	71	55.7	31.5	46.5	35.8
4/6/2024	14:52:22	42.1	69.9	56.3	33.6	45.2	35.7
4/6/2024	15:02:22	44.3	72.1	57.7	33.3	46.8	38.3
4/6/2024	15:12:22	43.4	71.2	61.7	31.2	45.5	33.2
4/6/2024	15:22:22	40.8	68.6	57.4	31.6	43	33.8
4/6/2024	15:32:22	42.9	70.7	54.1	32.9	46.4	35
4/6/2024	15:42:22	47.6	75.4	79.1	33.4	48.9	36.7
4/6/2024	15:52:22	45	72.8	62.4	33.2	49	35.9
4/6/2024	16:02:22	42.1	69.9	54.1	32.1	44.9	35.2
4/6/2024	16:12:22	40.3	68.1	54.4	32.1	43.6	34.6
4/6/2024	16:22:22	45.7	73.5	63.8	30.2	46	34.6
4/6/2024	16:32:22	45.3	73.1	64.4	32.8	46.6	35.6
4/6/2024	16:42:22	44.7	72.5	58.8	34.9	48.5	37.9
4/6/2024	16:52:22	46.2	74	62.9	31.9	49.7	35.2
4/6/2024	17:02:22	44.7	72.5	61.8	31	46.7	33.5
4/6/2024	17:12:22	44.9	72.7	60.2	33.1	48	37.2
4/6/2024	17:22:22	43.8	71.6	62	31.2	47	36.3
4/6/2024	17:32:22	45.5	73.3	62.6	32.2	49	36.5
4/6/2024	17:42:22	45.7	73.5	59.5	32.5	49.8	37.5

4/6/2024	17:52:22	42.9	70.7	55.1	32	46.2	36.6
4/6/2024	18:02:22	45.1	72.9	61	35.9	48	39.5
4/6/2024	18:12:22	47.4	75.2	63.1	36.8	50.3	41
4/6/2024	18:22:22	46.4	74.2	60.9	36.8	49.7	40.6
4/6/2024	18:32:22	45.4	73.2	63.5	35.4	49	38.1
4/6/2024	18:42:22	47.6	75.4	58.9	35.2	51.3	40
4/6/2024	18:52:22	44.3	72.1	58.2	35.8	47.4	39.2
4/6/2024	19:02:22	45.3	73.1	55	35.6	48.7	39
4/6/2024	19:12:22	47	74.8	63.9	36.4	50.6	39.7
4/6/2024	19:22:22	48.7	76.5	75.6	36.3	48.9	38.8
4/6/2024	19:32:22	47	74.8	61.2	35.5	50.8	39.1
4/6/2024	19:42:22	46.6	74.4	61.7	34.8	50.3	37.6
4/6/2024	19:52:22	49.5	77.3	66.8	36.7	51.8	39.8
4/6/2024	20:02:22	48.5	76.3	67.8	38.2	51.2	40.5
4/6/2024	20:12:22	48	75.8	62.3	36.3	51.7	38.6
4/6/2024	20:22:22	45.7	73.5	62.1	36.6	48.3	40.1
4/6/2024	20:32:22	45.3	73.1	58.9	37.2	48.6	39.9
4/6/2024	20:42:22	48.8	76.6	63.4	37.2	50.8	39.9
4/6/2024	20:52:22	46.3	74.1	58.7	36.3	48.7	39.7
4/6/2024	21:02:22	50.1	77.9	66.3	40	53.7	44.1
4/6/2024	21:12:22	45.3	73.1	59.1	35.6	48.8	37.9
4/6/2024	21:22:22	48.3	76.1	65.1	37.2	51.3	42.6
4/6/2024	21:32:22	45.6	73.4	55.8	37.5	48.6	40
4/6/2024	21:42:22	47.3	75.1	57.4	37.2	51.4	40.8
4/6/2024	21:52:22	45.5	73.3	54.5	36.3	48.1	40
4/6/2024	22:02:22	41.6	69.4	48.8	35.1	44.1	37.9
4/6/2024	22:12:22	46.9	74.7	63.9	37.6	49.7	41.5
4/6/2024	22:22:22	43.9	71.7	56.6	36.3	46.9	38.4
4/6/2024	22:32:22	49.6	77.4	81.1	36	49.5	38.7
4/6/2024	22:42:22	48.4	76.2	65.7	39.8	50.9	42.6
4/6/2024	22:52:22	45.4	73.2	55.1	37.4	48.6	39.4
4/6/2024	23:02:22	43.7	71.5	53.1	37.1	47	38.5
4/6/2024	23:12:22	47.2	75	59.7	38.2	50.8	40.4
4/6/2024	23:22:22	45.3	73.1	62.2	37.4	48.8	38.9
4/6/2024	23:32:22	45.6	73.4	63.3	36.7	48.7	39.6
4/6/2024	23:42:22	45.9	73.7	65.2	37.5	49.6	38.9
4/6/2024	23:52:22	45.9	73.7	68.7	37	47.6	38.3
4/7/2024	0:02:22	46.3	74.1	61.2	36.7	49.4	39.1
4/7/2024	0:12:22	43.1	70.9	54	36.5	46.4	38
4/7/2024	0:22:22	50.5	78.3	70.4	38.6	51.2	40.4
4/7/2024	0:32:22	52.7	80.5	68.7	38.2	57.2	39.8
4/7/2024	0:42:22	46.9	74.7	66.9	38	47.2	39.6
4/7/2024	0:52:22	44.3	72.1	52.4	38.1	47.3	39.7
4/7/2024	1:02:22	42.1	69.9	53.2	35.9	45.3	37.9
4/7/2024	1:12:22	44.4	72.2	66.5	34.5	44.2	36.2
4/7/2024	1:22:22	50.7	78.5	68.8	34.5	55	36.7

4/7/2024	1:32:22	42.9	70.7	54.5	34.8	46	37.5
4/7/2024	1:42:22	45.9	73.7	61.9	36	49.4	37.6
4/7/2024	1:52:22	43.8	71.6	55.6	38.4	46.4	39.8
4/7/2024	2:02:22	43.5	71.3	56.8	38.6	45.5	40
4/7/2024	2:12:22	43.8	71.6	53.7	38	47.3	39.4
4/7/2024	2:22:22	43.9	71.7	52.1	38.6	47.4	40
4/7/2024	2:32:22	41.7	69.5	51.2	38.1	44	39.4
4/7/2024	2:42:22	42.9	70.7	56.5	35.3	46	37
4/7/2024	2:52:22	41.3	69.1	50.1	35.8	43.7	38.1
4/7/2024	3:02:22	44.4	72.2	56.1	36.7	48	38.6
4/7/2024	3:12:22	40	67.8	51.9	34.4	43.4	35.5
4/7/2024	3:22:22	44.5	72.3	65	35.6	45.5	38.5
4/7/2024	3:32:22	43.3	71.1	62.5	35.5	45.5	36.9
4/7/2024	3:42:22	44.9	72.7	62.1	34.8	48.3	36
4/7/2024	3:52:22	42	69.8	53.8	34.9	44.6	36.6
4/7/2024	4:02:22	43.2	71	60.1	35.8	43.8	37.4
4/7/2024	4:12:22	44	71.8	56	37.2	47.9	38.7
4/7/2024	4:22:22	48.7	76.5	60.8	37.8	52.5	39.6
4/7/2024	4:32:22	45.7	73.5	63.1	37.9	47.5	39.7
4/7/2024	4:42:22	42.5	70.3	53.1	37.8	45.5	39.2
4/7/2024	4:52:22	43.5	71.3	56.4	36.5	48.1	37.7
4/7/2024	5:02:22	46.2	74	61.7	38.7	50.9	39.8
4/7/2024	5:12:22	47	74.8	61.8	35.9	50.9	37.8
4/7/2024	5:22:22	41.9	69.7	57	35.6	45.2	37
4/7/2024	5:32:22	45.8	73.6	61.1	35.7	48.6	38.2
4/7/2024	5:42:22	46.1	73.9	62	34.5	48.6	37.2
4/7/2024	5:52:22	43	70.8	59.9	34.4	45.9	37.1
4/7/2024	6:02:22	44.9	72.7	62.1	34.6	46.5	37.7
4/7/2024	6:12:22	46.4	74.2	54.6	37.9	49.6	41.2
4/7/2024	6:22:22	45.2	73	54.9	36.7	48.2	40.7
4/7/2024	6:32:22	49	76.8	68.5	36.4	49.3	40.6
4/7/2024	6:42:22	45.7	73.5	58.4	35.9	48.6	40.1
4/7/2024	6:52:22	46.8	74.6	63	38.4	49	41.3
4/7/2024	7:02:22	44.9	72.7	58.2	37.2	47	40.5
4/7/2024	7:12:22	46.9	74.7	65.4	37.5	47.8	40.5
4/7/2024	7:22:22	44.2	72	59.6	37.8	46.4	40.7
4/7/2024	7:32:22	47.2	75	68.8	39.3	48.6	42.3
4/7/2024	7:42:22	47.1	74.9	70.3	36.4	48.1	40.7
4/7/2024	7:52:22	43.6	71.4	54.2	37.6	45.8	40.4
4/7/2024	8:02:22	43.5	71.3	52.3	35.7	46.1	39.6
4/7/2024	8:12:22	49	76.8	65.9	35.6	52.4	39.7
4/7/2024	8:22:22	47.9	75.7	62.5	36.7	52.1	40.1
4/7/2024	8:32:22	43.4	71.2	58.8	35.9	45.1	39
4/7/2024	8:42:22	44.5	72.3	74.6	37.3	44	39.6
4/7/2024	8:52:22	43.3	71.1	63.4	35.8	44.1	38.8
4/7/2024	9:02:22	41.1	68.9	56	35.9	42.6	38.1

4/7/2024	9:12:22	40.7	68.5	61.2	35	42	37
4/7/2024	9:22:22	38.3	66.1	48.1	32.6	40.8	34.8
4/7/2024	9:32:22	47.7	75.5	64.8	32.4	49.5	35.2

Data for N 12 wind direction and temperature per min:

Date	Time	Wind speed	Wind speed max	Wind temperature	Wind direction
06/04/2024	09:32:00	2.2	2.7	13	257
06/04/2024	09:33:00	1.5	2.4	13	253
06/04/2024	09:34:00	2.1	2.9	13	239
06/04/2024	09:35:00	2.2	2.9	13	262
06/04/2024	09:36:00	2.4	3.9	13	254
06/04/2024	09:37:00	2.2	3.0	13	256
06/04/2024	09:38:00	1.9	2.4	13	263
06/04/2024	09:39:00	1.7	2.4	13	229
06/04/2024	09:40:00	2.0	2.5	13	232
06/04/2024	09:41:00	1.8	2.3	13	248
06/04/2024	09:42:00	1.7	2.6	13	253
06/04/2024	09:43:00	1.9	2.6	13	259
06/04/2024	09:44:00	1.9	2.2	13	268
06/04/2024	09:45:00	1.4	2.4	13	242
06/04/2024	09:46:00	2.1	3.2	13	256
06/04/2024	09:47:00	1.9	2.8	13	263
06/04/2024	09:48:00	1.9	2.6	13	268
06/04/2024	09:49:00	1.9	3.0	13	282
06/04/2024	09:50:00	2.1	2.8	13	276
06/04/2024	09:51:00	1.9	2.9	13	246
06/04/2024	09:52:00	1.7	2.3	13	245
06/04/2024	09:53:00	1.8	2.4	13	246
06/04/2024	09:54:00	1.9	2.6	13	237
06/04/2024	09:55:00	1.7	2.4	13	232
06/04/2024	09:56:00	1.5	2.3	14	250
06/04/2024	09:57:00	1.6	2.3	14	261
06/04/2024	09:58:00	1.9	2.6	14	247
06/04/2024	09:59:00	1.5	2.6	14	233
06/04/2024	10:00:00	1.5	2.1	14	270
06/04/2024	10:01:00	1.9	3.1	14	240
06/04/2024	10:02:00	1.6	2.2	14	231
06/04/2024	10:03:00	2.0	2.7	14	237
06/04/2024	10:04:00	2.0	2.8	14	220
06/04/2024	10:05:00	2.0	2.7	14	240
06/04/2024	10:06:00	1.5	2.2	14	251
06/04/2024	10:07:00	1.2	1.5	14	250
06/04/2024	10:08:00	1.6	2.2	14	263

06/04/2024	10:09:00	1.6	2.6	14	230
06/04/2024	10:10:00	1.6	2.2	14	246
06/04/2024	10:11:00	1.8	2.9	14	245
06/04/2024	10:12:00	1.9	2.7	14	267
06/04/2024	10:13:00	2.3	3.1	14	258
06/04/2024	10:14:00	1.9	2.9	14	231
06/04/2024	10:15:00	1.7	2.0	14	248
06/04/2024	10:16:00	1.5	2.2	14	236
06/04/2024	10:17:00	2.0	2.8	14	240
06/04/2024	10:18:00	2.0	2.8	14	258
06/04/2024	10:19:00	2.0	3.2	14	260
06/04/2024	10:20:00	1.8	2.3	14	284
06/04/2024	10:21:00	1.8	2.5	14	296
06/04/2024	10:22:00	1.9	2.7	14	234
06/04/2024	10:23:00	2.2	3.2	14	233
06/04/2024	10:24:00	1.9	2.6	14	240
06/04/2024	10:25:00	2.0	2.7	14	269
06/04/2024	10:26:00	1.7	2.5	14	222
06/04/2024	10:27:00	2.1	2.9	15	254
06/04/2024	10:28:00	1.6	2.1	15	263
06/04/2024	10:29:00	1.8	3.0	15	254
06/04/2024	10:30:00	2.3	3.2	15	266
06/04/2024	10:31:00	2.1	3.5	15	269
06/04/2024	10:32:00	2.0	2.7	15	279
06/04/2024	10:33:00	2.5	3.4	15	265
06/04/2024	10:34:00	2.2	3.2	15	224
06/04/2024	10:35:00	1.9	2.6	15	226
06/04/2024	10:36:00	1.8	2.5	15	243
06/04/2024	10:37:00	1.8	3.0	15	235
06/04/2024	10:38:00	2.2	2.9	15	256
06/04/2024	10:39:00	2.2	2.9	15	279
06/04/2024	10:40:00	2.2	3.3	15	286
06/04/2024	10:41:00	1.8	2.5	15	273
06/04/2024	10:42:00	2.2	3.1	15	275
06/04/2024	10:43:00	2.6	3.8	15	261
06/04/2024	10:44:00	2.4	3.4	15	246
06/04/2024	10:45:00	2.0	2.9	15	247
06/04/2024	10:46:00	2.3	3.2	16	237
06/04/2024	10:47:00	1.8	2.4	16	214
06/04/2024	10:48:00	1.7	2.5	16	238
06/04/2024	10:49:00	1.9	2.9	16	252
06/04/2024	10:50:00	2.0	4.5	16	258
06/04/2024	10:51:00	2.3	3.1	16	251
06/04/2024	10:52:00	1.9	2.5	16	240
06/04/2024	10:53:00	1.8	2.4	16	227
06/04/2024	10:54:00	1.7	2.8	16	238

06/04/2024	10:55:00	2.6	3.8	16	274
06/04/2024	10:56:00	1.9	3.0	16	279
06/04/2024	10:57:00	2.0	2.7	16	268
06/04/2024	10:58:00	2.6	3.7	16	264
06/04/2024	10:59:00	2.9	3.8	16	252
06/04/2024	11:00:00	2.3	3.2	16	250
06/04/2024	11:01:00	2.0	3.2	16	266
06/04/2024	11:02:00	2.0	2.8	16	231
06/04/2024	11:03:00	2.5	3.3	16	227
06/04/2024	11:04:00	2.3	3.3	16	235
06/04/2024	11:05:00	2.1	2.8	16	244
06/04/2024	11:06:00	2.7	3.9	16	262
06/04/2024	11:07:00	2.2	2.9	16	255
06/04/2024	11:08:00	1.7	2.3	16	222
06/04/2024	11:09:00	2.5	3.5	16	260
06/04/2024	11:10:00	2.6	3.4	16	260
06/04/2024	11:11:00	2.7	4.1	16	258
06/04/2024	11:12:00	2.7	3.7	16	259
06/04/2024	11:13:00	2.3	2.9	16	262
06/04/2024	11:14:00	2.1	3.1	16	294
06/04/2024	11:15:00	2.0	3.1	16	276
06/04/2024	11:16:00	1.7	2.6	16	263
06/04/2024	11:17:00	1.8	2.9	16	250
06/04/2024	11:18:00	1.9	2.6	16	256
06/04/2024	11:19:00	2.1	2.9	16	287
06/04/2024	11:20:00	2.1	3.7	16	280
06/04/2024	11:21:00	1.8	3.0	17	262
06/04/2024	11:22:00	1.6	2.2	17	264
06/04/2024	11:23:00	1.9	2.5	17	302
06/04/2024	11:24:00	2.4	4.3	17	307
06/04/2024	11:25:00	2.7	3.7	17	274
06/04/2024	11:26:00	2.0	2.5	17	246
06/04/2024	11:27:00	2.2	3.1	17	221
06/04/2024	11:28:00	2.8	3.6	17	223
06/04/2024	11:29:00	2.3	3.0	17	250
06/04/2024	11:30:00	2.1	2.9	17	245
06/04/2024	11:31:00	2.4	3.2	17	238
06/04/2024	11:32:00	1.5	2.1	17	226
06/04/2024	11:33:00	1.7	2.4	17	218
06/04/2024	11:34:00	1.5	2.7	17	243
06/04/2024	11:35:00	2.0	2.6	17	260
06/04/2024	11:36:00	2.9	3.7	17	270
06/04/2024	11:37:00	3.1	3.7	17	250
06/04/2024	11:38:00	2.5	3.3	17	260
06/04/2024	11:39:00	2.6	3.4	17	271
06/04/2024	11:40:00	2.4	3.5	17	276

06/04/2024	11:41:00	2.3	3.2	17	265
06/04/2024	11:42:00	2.9	4.0	17	278
06/04/2024	11:43:00	2.3	3.2	17	308
06/04/2024	11:44:00	2.1	3.2	17	294
06/04/2024	11:45:00	2.2	3.2	17	306
06/04/2024	11:46:00	1.7	2.8	17	303
06/04/2024	11:47:00	2.0	3.8	17	274
06/04/2024	11:48:00	2.1	2.9	17	277
06/04/2024	11:49:00	2.6	3.8	17	273
06/04/2024	11:50:00	2.8	4.0	17	262
06/04/2024	11:51:00	2.1	3.0	17	260
06/04/2024	11:52:00	1.4	2.2	17	248
06/04/2024	11:53:00	1.8	2.4	17	274
06/04/2024	11:54:00	1.9	3.2	17	280
06/04/2024	11:55:00	2.4	4.2	17	277
06/04/2024	11:56:00	2.4	3.3	17	290
06/04/2024	11:57:00	1.8	2.9	17	284
06/04/2024	11:58:00	1.8	2.4	17	277
06/04/2024	11:59:00	2.2	3.1	17	259
06/04/2024	12:00:00	1.8	2.3	17	243
06/04/2024	12:01:00	1.8	3.9	17	246
06/04/2024	12:02:00	2.4	3.1	18	261
06/04/2024	12:03:00	2.1	2.9	18	260
06/04/2024	12:04:00	2.0	2.9	18	278
06/04/2024	12:05:00	1.8	3.0	18	284
06/04/2024	12:06:00	2.0	2.8	18	269
06/04/2024	12:07:00	1.7	2.4	18	277
06/04/2024	12:08:00	1.4	2.1	18	296
06/04/2024	12:09:00	1.8	2.7	18	295
06/04/2024	12:10:00	2.6	3.7	18	289
06/04/2024	12:11:00	2.6	3.1	18	264
06/04/2024	12:12:00	1.7	2.5	18	249
06/04/2024	12:13:00	1.7	2.8	18	274
06/04/2024	12:14:00	1.4	2.1	18	316
06/04/2024	12:15:00	1.9	2.6	18	308
06/04/2024	12:16:00	1.7	2.8	18	299
06/04/2024	12:17:00	2.5	3.3	18	300
06/04/2024	12:18:00	2.8	3.9	18	280
06/04/2024	12:19:00	2.3	3.1	18	282
06/04/2024	12:20:00	2.3	3.2	18	271
06/04/2024	12:21:00	2.0	2.7	18	258
06/04/2024	12:22:00	1.7	3.1	18	300
06/04/2024	12:23:00	1.6	2.4	18	279
06/04/2024	12:24:00	2.6	3.6	18	291
06/04/2024	12:25:00	2.6	3.9	18	288
06/04/2024	12:26:00	2.2	2.7	18	304

06/04/2024	12:27:00	2.4	3.8	18	289
06/04/2024	12:28:00	2.8	4.2	18	277
06/04/2024	12:29:00	2.7	3.4	18	288
06/04/2024	12:30:00	2.0	2.7	18	297
06/04/2024	12:31:00	2.1	3.2	18	302
06/04/2024	12:32:00	2.0	2.9	18	281
06/04/2024	12:33:00	2.1	2.8	18	259
06/04/2024	12:34:00	2.5	3.8	18	270
06/04/2024	12:35:00	2.3	3.3	18	265
06/04/2024	12:36:00	2.2	3.6	18	236
06/04/2024	12:37:00	2.1	3.1	18	244
06/04/2024	12:38:00	2.1	4.1	18	247
06/04/2024	12:39:00	3.6	4.4	18	267
06/04/2024	12:40:00	3.4	4.4	18	267
06/04/2024	12:41:00	2.7	3.6	18	254
06/04/2024	12:42:00	2.0	3.2	18	246
06/04/2024	12:43:00	1.3	2.1	18	246
06/04/2024	12:44:00	2.9	3.8	18	276
06/04/2024	12:45:00	2.9	3.8	18	259
06/04/2024	12:46:00	2.8	3.7	18	270
06/04/2024	12:47:00	2.4	3.6	18	271
06/04/2024	12:48:00	2.3	3.5	18	257
06/04/2024	12:49:00	1.6	2.5	18	263
06/04/2024	12:50:00	1.2	1.6	18	258
06/04/2024	12:51:00	1.2	2.1	18	248
06/04/2024	12:52:00	1.6	2.6	18	310
06/04/2024	12:53:00	1.2	1.6	18	301
06/04/2024	12:54:00	1.1	1.7	18	220
06/04/2024	12:55:00	1.7	2.2	18	201
06/04/2024	12:56:00	1.5	2.2	18	216
06/04/2024	12:57:00	2.4	3.1	18	268
06/04/2024	12:58:00	3.2	4.4	18	258
06/04/2024	12:59:00	2.7	4.4	18	234
06/04/2024	13:00:00	2.4	3.1	18	242
06/04/2024	13:01:00	1.6	2.2	18	231
06/04/2024	13:02:00	1.5	2.4	18	236
06/04/2024	13:03:00	1.3	1.8	18	269
06/04/2024	13:04:00	1.7	2.5	18	244
06/04/2024	13:05:00	2.5	4.2	18	260
06/04/2024	13:06:00	3.4	4.4	18	252
06/04/2024	13:07:00	2.9	4.0	18	259
06/04/2024	13:08:00	2.2	3.1	18	273
06/04/2024	13:09:00	2.2	3.0	18	265
06/04/2024	13:10:00	2.9	3.8	18	273
06/04/2024	13:11:00	2.9	4.2	18	255
06/04/2024	13:12:00	2.4	3.7	18	275

06/04/2024	13:13:00	2.2	3.3	18	284
06/04/2024	13:14:00	1.5	2.4	18	296
06/04/2024	13:15:00	0.6	1.1	18	269
06/04/2024	13:16:00	0.8	1.0	18	129
06/04/2024	13:17:00	0.9	1.5	18	227
06/04/2024	13:18:00	1.5	2.0	18	238
06/04/2024	13:19:00	1.4	1.9	18	200
06/04/2024	13:20:00	1.4	2.3	18	286
06/04/2024	13:21:00	1.9	3.2	18	265
06/04/2024	13:22:00	2.7	4.7	18	263
06/04/2024	13:23:00	3.3	4.5	18	260
06/04/2024	13:24:00	3.1	4.1	18	257
06/04/2024	13:25:00	2.5	3.4	18	264
06/04/2024	13:26:00	2.8	3.8	18	266
06/04/2024	13:27:00	2.8	3.8	18	266
06/04/2024	13:28:00	2.6	3.9	18	257
06/04/2024	13:29:00	2.4	3.6	18	250
06/04/2024	13:30:00	1.1	2.2	18	236
06/04/2024	13:31:00	0.8	3.0	18	302
06/04/2024	13:32:00	1.7	2.4	18	235
06/04/2024	13:33:00	1.6	2.7	18	276
06/04/2024	13:34:00	2.6	4.1	18	271
06/04/2024	13:35:00	2.4	3.3	18	281
06/04/2024	13:36:00	1.6	2.4	18	286
06/04/2024	13:37:00	1.5	2.1	18	240
06/04/2024	13:38:00	1.4	2.4	18	242
06/04/2024	13:39:00	1.3	2.0	18	205
06/04/2024	13:40:00	1.0	1.5	18	270
06/04/2024	13:41:00	1.3	2.6	18	284
06/04/2024	13:42:00	1.6	2.5	18	321
06/04/2024	13:43:00	1.5	1.8	18	274
06/04/2024	13:44:00	1.0	1.4	18	264
06/04/2024	13:45:00	1.5	2.4	18	249
06/04/2024	13:46:00	1.2	2.5	18	278
06/04/2024	13:47:00	1.5	2.2	18	250
06/04/2024	13:48:00	1.8	2.8	18	242
06/04/2024	13:49:00	1.9	2.5	18	277
06/04/2024	13:50:00	1.7	3.1	18	294
06/04/2024	13:51:00	1.4	2.0	19	305
06/04/2024	13:52:00	2.4	4.3	19	266
06/04/2024	13:53:00	2.7	3.5	19	249
06/04/2024	13:54:00	2.0	3.3	19	248
06/04/2024	13:55:00	1.8	2.6	19	247
06/04/2024	13:56:00	1.7	2.6	19	224
06/04/2024	13:57:00	1.8	2.6	19	257
06/04/2024	13:58:00	2.0	2.8	19	253

06/04/2024	13:59:00	1.5	2.0	19	231
06/04/2024	14:00:00	2.0	3.0	19	233
06/04/2024	14:01:00	1.7	2.6	19	226
06/04/2024	14:02:00	1.4	1.8	19	214
06/04/2024	14:03:00	1.0	1.6	19	172
06/04/2024	14:04:00	1.6	2.7	19	242
06/04/2024	14:05:00	0.9	1.6	19	274
06/04/2024	14:06:00	1.0	1.6	19	297
06/04/2024	14:07:00	0.8	1.8	19	279
06/04/2024	14:08:00	1.5	2.3	19	307
06/04/2024	14:09:00	2.1	3.0	19	288
06/04/2024	14:10:00	2.5	3.3	19	271
06/04/2024	14:11:00	2.1	2.9	19	290
06/04/2024	14:12:00	3.1	4.7	19	246
06/04/2024	14:13:00	2.3	2.9	19	247
06/04/2024	14:14:00	2.3	2.9	19	233
06/04/2024	14:15:00	1.3	1.7	19	250
06/04/2024	14:16:00	1.6	2.6	19	289
06/04/2024	14:17:00	1.8	3.0	19	287
06/04/2024	14:18:00	1.4	2.3	19	307
06/04/2024	14:19:00	1.4	1.9	19	300
06/04/2024	14:20:00	1.5	1.9	19	255
06/04/2024	14:21:00	1.7	2.5	19	245
06/04/2024	14:22:00	2.1	3.0	19	260
06/04/2024	14:23:00	1.8	2.4	19	241
06/04/2024	14:24:00	1.4	1.8	19	292
06/04/2024	14:25:00	1.8	3.3	19	274
06/04/2024	14:26:00	1.9	2.4	19	196
06/04/2024	14:27:00	1.2	1.9	19	217
06/04/2024	14:28:00	1.8	2.6	19	247
06/04/2024	14:29:00	2.2	3.3	19	234
06/04/2024	14:30:00	1.8	2.7	19	244
06/04/2024	14:31:00	2.3	3.6	19	227
06/04/2024	14:32:00	1.7	2.3	19	209
06/04/2024	14:33:00	1.9	3.4	19	228
06/04/2024	14:34:00	2.0	2.6	19	220
06/04/2024	14:35:00	2.4	3.3	19	238
06/04/2024	14:36:00	2.2	3.2	19	222
06/04/2024	14:37:00	2.2	3.3	19	227
06/04/2024	14:38:00	2.5	3.8	19	240
06/04/2024	14:39:00	2.2	3.0	19	248
06/04/2024	14:40:00	1.8	3.1	19	222
06/04/2024	14:41:00	2.2	3.3	19	211
06/04/2024	14:42:00	2.0	2.8	19	188
06/04/2024	14:43:00	2.2	3.0	20	213
06/04/2024	14:44:00	2.1	3.2	20	200

06/04/2024	14:45:00	2.4	3.1	20	207
06/04/2024	14:46:00	1.9	2.5	20	199
06/04/2024	14:47:00	1.6	2.2	20	208
06/04/2024	14:48:00	1.8	2.8	20	229
06/04/2024	14:49:00	1.6	2.3	20	223
06/04/2024	14:50:00	2.2	2.9	20	213
06/04/2024	14:51:00	1.6	2.1	20	266
06/04/2024	14:52:00	1.4	2.1	20	264
06/04/2024	14:53:00	1.1	1.4	20	227
06/04/2024	14:54:00	0.7	1.2	20	115
06/04/2024	14:55:00	0.7	1.4	20	95
06/04/2024	14:56:00	1.4	2.2	20	99
06/04/2024	14:57:00	1.0	1.7	20	256
06/04/2024	14:58:00	1.1	1.4	20	162
06/04/2024	14:59:00	1.5	2.0	20	243
06/04/2024	15:00:00	2.1	3.0	20	245
06/04/2024	15:01:00	2.1	3.2	20	240
06/04/2024	15:02:00	1.5	1.9	20	244
06/04/2024	15:03:00	1.8	3.1	20	241
06/04/2024	15:04:00	2.5	3.7	20	225
06/04/2024	15:05:00	1.8	3.0	20	231
06/04/2024	15:06:00	1.6	2.4	20	240
06/04/2024	15:07:00	1.5	2.4	20	223
06/04/2024	15:08:00	1.5	2.3	20	215
06/04/2024	15:09:00	1.5	2.2	20	232
06/04/2024	15:10:00	2.0	2.9	20	275
06/04/2024	15:11:00	2.1	3.3	20	258
06/04/2024	15:12:00	1.0	1.4	20	279
06/04/2024	15:13:00	1.9	2.9	20	238
06/04/2024	15:14:00	2.4	3.1	20	255
06/04/2024	15:15:00	1.2	1.6	20	241
06/04/2024	15:16:00	1.3	2.0	20	193
06/04/2024	15:17:00	1.5	2.7	20	263
06/04/2024	15:18:00	2.2	3.2	20	260
06/04/2024	15:19:00	1.7	2.1	20	255
06/04/2024	15:20:00	1.2	1.9	20	232
06/04/2024	15:21:00	1.5	2.4	20	266
06/04/2024	15:22:00	1.3	2.3	20	265
06/04/2024	15:23:00	0.7	1.0	20	15
06/04/2024	15:24:00	1.0	1.6	20	44
06/04/2024	15:25:00	1.1	1.5	20	68
06/04/2024	15:26:00	1.0	1.2	21	73
06/04/2024	15:27:00	0.7	1.2	21	312
06/04/2024	15:28:00	1.1	1.5	21	296
06/04/2024	15:29:00	1.3	1.8	21	284
06/04/2024	15:30:00	1.8	2.5	21	292

06/04/2024	15:31:00	1.3	2.0	21	278
06/04/2024	15:32:00	1.2	1.7	21	267
06/04/2024	15:33:00	1.7	2.2	21	259
06/04/2024	15:34:00	1.8	2.5	21	254
06/04/2024	15:35:00	1.5	2.3	21	222
06/04/2024	15:36:00	1.8	2.8	21	254
06/04/2024	15:37:00	2.1	2.8	21	265
06/04/2024	15:38:00	1.5	1.9	21	296
06/04/2024	15:39:00	1.2	1.5	21	325
06/04/2024	15:40:00	0.8	1.2	21	285
06/04/2024	15:41:00	1.2	1.7	21	277
06/04/2024	15:42:00	2.5	3.6	21	269
06/04/2024	15:43:00	2.5	3.6	21	254
06/04/2024	15:44:00	2.3	3.0	21	245
06/04/2024	15:45:00	2.9	3.8	21	265
06/04/2024	15:46:00	2.7	3.5	21	261
06/04/2024	15:47:00	2.3	2.9	21	264
06/04/2024	15:48:00	1.8	2.8	21	276
06/04/2024	15:49:00	1.8	2.5	21	277
06/04/2024	15:50:00	1.4	2.3	20	258
06/04/2024	15:51:00	1.1	1.5	20	271
06/04/2024	15:52:00	1.8	2.3	20	252
06/04/2024	15:53:00	1.3	1.9	20	282
06/04/2024	15:54:00	1.6	2.3	20	254
06/04/2024	15:55:00	1.5	1.9	20	248
06/04/2024	15:56:00	2.1	3.0	20	225
06/04/2024	15:57:00	1.8	2.5	20	232
06/04/2024	15:58:00	1.7	2.5	20	215
06/04/2024	15:59:00	1.3	2.2	20	234
06/04/2024	16:00:00	1.7	2.5	20	231
06/04/2024	16:01:00	1.9	2.9	20	244
06/04/2024	16:02:00	1.5	1.9	20	223
06/04/2024	16:03:00	1.2	1.8	20	245
06/04/2024	16:04:00	1.4	1.9	20	199
06/04/2024	16:05:00	1.4	2.0	20	151
06/04/2024	16:06:00	1.3	1.9	20	157
06/04/2024	16:07:00	1.5	2.0	20	128
06/04/2024	16:08:00	1.7	2.2	20	127
06/04/2024	16:09:00	0.5	1.2	20	138
06/04/2024	16:10:00	0.8	1.2	20	136
06/04/2024	16:11:00	1.1	1.5	20	283
06/04/2024	16:12:00	0.8	1.5	20	256
06/04/2024	16:13:00	1.4	2.6	21	193
06/04/2024	16:14:00	1.9	3.1	21	211
06/04/2024	16:15:00	1.4	2.0	21	240
06/04/2024	16:16:00	1.5	2.4	21	252

06/04/2024	16:17:00	0.6	1.5	21	218
06/04/2024	16:18:00	0.8	1.1	21	131
06/04/2024	16:19:00	1.4	2.1	21	208
06/04/2024	16:20:00	1.5	2.0	21	224
06/04/2024	16:21:00	1.8	2.3	21	238
06/04/2024	16:22:00	1.4	2.0	21	220
06/04/2024	16:23:00	1.4	2.1	21	247
06/04/2024	16:24:00	1.4	2.1	21	296
06/04/2024	16:25:00	1.6	2.6	21	289
06/04/2024	16:26:00	2.0	2.7	21	292
06/04/2024	16:27:00	1.9	2.5	21	303
06/04/2024	16:28:00	1.6	2.1	21	308
06/04/2024	16:29:00	1.4	2.7	21	293
06/04/2024	16:30:00	2.1	3.1	21	280
06/04/2024	16:31:00	1.8	2.3	21	269
06/04/2024	16:32:00	1.3	1.6	21	255
06/04/2024	16:33:00	1.3	2.0	21	244
06/04/2024	16:34:00	1.7	2.1	21	284
06/04/2024	16:35:00	1.4	1.7	21	282
06/04/2024	16:36:00	1.0	1.5	21	305
06/04/2024	16:37:00	1.1	1.6	21	265
06/04/2024	16:38:00	0.7	0.9	21	182
06/04/2024	16:39:00	0.8	1.1	21	191
06/04/2024	16:40:00	1.5	1.9	21	208
06/04/2024	16:41:00	1.8	2.4	21	203
06/04/2024	16:42:00	1.3	1.8	21	234
06/04/2024	16:43:00	1.0	1.6	21	255
06/04/2024	16:44:00	1.4	2.2	21	201
06/04/2024	16:45:00	2.0	3.0	21	243
06/04/2024	16:46:00	2.0	3.1	21	230
06/04/2024	16:47:00	1.8	2.6	21	195
06/04/2024	16:48:00	1.2	2.3	21	215
06/04/2024	16:49:00	1.5	2.0	21	229
06/04/2024	16:50:00	1.6	2.3	21	241
06/04/2024	16:51:00	1.5	2.6	21	235
06/04/2024	16:52:00	2.2	3.0	21	236
06/04/2024	16:53:00	1.8	2.5	21	228
06/04/2024	16:54:00	2.0	2.6	21	226
06/04/2024	16:55:00	1.3	1.8	21	238
06/04/2024	16:56:00	1.4	1.7	21	234
06/04/2024	16:57:00	1.3	1.9	21	239
06/04/2024	16:58:00	1.5	2.4	21	268
06/04/2024	16:59:00	0.9	1.4	21	277
06/04/2024	17:00:00	1.1	1.7	21	297
06/04/2024	17:01:00	1.2	1.8	21	292
06/04/2024	17:02:00	1.3	1.8	21	212

06/04/2024	17:03:00	0.8	1.3	21	198
06/04/2024	17:04:00	1.3	1.7	21	248
06/04/2024	17:05:00	1.6	1.9	21	252
06/04/2024	17:06:00	1.3	1.7	21	198
06/04/2024	17:07:00	0.8	1.7	21	158
06/04/2024	17:08:00	0.8	1.2	21	108
06/04/2024	17:09:00	0.9	1.1	21	333
06/04/2024	17:10:00	1.2	2.0	21	204
06/04/2024	17:11:00	1.9	2.8	21	258
06/04/2024	17:12:00	1.8	2.3	21	251
06/04/2024	17:13:00	1.2	1.8	21	231
06/04/2024	17:14:00	1.8	2.3	21	289
06/04/2024	17:15:00	1.9	2.7	21	307
06/04/2024	17:16:00	1.9	2.3	21	276
06/04/2024	17:17:00	2.1	2.6	21	277
06/04/2024	17:18:00	1.7	2.2	21	276
06/04/2024	17:19:00	1.5	1.8	21	250
06/04/2024	17:20:00	1.4	2.0	21	212
06/04/2024	17:21:00	1.7	2.2	21	178
06/04/2024	17:22:00	1.3	1.8	21	211
06/04/2024	17:23:00	0.7	1.3	21	199
06/04/2024	17:24:00	1.2	1.9	21	292
06/04/2024	17:25:00	1.1	1.9	21	292
06/04/2024	17:26:00	1.9	2.8	21	280
06/04/2024	17:27:00	1.6	2.0	21	286
06/04/2024	17:28:00	1.3	1.7	21	297
06/04/2024	17:29:00	0.8	1.4	21	272
06/04/2024	17:30:00	0.3	0.9	21	193
06/04/2024	17:31:00	0.8	1.1	21	277
06/04/2024	17:32:00	0.3	0.9	21	266
06/04/2024	17:33:00	0.0	0.6	21	nW
06/04/2024	17:34:00	0.2	0.7	21	292
06/04/2024	17:35:00	0.6	0.9	21	38
06/04/2024	17:36:00	1.0	1.6	21	259
06/04/2024	17:37:00	1.5	2.0	21	252
06/04/2024	17:38:00	1.5	2.2	21	241
06/04/2024	17:39:00	1.3	2.4	21	271
06/04/2024	17:40:00	1.0	1.8	21	276
06/04/2024	17:41:00	1.3	2.1	21	250
06/04/2024	17:42:00	1.0	1.6	21	244
06/04/2024	17:43:00	0.4	1.2	21	260
06/04/2024	17:44:00	1.0	1.6	21	229
06/04/2024	17:45:00	1.2	1.8	21	254
06/04/2024	17:46:00	1.7	2.6	21	251
06/04/2024	17:47:00	1.5	1.9	21	247
06/04/2024	17:48:00	1.8	2.2	21	273

06/04/2024	17:49:00	1.6	2.1	21	266
06/04/2024	17:50:00	1.3	1.7	21	280
06/04/2024	17:51:00	0.8	1.1	21	256
06/04/2024	17:52:00	1.2	1.8	21	307
06/04/2024	17:53:00	1.1	2.5	21	328
06/04/2024	17:54:00	1.2	2.1	21	322
06/04/2024	17:55:00	1.8	3.3	21	267
06/04/2024	17:56:00	1.3	1.7	21	289
06/04/2024	17:57:00	1.5	2.1	21	286
06/04/2024	17:58:00	1.9	2.4	21	272
06/04/2024	17:59:00	1.2	1.8	21	280
06/04/2024	18:00:00	1.1	1.7	21	295
06/04/2024	18:01:00	0.9	1.5	21	269
06/04/2024	18:02:00	0.3	0.8	21	195
06/04/2024	18:03:00	0.3	0.8	21	160
06/04/2024	18:04:00	1.1	1.7	21	135
06/04/2024	18:05:00	1.0	1.6	21	234
06/04/2024	18:06:00	1.0	1.7	21	195
06/04/2024	18:07:00	1.0	1.7	21	147
06/04/2024	18:08:00	1.0	1.6	21	179
06/04/2024	18:09:00	1.0	1.6	21	159
06/04/2024	18:10:00	0.6	0.8	21	153
06/04/2024	18:11:00	0.8	1.3	21	197
06/04/2024	18:12:00	1.3	1.9	21	172
06/04/2024	18:13:00	1.0	1.5	21	190
06/04/2024	18:14:00	0.8	1.3	20	173
06/04/2024	18:15:00	1.3	1.9	20	243
06/04/2024	18:16:00	1.1	2.0	20	166
06/04/2024	18:17:00	1.0	1.6	20	182
06/04/2024	18:18:00	1.1	1.6	20	185
06/04/2024	18:19:00	1.4	2.0	20	143
06/04/2024	18:20:00	1.4	2.0	20	184
06/04/2024	18:21:00	1.5	2.1	20	221
06/04/2024	18:22:00	1.5	2.1	20	210
06/04/2024	18:23:00	1.1	1.4	20	218
06/04/2024	18:24:00	1.3	1.8	19	202
06/04/2024	18:25:00	1.3	1.8	19	200
06/04/2024	18:26:00	1.3	1.7	19	176
06/04/2024	18:27:00	1.0	1.3	19	203
06/04/2024	18:28:00	1.3	1.9	19	204
06/04/2024	18:29:00	1.5	2.0	19	209
06/04/2024	18:30:00	1.3	1.8	19	221
06/04/2024	18:31:00	1.0	1.5	19	221
06/04/2024	18:32:00	1.1	1.4	19	231
06/04/2024	18:33:00	0.9	1.2	19	222
06/04/2024	18:34:00	0.8	1.1	19	220

06/04/2024	18:35:00	0.7	1.3	19	214
06/04/2024	18:36:00	0.9	1.3	19	212
06/04/2024	18:37:00	0.9	1.2	18	213
06/04/2024	18:38:00	1.0	1.3	18	208
06/04/2024	18:39:00	0.8	1.4	18	190
06/04/2024	18:40:00	0.9	1.3	18	200
06/04/2024	18:41:00	0.7	1.0	18	191
06/04/2024	18:42:00	0.9	1.2	18	191
06/04/2024	18:43:00	0.8	1.0	18	218
06/04/2024	18:44:00	0.9	1.2	18	191
06/04/2024	18:45:00	0.5	1.0	18	188
06/04/2024	18:46:00	1.0	1.4	18	202
06/04/2024	18:47:00	0.7	1.2	18	208
06/04/2024	18:48:00	0.7	1.1	18	180
06/04/2024	18:49:00	0.7	0.9	18	184
06/04/2024	18:50:00	1.0	1.2	18	209
06/04/2024	18:51:00	0.9	1.3	18	208
06/04/2024	18:52:00	0.7	0.9	18	223
06/04/2024	18:53:00	0.5	1.0	18	222
06/04/2024	18:54:00	0.9	1.2	18	212
06/04/2024	18:55:00	0.8	1.0	18	202
06/04/2024	18:56:00	0.8	1.0	18	203
06/04/2024	18:57:00	0.7	1.0	18	223
06/04/2024	18:58:00	0.2	0.9	18	221
06/04/2024	18:59:00	0.2	0.9	18	207
06/04/2024	19:00:00	0.8	1.0	18	208
06/04/2024	19:01:00	0.7	1.0	18	205
06/04/2024	19:02:00	0.7	0.9	18	212
06/04/2024	19:03:00	0.5	0.9	18	182
06/04/2024	19:04:00	0.5	0.9	18	208
06/04/2024	19:05:00	0.1	0.7	18	207
06/04/2024	19:06:00	0.6	0.9	18	202
06/04/2024	19:07:00	0.0	0.7	18	nW
06/04/2024	19:08:00	0.2	1.0	17	227
06/04/2024	19:09:00	0.9	1.1	17	208
06/04/2024	19:10:00	0.7	1.1	17	198
06/04/2024	19:11:00	0.3	0.8	17	185
06/04/2024	19:12:00	0.0	0.7	17	nW
06/04/2024	19:13:00	0.2	0.7	17	204
06/04/2024	19:14:00	0.0	0.7	17	nW
06/04/2024	19:15:00	0.1	0.7	17	225
06/04/2024	19:16:00	0.4	0.7	17	210
06/04/2024	19:17:00	0.2	0.7	17	203
06/04/2024	19:18:00	0.4	0.8	17	188
06/04/2024	19:19:00	0.4	0.8	17	201
06/04/2024	19:20:00	0.0	0.0	17	nW

06/04/2024	19:21:00	0.0	0.6	17	nW
06/04/2024	19:22:00	0.0	0.0	17	nW
06/04/2024	19:23:00	0.3	0.7	17	209
06/04/2024	19:24:00	0.2	0.7	17	217
06/04/2024	19:25:00	0.1	0.8	17	200
06/04/2024	19:26:00	0.0	0.0	17	nW
06/04/2024	19:27:00	0.0	0.0	17	nW
06/04/2024	19:28:00	0.0	0.0	17	nW
06/04/2024	19:29:00	0.2	1.5	17	165
06/04/2024	19:30:00	0.0	0.0	16	nW
06/04/2024	19:31:00	0.0	0.0	16	nW
06/04/2024	19:32:00	0.0	0.0	16	nW
06/04/2024	19:33:00	0.0	0.0	16	nW
06/04/2024	19:34:00	0.0	0.0	16	nW
06/04/2024	19:35:00	0.0	0.0	16	nW
06/04/2024	19:36:00	0.0	0.0	16	nW
06/04/2024	19:37:00	0.0	0.0	16	nW
06/04/2024	19:38:00	0.0	0.0	16	nW
06/04/2024	19:39:00	0.0	0.0	16	nW
06/04/2024	19:40:00	0.0	0.0	16	nW
06/04/2024	19:41:00	0.0	0.0	16	nW
06/04/2024	19:42:00	0.0	0.0	16	nW
06/04/2024	19:43:00	0.0	0.0	16	nW
06/04/2024	19:44:00	0.0	0.0	15	nW
06/04/2024	19:45:00	0.0	0.0	15	nW
06/04/2024	19:46:00	0.0	0.0	15	nW
06/04/2024	19:47:00	0.0	0.0	15	nW
06/04/2024	19:48:00	0.0	0.0	15	nW
06/04/2024	19:49:00	0.0	0.0	15	nW
06/04/2024	19:50:00	0.0	0.0	15	nW
06/04/2024	19:51:00	0.0	0.0	15	nW
06/04/2024	19:52:00	0.4	0.9	15	138
06/04/2024	19:53:00	0.8	1.0	15	139
06/04/2024	19:54:00	0.7	0.9	15	134
06/04/2024	19:55:00	0.7	0.9	15	134
06/04/2024	19:56:00	0.7	0.9	14	134
06/04/2024	19:57:00	0.7	1.0	14	133
06/04/2024	19:58:00	0.7	0.9	14	135
06/04/2024	19:59:00	0.7	0.9	14	129
06/04/2024	20:00:00	0.7	0.8	14	127
06/04/2024	20:01:00	0.7	0.9	14	129
06/04/2024	20:02:00	0.7	0.9	14	125
06/04/2024	20:03:00	0.7	0.9	15	120
06/04/2024	20:04:00	0.7	0.8	15	125
06/04/2024	20:05:00	0.9	1.4	15	124
06/04/2024	20:06:00	0.8	1.1	15	135

06/04/2024	20:07:00	0.9	1.2	15	147
06/04/2024	20:08:00	0.7	0.9	15	147
06/04/2024	20:09:00	0.6	0.8	15	137
06/04/2024	20:10:00	0.7	0.9	15	131
06/04/2024	20:11:00	0.4	0.8	15	125
06/04/2024	20:12:00	0.7	0.9	15	143
06/04/2024	20:13:00	0.3	0.7	15	150
06/04/2024	20:14:00	0.6	0.8	15	148
06/04/2024	20:15:00	0.6	0.8	15	142
06/04/2024	20:16:00	0.7	0.8	15	133
06/04/2024	20:17:00	0.7	0.9	15	127
06/04/2024	20:18:00	0.6	0.9	15	128
06/04/2024	20:19:00	0.4	0.7	15	120
06/04/2024	20:20:00	0.2	0.7	15	120
06/04/2024	20:21:00	0.0	0.0	15	nW
06/04/2024	20:22:00	0.1	0.7	15	99
06/04/2024	20:23:00	0.0	0.0	14	nW
06/04/2024	20:24:00	0.0	0.0	14	nW
06/04/2024	20:25:00	0.0	0.0	14	nW
06/04/2024	20:26:00	0.0	0.0	14	nW
06/04/2024	20:27:00	0.0	0.0	14	nW
06/04/2024	20:28:00	0.0	0.0	14	nW
06/04/2024	20:29:00	0.0	0.0	14	nW
06/04/2024	20:30:00	0.0	0.0	14	nW
06/04/2024	20:31:00	0.0	0.0	14	nW
06/04/2024	20:32:00	0.0	0.0	14	nW
06/04/2024	20:33:00	0.4	0.8	14	32
06/04/2024	20:34:00	0.7	0.8	14	32
06/04/2024	20:35:00	0.6	0.8	14	28
06/04/2024	20:36:00	0.0	0.6	14	nW
06/04/2024	20:37:00	0.0	0.0	14	nW
06/04/2024	20:38:00	0.0	0.0	14	nW
06/04/2024	20:39:00	0.0	0.0	14	nW
06/04/2024	20:40:00	0.0	0.0	14	nW
06/04/2024	20:41:00	0.0	0.0	14	nW
06/04/2024	20:42:00	0.0	0.0	14	nW
06/04/2024	20:43:00	0.0	0.0	14	nW
06/04/2024	20:44:00	0.6	0.8	14	35
06/04/2024	20:45:00	0.6	0.7	14	32
06/04/2024	20:46:00	0.1	0.6	14	34
06/04/2024	20:47:00	0.0	0.0	14	nW
06/04/2024	20:48:00	0.0	0.0	14	nW
06/04/2024	20:49:00	0.0	0.0	14	nW
06/04/2024	20:50:00	0.0	0.0	14	nW
06/04/2024	20:51:00	0.0	0.0	14	nW
06/04/2024	20:52:00	0.0	0.0	14	nW

06/04/2024	20:53:00	0.0	0.0	13	nW
06/04/2024	20:54:00	0.0	0.0	13	nW
06/04/2024	20:55:00	0.0	0.0	13	nW
06/04/2024	20:56:00	0.0	0.0	13	nW
06/04/2024	20:57:00	0.0	0.0	13	nW
06/04/2024	20:58:00	0.0	0.0	13	nW
06/04/2024	20:59:00	0.0	0.0	13	nW
06/04/2024	21:00:00	0.0	0.0	13	nW
06/04/2024	21:01:00	0.0	0.0	13	nW
06/04/2024	21:02:00	0.2	0.8	13	33
06/04/2024	21:03:00	0.7	0.9	13	30
06/04/2024	21:04:00	0.7	0.9	13	27
06/04/2024	21:05:00	0.6	0.8	13	33
06/04/2024	21:06:00	0.8	1.0	13	33
06/04/2024	21:07:00	0.9	1.1	13	38
06/04/2024	21:08:00	0.9	1.0	13	42
06/04/2024	21:09:00	0.9	1.2	13	43
06/04/2024	21:10:00	1.0	1.2	13	40
06/04/2024	21:11:00	0.9	1.1	13	40
06/04/2024	21:12:00	0.8	1.0	13	43
06/04/2024	21:13:00	0.7	0.8	13	56
06/04/2024	21:14:00	0.0	0.6	13	nW
06/04/2024	21:15:00	0.0	0.0	13	nW
06/04/2024	21:16:00	0.0	0.0	13	nW
06/04/2024	21:17:00	0.0	0.0	13	nW
06/04/2024	21:18:00	0.0	0.0	13	nW
06/04/2024	21:19:00	0.0	0.0	13	nW
06/04/2024	21:20:00	0.0	0.0	13	nW
06/04/2024	21:21:00	0.0	0.0	13	nW
06/04/2024	21:22:00	0.0	0.0	13	nW
06/04/2024	21:23:00	0.0	0.0	13	nW
06/04/2024	21:24:00	0.0	0.0	13	nW
06/04/2024	21:25:00	0.0	0.0	13	nW
06/04/2024	21:26:00	0.0	0.0	13	nW
06/04/2024	21:27:00	0.0	0.0	13	nW
06/04/2024	21:28:00	0.0	0.0	13	nW
06/04/2024	21:29:00	0.0	0.6	13	nW
06/04/2024	21:30:00	0.0	0.0	12	nW
06/04/2024	21:31:00	0.0	0.0	12	nW
06/04/2024	21:32:00	0.0	0.0	12	nW
06/04/2024	21:33:00	0.0	0.0	12	nW
06/04/2024	21:34:00	0.0	0.0	12	nW
06/04/2024	21:35:00	0.0	0.0	12	nW
06/04/2024	21:36:00	0.0	0.0	12	nW
06/04/2024	21:37:00	0.0	0.0	12	nW
06/04/2024	21:38:00	0.0	0.0	12	nW

06/04/2024	21:39:00	0.0	0.0	12	nW
06/04/2024	21:40:00	0.0	0.0	12	nW
06/04/2024	21:41:00	0.0	0.0	12	nW
06/04/2024	21:42:00	0.0	0.0	12	nW
06/04/2024	21:43:00	0.0	0.0	12	nW
06/04/2024	21:44:00	0.0	0.0	12	nW
06/04/2024	21:45:00	0.0	0.0	12	nW
06/04/2024	21:46:00	0.0	0.0	11	nW
06/04/2024	21:47:00	0.0	0.0	11	nW
06/04/2024	21:48:00	0.0	0.0	11	nW
06/04/2024	21:49:00	0.0	0.0	11	nW
06/04/2024	21:50:00	0.0	0.0	11	nW
06/04/2024	21:51:00	0.0	0.0	11	nW
06/04/2024	21:52:00	0.0	0.0	11	nW
06/04/2024	21:53:00	0.0	0.0	11	nW
06/04/2024	21:54:00	0.0	0.0	11	nW
06/04/2024	21:55:00	0.0	0.0	11	nW
06/04/2024	21:56:00	0.0	0.0	11	nW
06/04/2024	21:57:00	0.0	0.0	11	nW
06/04/2024	21:58:00	0.0	0.0	11	nW
06/04/2024	21:59:00	0.0	0.0	11	nW
06/04/2024	22:00:00	0.0	0.0	11	nW
06/04/2024	22:01:00	0.2	0.6	11	197
06/04/2024	22:02:00	0.1	0.6	11	197
06/04/2024	22:03:00	0.0	0.0	11	nW
06/04/2024	22:04:00	0.1	0.6	11	259
06/04/2024	22:05:00	0.6	0.7	11	265
06/04/2024	22:06:00	0.0	0.6	11	nW
06/04/2024	22:07:00	0.0	0.0	11	nW
06/04/2024	22:08:00	0.0	0.6	11	nW
06/04/2024	22:09:00	0.4	0.7	11	267
06/04/2024	22:10:00	0.0	0.6	11	nW
06/04/2024	22:11:00	0.0	0.0	11	nW
06/04/2024	22:12:00	0.0	0.0	11	nW
06/04/2024	22:13:00	0.0	0.0	11	nW
06/04/2024	22:14:00	0.0	0.0	11	nW
06/04/2024	22:15:00	0.0	0.0	11	nW
06/04/2024	22:16:00	0.0	0.0	11	nW
06/04/2024	22:17:00	0.0	0.0	11	nW
06/04/2024	22:18:00	0.0	0.0	11	nW
06/04/2024	22:19:00	0.0	0.6	11	nW
06/04/2024	22:20:00	0.0	0.6	11	nW
06/04/2024	22:21:00	0.0	0.0	11	nW
06/04/2024	22:22:00	0.0	0.0	11	nW
06/04/2024	22:23:00	0.0	0.0	11	nW
06/04/2024	22:24:00	0.0	0.0	11	nW

06/04/2024	22:25:00	0.0	0.0	11	nW
06/04/2024	22:26:00	0.0	0.0	11	nW
06/04/2024	22:27:00	0.0	0.0	11	nW
06/04/2024	22:28:00	0.0	0.0	11	nW
06/04/2024	22:29:00	0.0	0.0	11	nW
06/04/2024	22:30:00	0.0	0.0	11	nW
06/04/2024	22:31:00	0.0	0.0	11	nW
06/04/2024	22:32:00	0.0	0.0	11	nW
06/04/2024	22:33:00	0.0	0.0	11	nW
06/04/2024	22:34:00	0.0	0.0	11	nW
06/04/2024	22:35:00	0.0	0.6	11	nW
06/04/2024	22:36:00	0.4	0.9	11	90
06/04/2024	22:37:00	0.7	0.8	11	98
06/04/2024	22:38:00	0.6	0.9	11	89
06/04/2024	22:39:00	0.2	0.7	11	76
06/04/2024	22:40:00	0.2	0.8	11	91
06/04/2024	22:41:00	0.3	0.8	11	75
06/04/2024	22:42:00	0.0	0.0	11	nW
06/04/2024	22:43:00	0.0	0.0	11	nW
06/04/2024	22:44:00	0.0	0.0	11	nW
06/04/2024	22:45:00	0.0	0.0	11	nW
06/04/2024	22:46:00	0.0	0.0	11	nW
06/04/2024	22:47:00	0.0	0.0	11	nW
06/04/2024	22:48:00	0.0	0.0	11	nW
06/04/2024	22:49:00	0.0	0.0	11	nW
06/04/2024	22:50:00	0.0	0.0	11	nW
06/04/2024	22:51:00	0.3	0.7	11	88
06/04/2024	22:52:00	0.6	0.7	11	96
06/04/2024	22:53:00	0.0	0.6	11	nW
06/04/2024	22:54:00	0.0	0.0	11	nW
06/04/2024	22:55:00	0.0	0.0	11	nW
06/04/2024	22:56:00	0.0	0.6	11	nW
06/04/2024	22:57:00	0.0	0.0	11	nW
06/04/2024	22:58:00	0.0	0.0	11	nW
06/04/2024	22:59:00	0.0	0.0	11	nW
06/04/2024	23:00:00	0.0	0.0	11	nW
06/04/2024	23:01:00	0.0	0.0	11	nW
06/04/2024	23:02:00	0.0	0.0	11	nW
06/04/2024	23:03:00	0.0	0.0	11	nW
06/04/2024	23:04:00	0.0	0.0	11	nW
06/04/2024	23:05:00	0.0	0.0	11	nW
06/04/2024	23:06:00	0.0	0.0	11	nW
06/04/2024	23:07:00	0.0	0.0	11	nW
06/04/2024	23:08:00	0.0	0.0	11	nW
06/04/2024	23:09:00	0.0	0.0	11	nW
06/04/2024	23:10:00	0.0	0.0	11	nW

06/04/2024	23:11:00	0.0	0.0	11	nW
06/04/2024	23:12:00	0.0	0.0	11	nW
06/04/2024	23:13:00	0.0	0.0	11	nW
06/04/2024	23:14:00	0.0	0.0	10	nW
06/04/2024	23:15:00	0.0	0.0	10	nW
06/04/2024	23:16:00	0.0	0.0	10	nW
06/04/2024	23:17:00	0.0	0.0	10	nW
06/04/2024	23:18:00	0.0	0.0	10	nW
06/04/2024	23:19:00	0.0	0.0	10	nW
06/04/2024	23:20:00	0.0	0.0	10	nW
06/04/2024	23:21:00	0.2	0.6	10	81
06/04/2024	23:22:00	0.0	0.6	10	nW
06/04/2024	23:23:00	0.0	0.6	10	nW
06/04/2024	23:24:00	0.2	0.7	10	92
06/04/2024	23:25:00	0.1	0.7	10	95
06/04/2024	23:26:00	0.6	0.7	10	99
06/04/2024	23:27:00	0.5	0.7	10	94
06/04/2024	23:28:00	0.4	0.7	10	96
06/04/2024	23:29:00	0.1	0.7	10	97
06/04/2024	23:30:00	0.2	0.7	10	85
06/04/2024	23:31:00	0.5	0.8	10	94
06/04/2024	23:32:00	0.6	0.8	10	102
06/04/2024	23:33:00	0.7	0.8	10	102
06/04/2024	23:34:00	0.7	0.8	10	98
06/04/2024	23:35:00	0.8	0.9	10	92
06/04/2024	23:36:00	0.7	0.9	10	97
06/04/2024	23:37:00	0.7	0.8	10	95
06/04/2024	23:38:00	0.7	0.9	10	99
06/04/2024	23:39:00	0.6	0.8	10	98
06/04/2024	23:40:00	0.2	0.7	10	91
06/04/2024	23:41:00	0.1	0.7	11	98
06/04/2024	23:42:00	0.0	0.6	11	nW
06/04/2024	23:43:00	0.0	0.0	11	nW
06/04/2024	23:44:00	0.0	0.0	11	nW
06/04/2024	23:45:00	0.0	0.0	11	nW
06/04/2024	23:46:00	0.0	0.0	11	nW
06/04/2024	23:47:00	0.0	0.6	11	nW
06/04/2024	23:48:00	0.0	0.0	11	nW
06/04/2024	23:49:00	0.0	0.0	11	nW
06/04/2024	23:50:00	0.0	0.0	11	nW
06/04/2024	23:51:00	0.0	0.0	11	nW
06/04/2024	23:52:00	0.0	0.0	11	nW
06/04/2024	23:53:00	0.1	0.7	11	69
06/04/2024	23:54:00	0.6	0.8	11	75
06/04/2024	23:55:00	0.2	0.7	10	83
06/04/2024	23:56:00	0.4	0.8	10	72

06/04/2024	23:57:00	0.0	0.7	10	nW
06/04/2024	23:58:00	0.0	0.0	10	nW
06/04/2024	23:59:00	0.0	0.0	10	nW
07/04/2024	00:00:00	0.0	0.0	10	nW
07/04/2024	00:01:00	0.0	0.0	10	nW
07/04/2024	00:02:00	0.0	0.0	10	nW
07/04/2024	00:03:00	0.0	0.0	10	nW
07/04/2024	00:04:00	0.0	0.0	10	nW
07/04/2024	00:05:00	0.0	0.0	10	nW
07/04/2024	00:06:00	0.1	0.6	10	60
07/04/2024	00:07:00	0.2	0.7	10	60
07/04/2024	00:08:00	0.1	0.7	10	49
07/04/2024	00:09:00	0.0	0.0	10	nW
07/04/2024	00:10:00	0.0	0.0	10	nW
07/04/2024	00:11:00	0.0	0.0	10	nW
07/04/2024	00:12:00	0.0	0.0	10	nW
07/04/2024	00:13:00	0.0	0.0	10	nW
07/04/2024	00:14:00	0.0	0.0	10	nW
07/04/2024	00:15:00	0.0	0.0	10	nW
07/04/2024	00:16:00	0.3	0.7	10	64
07/04/2024	00:17:00	0.6	0.7	10	87
07/04/2024	00:18:00	0.3	0.7	10	93
07/04/2024	00:19:00	0.2	0.7	10	85
07/04/2024	00:20:00	0.4	0.9	10	79
07/04/2024	00:21:00	0.2	0.7	10	85
07/04/2024	00:22:00	0.0	0.0	10	nW
07/04/2024	00:23:00	0.0	0.0	10	nW
07/04/2024	00:24:00	0.0	0.0	10	nW
07/04/2024	00:25:00	0.0	0.0	10	nW
07/04/2024	00:26:00	0.0	0.0	10	nW
07/04/2024	00:27:00	0.0	0.0	10	nW
07/04/2024	00:28:00	0.1	0.7	10	68
07/04/2024	00:29:00	0.6	0.7	10	91
07/04/2024	00:30:00	0.4	0.7	10	85
07/04/2024	00:31:00	0.2	0.7	10	96
07/04/2024	00:32:00	0.0	0.6	10	nW
07/04/2024	00:33:00	0.0	0.0	10	nW
07/04/2024	00:34:00	0.0	0.0	10	nW
07/04/2024	00:35:00	0.0	0.0	10	nW
07/04/2024	00:36:00	0.3	0.7	10	84
07/04/2024	00:37:00	0.1	0.7	10	80
07/04/2024	00:38:00	0.4	0.8	10	70
07/04/2024	00:39:00	0.3	0.7	10	74
07/04/2024	00:40:00	0.4	0.7	10	72
07/04/2024	00:41:00	0.6	0.8	10	81
07/04/2024	00:42:00	0.7	0.9	10	77

07/04/2024	00:43:00	0.4	0.7	10	90
07/04/2024	00:44:00	0.0	0.7	10	nW
07/04/2024	00:45:00	0.0	0.0	10	nW
07/04/2024	00:46:00	0.0	0.0	10	nW
07/04/2024	00:47:00	0.0	0.0	10	nW
07/04/2024	00:48:00	0.0	0.0	10	nW
07/04/2024	00:49:00	0.0	0.0	10	nW
07/04/2024	00:50:00	0.0	0.0	10	nW
07/04/2024	00:51:00	0.0	0.0	10	nW
07/04/2024	00:52:00	0.0	0.0	10	nW
07/04/2024	00:53:00	0.0	0.0	10	nW
07/04/2024	00:54:00	0.0	0.0	10	nW
07/04/2024	00:55:00	0.0	0.7	10	nW
07/04/2024	00:56:00	0.1	0.7	10	74
07/04/2024	00:57:00	0.0	0.7	10	nW
07/04/2024	00:58:00	0.0	0.0	10	nW
07/04/2024	00:59:00	0.0	0.0	10	nW
07/04/2024	01:00:00	0.0	0.0	10	nW
07/04/2024	01:01:00	0.0	0.0	10	nW
07/04/2024	01:02:00	0.0	0.0	10	nW
07/04/2024	01:03:00	0.0	0.0	10	nW
07/04/2024	01:04:00	0.0	0.0	10	nW
07/04/2024	01:05:00	0.0	0.0	10	nW
07/04/2024	01:06:00	0.0	0.0	10	nW
07/04/2024	01:07:00	0.0	0.0	10	nW
07/04/2024	01:08:00	0.0	0.0	10	nW
07/04/2024	01:09:00	0.0	0.0	10	nW
07/04/2024	01:10:00	0.0	0.0	10	nW
07/04/2024	01:11:00	0.0	0.0	10	nW
07/04/2024	01:12:00	0.0	0.0	9	nW
07/04/2024	01:13:00	0.0	0.0	9	nW
07/04/2024	01:14:00	0.0	0.0	9	nW
07/04/2024	01:15:00	0.0	0.0	9	nW
07/04/2024	01:16:00	0.0	0.0	9	nW
07/04/2024	01:17:00	0.0	0.0	9	nW
07/04/2024	01:18:00	0.0	0.0	9	nW
07/04/2024	01:19:00	0.0	0.0	9	nW
07/04/2024	01:20:00	0.0	0.0	9	nW
07/04/2024	01:21:00	0.0	0.0	9	nW
07/04/2024	01:22:00	0.0	0.0	9	nW
07/04/2024	01:23:00	0.0	0.0	9	nW
07/04/2024	01:24:00	0.0	0.0	8	nW
07/04/2024	01:25:00	0.2	0.7	8	67
07/04/2024	01:26:00	0.1	0.6	8	92
07/04/2024	01:27:00	0.2	0.7	8	113
07/04/2024	01:28:00	0.2	0.7	8	113

07/04/2024	01:29:00	0.0	0.0	8	nW
07/04/2024	01:30:00	0.0	0.0	8	nW
07/04/2024	01:31:00	0.0	0.0	8	nW
07/04/2024	01:32:00	0.6	0.8	8	113
07/04/2024	01:33:00	0.7	0.9	8	110
07/04/2024	01:34:00	0.7	0.9	8	111
07/04/2024	01:35:00	0.7	0.8	8	110
07/04/2024	01:36:00	0.7	0.8	8	105
07/04/2024	01:37:00	0.7	0.8	8	103
07/04/2024	01:38:00	0.5	0.7	8	89
07/04/2024	01:39:00	0.7	0.8	8	104
07/04/2024	01:40:00	0.6	0.8	8	101
07/04/2024	01:41:00	0.5	0.7	8	87
07/04/2024	01:42:00	0.3	0.9	8	75
07/04/2024	01:43:00	0.0	0.7	8	nW
07/04/2024	01:44:00	0.0	0.0	9	nW
07/04/2024	01:45:00	0.3	0.7	9	87
07/04/2024	01:46:00	0.0	0.0	9	nW
07/04/2024	01:47:00	0.0	0.0	9	nW
07/04/2024	01:48:00	0.0	0.0	9	nW
07/04/2024	01:49:00	0.0	0.0	9	nW
07/04/2024	01:50:00	0.0	0.0	9	nW
07/04/2024	01:51:00	0.0	0.0	9	nW
07/04/2024	01:52:00	0.0	0.0	9	nW
07/04/2024	01:53:00	0.0	0.0	9	nW
07/04/2024	01:54:00	0.0	0.0	9	nW
07/04/2024	01:55:00	0.0	0.0	9	nW
07/04/2024	01:56:00	0.0	0.0	9	nW
07/04/2024	01:57:00	0.0	0.0	9	nW
07/04/2024	01:58:00	0.0	0.0	9	nW
07/04/2024	01:59:00	0.0	0.0	9	nW
07/04/2024	02:00:00	0.0	0.0	9	nW
07/04/2024	02:01:00	0.0	0.0	9	nW
07/04/2024	02:02:00	0.0	0.0	9	nW
07/04/2024	02:03:00	0.0	0.0	9	nW
07/04/2024	02:04:00	0.0	0.0	8	nW
07/04/2024	02:05:00	0.0	0.0	8	nW
07/04/2024	02:06:00	0.0	0.0	8	nW
07/04/2024	02:07:00	0.0	0.0	8	nW
07/04/2024	02:08:00	0.0	0.0	8	nW
07/04/2024	02:09:00	0.0	0.0	8	nW
07/04/2024	02:10:00	0.0	0.0	8	nW
07/04/2024	02:11:00	0.0	0.0	8	nW
07/04/2024	02:12:00	0.0	0.0	8	nW
07/04/2024	02:13:00	0.0	0.0	8	nW
07/04/2024	02:14:00	0.0	0.0	8	nW

07/04/2024	02:15:00	0.1	0.7	8	69
07/04/2024	02:16:00	0.3	0.8	8	68
07/04/2024	02:17:00	0.7	0.8	8	96
07/04/2024	02:18:00	0.0	0.6	8	nW
07/04/2024	02:19:00	0.0	0.0	8	nW
07/04/2024	02:20:00	0.0	0.0	8	nW
07/04/2024	02:21:00	0.0	0.0	8	nW
07/04/2024	02:22:00	0.0	0.0	8	nW
07/04/2024	02:23:00	0.0	0.0	8	nW
07/04/2024	02:24:00	0.0	0.0	8	nW
07/04/2024	02:25:00	0.0	0.0	8	nW
07/04/2024	02:26:00	0.0	0.0	8	nW
07/04/2024	02:27:00	0.0	0.6	8	nW
07/04/2024	02:28:00	0.3	0.7	8	104
07/04/2024	02:29:00	0.6	0.7	8	103
07/04/2024	02:30:00	0.6	0.8	8	95
07/04/2024	02:31:00	0.3	0.7	8	109
07/04/2024	02:32:00	0.2	0.7	8	129
07/04/2024	02:33:00	0.3	0.7	8	116
07/04/2024	02:34:00	0.0	0.0	8	nW
07/04/2024	02:35:00	0.0	0.0	8	nW
07/04/2024	02:36:00	0.0	0.0	8	nW
07/04/2024	02:37:00	0.0	0.0	8	nW
07/04/2024	02:38:00	0.0	0.0	8	nW
07/04/2024	02:39:00	0.0	0.0	8	nW
07/04/2024	02:40:00	0.0	0.0	8	nW
07/04/2024	02:41:00	0.0	0.0	8	nW
07/04/2024	02:42:00	0.0	0.0	8	nW
07/04/2024	02:43:00	0.0	0.0	8	nW
07/04/2024	02:44:00	0.0	0.0	8	nW
07/04/2024	02:45:00	0.0	0.0	8	nW
07/04/2024	02:46:00	0.0	0.0	8	nW
07/04/2024	02:47:00	0.0	0.0	8	nW
07/04/2024	02:48:00	0.0	0.0	8	nW
07/04/2024	02:49:00	0.0	0.0	8	nW
07/04/2024	02:50:00	0.0	0.0	8	nW
07/04/2024	02:51:00	0.0	0.0	8	nW
07/04/2024	02:52:00	0.0	0.0	8	nW
07/04/2024	02:53:00	0.0	0.0	8	nW
07/04/2024	02:54:00	0.0	0.0	8	nW
07/04/2024	02:55:00	0.0	0.0	8	nW
07/04/2024	02:56:00	0.0	0.0	8	nW
07/04/2024	02:57:00	0.0	0.0	8	nW
07/04/2024	02:58:00	0.0	0.0	8	nW
07/04/2024	02:59:00	0.0	0.0	8	nW
07/04/2024	03:00:00	0.0	0.0	8	nW

07/04/2024	03:01:00	0.1	0.6	8	109
07/04/2024	03:02:00	0.2	0.7	8	109
07/04/2024	03:03:00	0.3	0.7	8	109
07/04/2024	03:04:00	0.5	0.7	8	109
07/04/2024	03:05:00	0.6	0.7	8	110
07/04/2024	03:06:00	0.5	0.7	8	110
07/04/2024	03:07:00	0.6	0.7	8	111
07/04/2024	03:08:00	0.6	0.7	8	111
07/04/2024	03:09:00	0.6	0.8	8	110
07/04/2024	03:10:00	0.7	0.8	8	111
07/04/2024	03:11:00	0.8	0.8	8	115
07/04/2024	03:12:00	0.7	0.8	8	111
07/04/2024	03:13:00	0.7	0.8	8	109
07/04/2024	03:14:00	0.6	0.7	8	108
07/04/2024	03:15:00	0.6	0.7	8	108
07/04/2024	03:16:00	0.4	0.7	8	103
07/04/2024	03:17:00	0.0	0.0	8	nW
07/04/2024	03:18:00	0.0	0.0	8	nW
07/04/2024	03:19:00	0.0	0.0	8	nW
07/04/2024	03:20:00	0.0	0.0	8	nW
07/04/2024	03:21:00	0.0	0.0	8	nW
07/04/2024	03:22:00	0.0	0.0	8	nW
07/04/2024	03:23:00	0.0	0.0	8	nW
07/04/2024	03:24:00	0.0	0.0	9	nW
07/04/2024	03:25:00	0.1	0.6	8	265
07/04/2024	03:26:00	0.1	0.6	8	288
07/04/2024	03:27:00	0.2	0.6	8	291
07/04/2024	03:28:00	0.0	0.0	8	nW
07/04/2024	03:29:00	0.0	0.0	8	nW
07/04/2024	03:30:00	0.0	0.0	8	nW
07/04/2024	03:31:00	0.1	0.6	8	61
07/04/2024	03:32:00	0.0	0.0	8	nW
07/04/2024	03:33:00	0.0	0.0	8	nW
07/04/2024	03:34:00	0.0	0.0	8	nW
07/04/2024	03:35:00	0.0	0.0	8	nW
07/04/2024	03:36:00	0.0	0.0	8	nW
07/04/2024	03:37:00	0.0	0.0	8	nW
07/04/2024	03:38:00	0.0	0.0	8	nW
07/04/2024	03:39:00	0.0	0.0	8	nW
07/04/2024	03:40:00	0.0	0.0	8	nW
07/04/2024	03:41:00	0.0	0.0	8	nW
07/04/2024	03:42:00	0.0	0.0	8	nW
07/04/2024	03:43:00	0.0	0.0	8	nW
07/04/2024	03:44:00	0.0	0.0	8	nW
07/04/2024	03:45:00	0.0	0.0	8	nW
07/04/2024	03:46:00	0.0	0.0	8	nW

07/04/2024	03:47:00	0.0	0.0	7	nW
07/04/2024	03:48:00	0.0	0.0	7	nW
07/04/2024	03:49:00	0.0	0.0	7	nW
07/04/2024	03:50:00	0.0	0.0	7	nW
07/04/2024	03:51:00	0.0	0.0	7	nW
07/04/2024	03:52:00	0.0	0.0	7	nW
07/04/2024	03:53:00	0.0	0.0	7	nW
07/04/2024	03:54:00	0.0	0.0	7	nW
07/04/2024	03:55:00	0.0	0.0	7	nW
07/04/2024	03:56:00	0.0	0.0	7	nW
07/04/2024	03:57:00	0.0	0.0	7	nW
07/04/2024	03:58:00	0.0	0.0	7	nW
07/04/2024	03:59:00	0.0	0.0	7	nW
07/04/2024	04:00:00	0.0	0.0	7	nW
07/04/2024	04:01:00	0.0	0.0	7	nW
07/04/2024	04:02:00	0.0	0.0	7	nW
07/04/2024	04:03:00	0.0	0.0	7	nW
07/04/2024	04:04:00	0.0	0.0	7	nW
07/04/2024	04:05:00	0.0	0.0	7	nW
07/04/2024	04:06:00	0.0	0.0	7	nW
07/04/2024	04:07:00	0.0	0.0	7	nW
07/04/2024	04:08:00	0.0	0.0	7	nW
07/04/2024	04:09:00	0.3	0.6	7	112
07/04/2024	04:10:00	0.0	0.0	7	nW
07/04/2024	04:11:00	0.0	0.0	7	nW
07/04/2024	04:12:00	0.0	0.0	7	nW
07/04/2024	04:13:00	0.0	0.0	7	nW
07/04/2024	04:14:00	0.0	0.0	7	nW
07/04/2024	04:15:00	0.0	0.0	7	nW
07/04/2024	04:16:00	0.0	0.0	7	nW
07/04/2024	04:17:00	0.0	0.0	7	nW
07/04/2024	04:18:00	0.0	0.0	7	nW
07/04/2024	04:19:00	0.0	0.0	7	nW
07/04/2024	04:20:00	0.0	0.0	7	nW
07/04/2024	04:21:00	0.0	0.0	7	nW
07/04/2024	04:22:00	0.0	0.0	7	nW
07/04/2024	04:23:00	0.0	0.0	7	nW
07/04/2024	04:24:00	0.0	0.0	7	nW
07/04/2024	04:25:00	0.0	0.0	7	nW
07/04/2024	04:26:00	0.0	0.0	7	nW
07/04/2024	04:27:00	0.0	0.0	7	nW
07/04/2024	04:28:00	0.0	0.0	7	nW
07/04/2024	04:29:00	0.0	0.0	7	nW
07/04/2024	04:30:00	0.0	0.0	7	nW
07/04/2024	04:31:00	0.0	0.0	7	nW
07/04/2024	04:32:00	0.0	0.0	7	nW

07/04/2024	04:33:00	0.0	0.0	7	nW
07/04/2024	04:34:00	0.0	0.0	7	nW
07/04/2024	04:35:00	0.0	0.0	7	nW
07/04/2024	04:36:00	0.0	0.0	7	nW
07/04/2024	04:37:00	0.0	0.0	7	nW
07/04/2024	04:38:00	0.0	0.0	7	nW
07/04/2024	04:39:00	0.1	0.6	7	274
07/04/2024	04:40:00	0.0	0.0	7	nW
07/04/2024	04:41:00	0.4	0.7	7	303
07/04/2024	04:42:00	0.0	0.0	7	nW
07/04/2024	04:43:00	0.0	0.0	7	nW
07/04/2024	04:44:00	0.0	0.0	7	nW
07/04/2024	04:45:00	0.0	0.0	7	nW
07/04/2024	04:46:00	0.0	0.0	7	nW
07/04/2024	04:47:00	0.0	0.0	7	nW
07/04/2024	04:48:00	0.0	0.0	7	nW
07/04/2024	04:49:00	0.0	0.0	7	nW
07/04/2024	04:50:00	0.0	0.0	7	nW
07/04/2024	04:51:00	0.0	0.0	7	nW
07/04/2024	04:52:00	0.0	0.0	7	nW
07/04/2024	04:53:00	0.0	0.0	7	nW
07/04/2024	04:54:00	0.0	0.0	7	nW
07/04/2024	04:55:00	0.0	0.0	7	nW
07/04/2024	04:56:00	0.0	0.0	7	nW
07/04/2024	04:57:00	0.0	0.0	7	nW
07/04/2024	04:58:00	0.0	0.0	7	nW
07/04/2024	04:59:00	0.0	0.0	7	nW
07/04/2024	05:00:00	0.0	0.0	7	nW
07/04/2024	05:01:00	0.0	0.0	7	nW
07/04/2024	05:02:00	0.0	0.0	7	nW
07/04/2024	05:03:00	0.0	0.0	7	nW
07/04/2024	05:04:00	0.0	0.0	7	nW
07/04/2024	05:05:00	0.5	0.8	7	33
07/04/2024	05:06:00	0.3	0.7	7	27
07/04/2024	05:07:00	0.2	0.7	7	27
07/04/2024	05:08:00	0.1	0.7	7	31
07/04/2024	05:09:00	0.1	0.7	7	35
07/04/2024	05:10:00	0.1	0.8	7	24
07/04/2024	05:11:00	0.1	0.7	7	78
07/04/2024	05:12:00	0.0	0.0	7	nW
07/04/2024	05:13:00	0.1	0.7	7	49
07/04/2024	05:14:00	0.0	0.0	7	nW
07/04/2024	05:15:00	0.0	0.0	7	nW
07/04/2024	05:16:00	0.5	0.8	7	317
07/04/2024	05:17:00	0.0	0.0	7	nW
07/04/2024	05:18:00	0.0	0.0	7	nW

07/04/2024	05:19:00	0.0	0.0	7	nW
07/04/2024	05:20:00	0.0	0.7	7	nW
07/04/2024	05:21:00	0.3	0.9	7	25
07/04/2024	05:22:00	0.4	0.9	7	52
07/04/2024	05:23:00	0.2	0.7	7	14
07/04/2024	05:24:00	0.0	0.7	7	nW
07/04/2024	05:25:00	0.1	0.7	7	61
07/04/2024	05:26:00	0.0	0.0	7	nW
07/04/2024	05:27:00	0.0	0.0	7	nW
07/04/2024	05:28:00	0.0	0.0	7	nW
07/04/2024	05:29:00	0.0	0.0	7	nW
07/04/2024	05:30:00	0.0	0.0	7	nW
07/04/2024	05:31:00	0.0	0.0	7	nW
07/04/2024	05:32:00	0.0	0.0	7	nW
07/04/2024	05:33:00	0.0	0.0	7	nW
07/04/2024	05:34:00	0.0	0.0	7	nW
07/04/2024	05:35:00	0.0	0.0	7	nW
07/04/2024	05:36:00	0.1	0.7	7	58
07/04/2024	05:37:00	0.0	0.0	7	nW
07/04/2024	05:38:00	0.0	0.0	7	nW
07/04/2024	05:39:00	0.0	0.0	7	nW
07/04/2024	05:40:00	0.0	0.0	7	nW
07/04/2024	05:41:00	0.0	0.0	7	nW
07/04/2024	05:42:00	0.0	0.6	7	nW
07/04/2024	05:43:00	0.0	0.0	7	nW
07/04/2024	05:44:00	0.0	0.0	7	nW
07/04/2024	05:45:00	0.1	0.7	7	22
07/04/2024	05:46:00	0.0	0.7	7	nW
07/04/2024	05:47:00	0.0	0.0	7	nW
07/04/2024	05:48:00	0.1	0.7	7	293
07/04/2024	05:49:00	0.0	0.0	7	nW
07/04/2024	05:50:00	0.0	0.0	7	nW
07/04/2024	05:51:00	0.0	0.0	7	nW
07/04/2024	05:52:00	0.0	0.6	7	nW
07/04/2024	05:53:00	0.0	0.0	7	nW
07/04/2024	05:54:00	0.0	0.6	7	nW
07/04/2024	05:55:00	0.0	0.0	7	nW
07/04/2024	05:56:00	0.0	0.0	7	nW
07/04/2024	05:57:00	0.0	0.0	7	nW
07/04/2024	05:58:00	0.0	0.6	7	nW
07/04/2024	05:59:00	0.0	0.0	7	nW
07/04/2024	06:00:00	0.1	0.8	7	83
07/04/2024	06:01:00	0.0	0.7	7	nW
07/04/2024	06:02:00	0.1	0.7	7	45
07/04/2024	06:03:00	0.0	0.0	7	nW
07/04/2024	06:04:00	0.1	0.7	7	59

07/04/2024	06:05:00	0.0	0.0	7	nW
07/04/2024	06:06:00	0.0	0.0	7	nW
07/04/2024	06:07:00	0.0	0.0	7	nW
07/04/2024	06:08:00	0.0	0.7	7	nW
07/04/2024	06:09:00	0.0	0.0	7	nW
07/04/2024	06:10:00	0.2	0.8	7	74
07/04/2024	06:11:00	0.2	0.7	7	70
07/04/2024	06:12:00	0.1	0.7	7	115
07/04/2024	06:13:00	0.7	0.8	7	153
07/04/2024	06:14:00	0.6	0.7	7	146
07/04/2024	06:15:00	0.0	0.7	7	nW
07/04/2024	06:16:00	0.0	0.0	6	nW
07/04/2024	06:17:00	0.0	0.0	6	nW
07/04/2024	06:18:00	0.0	0.0	6	nW
07/04/2024	06:19:00	0.0	0.0	6	nW
07/04/2024	06:20:00	0.0	0.0	6	nW
07/04/2024	06:21:00	0.6	0.9	6	64
07/04/2024	06:22:00	0.3	0.7	6	59
07/04/2024	06:23:00	0.0	0.0	6	nW
07/04/2024	06:24:00	0.0	0.0	6	nW
07/04/2024	06:25:00	0.4	0.8	6	59
07/04/2024	06:26:00	0.2	0.8	6	66
07/04/2024	06:27:00	0.6	0.8	6	70
07/04/2024	06:28:00	0.6	0.9	6	83
07/04/2024	06:29:00	0.7	1.0	6	59
07/04/2024	06:30:00	0.7	1.0	6	54
07/04/2024	06:31:00	0.6	0.8	6	54
07/04/2024	06:32:00	0.7	0.9	6	49
07/04/2024	06:33:00	0.4	1.0	6	320
07/04/2024	06:34:00	0.1	0.7	6	329
07/04/2024	06:35:00	0.0	0.6	6	nW
07/04/2024	06:36:00	0.2	0.7	6	56
07/04/2024	06:37:00	0.3	0.7	6	55
07/04/2024	06:38:00	0.7	0.9	6	62
07/04/2024	06:39:00	0.3	0.9	6	66
07/04/2024	06:40:00	0.9	1.1	6	67
07/04/2024	06:41:00	0.9	1.0	6	70
07/04/2024	06:42:00	0.7	0.9	6	87
07/04/2024	06:43:00	0.0	0.6	7	nW
07/04/2024	06:44:00	0.0	0.0	7	nW
07/04/2024	06:45:00	0.0	0.6	7	nW
07/04/2024	06:46:00	0.3	0.8	7	295
07/04/2024	06:47:00	0.3	0.8	7	306
07/04/2024	06:48:00	0.5	0.8	7	311
07/04/2024	06:49:00	0.1	0.6	7	320
07/04/2024	06:50:00	0.0	0.0	7	nW

07/04/2024	06:51:00	0.0	0.0	7	nW
07/04/2024	06:52:00	0.0	0.0	7	nW
07/04/2024	06:53:00	0.0	0.0	7	nW
07/04/2024	06:54:00	0.0	0.0	7	nW
07/04/2024	06:55:00	0.5	0.7	7	77
07/04/2024	06:56:00	0.7	0.9	7	70
07/04/2024	06:57:00	0.5	0.9	7	67
07/04/2024	06:58:00	0.8	1.2	7	67
07/04/2024	06:59:00	0.4	0.8	7	55
07/04/2024	07:00:00	0.4	0.9	7	65
07/04/2024	07:01:00	0.0	0.0	7	nW
07/04/2024	07:02:00	0.0	0.0	7	nW
07/04/2024	07:03:00	0.4	0.9	7	67
07/04/2024	07:04:00	0.7	0.9	7	65
07/04/2024	07:05:00	0.7	0.9	7	62
07/04/2024	07:06:00	0.8	0.9	7	63
07/04/2024	07:07:00	0.7	1.0	7	60
07/04/2024	07:08:00	0.7	1.0	7	69
07/04/2024	07:09:00	0.1	0.7	7	352
07/04/2024	07:10:00	0.0	0.0	7	nW
07/04/2024	07:11:00	0.0	0.0	7	nW
07/04/2024	07:12:00	0.0	0.0	7	nW
07/04/2024	07:13:00	0.1	0.7	7	315
07/04/2024	07:14:00	0.0	0.0	7	nW
07/04/2024	07:15:00	0.0	0.0	7	nW
07/04/2024	07:16:00	0.0	0.0	7	nW
07/04/2024	07:17:00	0.0	0.0	7	nW
07/04/2024	07:18:00	0.0	0.0	7	nW
07/04/2024	07:19:00	0.0	0.0	7	nW
07/04/2024	07:20:00	0.0	0.0	7	nW
07/04/2024	07:21:00	0.0	0.0	7	nW
07/04/2024	07:22:00	0.3	0.7	7	62
07/04/2024	07:23:00	0.5	0.7	7	66
07/04/2024	07:24:00	0.4	0.9	7	64
07/04/2024	07:25:00	0.6	0.8	7	61
07/04/2024	07:26:00	0.0	0.0	8	nW
07/04/2024	07:27:00	0.0	0.0	8	nW
07/04/2024	07:28:00	0.3	0.7	8	273
07/04/2024	07:29:00	0.0	0.0	8	nW
07/04/2024	07:30:00	0.3	0.9	8	27
07/04/2024	07:31:00	0.5	0.8	8	55
07/04/2024	07:32:00	0.5	1.0	8	65
07/04/2024	07:33:00	0.5	0.9	8	57
07/04/2024	07:34:00	0.4	0.7	8	66
07/04/2024	07:35:00	0.4	0.7	8	78
07/04/2024	07:36:00	0.4	0.7	8	71

07/04/2024	07:37:00	0.6	0.9	8	65
07/04/2024	07:38:00	0.5	0.8	8	58
07/04/2024	07:39:00	0.8	1.1	8	58
07/04/2024	07:40:00	0.7	0.9	8	68
07/04/2024	07:41:00	0.8	1.0	8	65
07/04/2024	07:42:00	0.8	1.0	8	64
07/04/2024	07:43:00	0.5	0.9	8	65
07/04/2024	07:44:00	0.6	1.0	9	57
07/04/2024	07:45:00	0.8	1.0	9	73
07/04/2024	07:46:00	0.9	1.1	9	68
07/04/2024	07:47:00	0.8	1.0	9	75
07/04/2024	07:48:00	0.8	1.3	9	77
07/04/2024	07:49:00	0.8	1.3	10	85
07/04/2024	07:50:00	0.9	1.3	10	92
07/04/2024	07:51:00	0.8	1.1	10	78
07/04/2024	07:52:00	0.7	1.1	10	80
07/04/2024	07:53:00	0.6	0.8	10	68
07/04/2024	07:54:00	0.6	0.9	10	100
07/04/2024	07:55:00	0.8	1.0	10	119
07/04/2024	07:56:00	1.1	1.4	10	121
07/04/2024	07:57:00	1.1	1.5	10	117
07/04/2024	07:58:00	1.0	1.1	10	118
07/04/2024	07:59:00	1.0	1.4	11	112
07/04/2024	08:00:00	0.9	1.2	11	110
07/04/2024	08:01:00	0.9	1.4	11	97
07/04/2024	08:02:00	1.1	1.4	11	110
07/04/2024	08:03:00	0.9	1.1	11	110
07/04/2024	08:04:00	0.9	1.4	11	99
07/04/2024	08:05:00	1.0	1.3	11	92
07/04/2024	08:06:00	1.3	1.9	11	107
07/04/2024	08:07:00	1.2	1.8	11	108
07/04/2024	08:08:00	1.4	1.8	11	97
07/04/2024	08:09:00	1.1	1.4	11	99
07/04/2024	08:10:00	1.2	1.6	12	98
07/04/2024	08:11:00	1.1	1.4	12	95
07/04/2024	08:12:00	0.9	1.4	12	90
07/04/2024	08:13:00	0.7	1.1	12	84
07/04/2024	08:14:00	0.9	1.3	12	83
07/04/2024	08:15:00	1.2	1.7	12	94
07/04/2024	08:16:00	1.2	1.7	12	112
07/04/2024	08:17:00	1.0	1.4	12	88
07/04/2024	08:18:00	1.2	1.8	12	99
07/04/2024	08:19:00	1.4	2.3	12	113
07/04/2024	08:20:00	1.0	1.3	12	103
07/04/2024	08:21:00	0.8	1.1	12	105
07/04/2024	08:22:00	0.9	1.3	12	104

07/04/2024	08:23:00	1.5	1.9	12	118
07/04/2024	08:24:00	1.5	2.0	12	119
07/04/2024	08:25:00	1.5	2.0	12	118
07/04/2024	08:26:00	1.5	1.9	12	111
07/04/2024	08:27:00	1.4	1.8	12	108
07/04/2024	08:28:00	1.1	1.4	13	115
07/04/2024	08:29:00	1.3	1.9	13	115
07/04/2024	08:30:00	1.5	1.9	13	118
07/04/2024	08:31:00	1.3	1.6	13	117
07/04/2024	08:32:00	1.3	1.6	13	109
07/04/2024	08:33:00	1.5	1.9	13	111
07/04/2024	08:34:00	1.6	2.0	13	98
07/04/2024	08:35:00	1.4	1.7	13	112
07/04/2024	08:36:00	1.5	2.1	13	131
07/04/2024	08:37:00	1.6	2.2	13	108
07/04/2024	08:38:00	1.5	1.8	13	111
07/04/2024	08:39:00	1.2	1.7	13	115
07/04/2024	08:40:00	1.3	1.5	13	120
07/04/2024	08:41:00	1.3	1.9	13	109
07/04/2024	08:42:00	1.1	1.6	13	117
07/04/2024	08:43:00	1.5	1.8	13	109
07/04/2024	08:44:00	1.5	1.8	13	112
07/04/2024	08:45:00	n/a	n/a	n/a	n/a
07/04/2024	08:46:00	1.4	1.9	13	120
07/04/2024	08:47:00	1.5	2.0	13	112
07/04/2024	08:48:00	1.7	2.1	13	134
07/04/2024	08:49:00	1.6	2.0	13	117
07/04/2024	08:50:00	1.4	1.9	13	129
07/04/2024	08:51:00	1.3	1.9	13	138
07/04/2024	08:52:00	1.4	1.7	13	133
07/04/2024	08:53:00	1.1	1.6	14	119
07/04/2024	08:54:00	1.5	1.8	14	112
07/04/2024	08:55:00	1.3	1.6	14	112
07/04/2024	08:56:00	1.4	1.9	14	107
07/04/2024	08:57:00	1.3	2.0	14	117
07/04/2024	08:58:00	0.9	1.2	14	100
07/04/2024	08:59:00	1.4	2.0	14	108
07/04/2024	09:00:00	1.2	1.5	14	115
07/04/2024	09:01:00	1.2	1.4	14	114
07/04/2024	09:02:00	1.5	1.9	14	97
07/04/2024	09:03:00	1.3	1.6	14	124
07/04/2024	09:04:00	1.5	1.9	14	131
07/04/2024	09:05:00	1.4	2.0	14	100
07/04/2024	09:06:00	1.4	2.1	14	96
07/04/2024	09:07:00	1.6	2.0	14	106
07/04/2024	09:08:00	1.6	2.1	14	118

07/04/2024	09:09:00	1.6	2.1	14	108
07/04/2024	09:10:00	1.6	2.0	14	110
07/04/2024	09:11:00	1.7	2.3	14	109
07/04/2024	09:12:00	1.7	2.2	14	110
07/04/2024	09:13:00	1.7	2.2	14	110
07/04/2024	09:14:00	1.7	2.0	14	111
07/04/2024	09:15:00	1.4	1.7	15	106
07/04/2024	09:16:00	1.4	2.1	15	105
07/04/2024	09:17:00	1.8	2.2	15	128
07/04/2024	09:18:00	1.7	2.3	15	129
07/04/2024	09:19:00	1.6	2.3	15	140
07/04/2024	09:20:00	1.3	1.9	15	114
07/04/2024	09:21:00	1.2	1.9	15	121
07/04/2024	09:22:00	1.4	1.9	15	107
07/04/2024	09:23:00	1.4	1.9	15	135
07/04/2024	09:24:00	1.5	2.0	15	114
07/04/2024	09:25:00	1.1	1.6	16	125
07/04/2024	09:26:00	1.2	2.0	16	135
07/04/2024	09:27:00	1.4	2.1	16	102
07/04/2024	09:28:00	1.9	2.3	16	110
07/04/2024	09:29:00	2.0	2.4	16	108
07/04/2024	09:30:00	1.6	2.0	16	104
07/04/2024	09:31:00	1.5	2.1	16	99
07/04/2024	09:32:00	1.1	1.7	16	124

APPENDIX D – ECOLOGY REPORTS

Inclusive of:

- Bat Specialist Analysis Report
- Botanical Survey Report
- Herpetological Survey Report
- Houbara Bustard Survey
- Mammal Survey
- Raptor Nesting Survey
- VP Monitoring Report
- Biodiversity Cumulative Impact Assessment (CIA)

Bat activity at Nukus II Wind Farm in Southern Uzbekistan (Apr-Nov)

Final report drafted by Nils Bouillard (Barbastella Echology) - 16th January 2025

Barbastella Echology FZCO were engaged by 5 Capitals to undertake analysis of the bat data collected from the Project site, as provided by the local survey team.

Methods

Sequences recorded by 5C using Wildlife Acoustics SongMeter 4 Bat passive recorders between 15th April 2024 and 13th November 2024.

Acoustic data were collected using Wildlife Acoustics SongMeter 4 Bat passive recorders and analysed in Kaleidoscope Pro. The built-in European classifier was initially used to organise files based on call types, followed by manual vetting of every sequence. Species identification relied on reference calls from the literature and the author's collections from Latvia and Armenia.

Call identification was based on several parameters, including start and end frequencies, call duration, inter-pulse interval, and call shape. Social calls and energy distribution were also taken into account to improve accuracy.

Activity graphs are split into two parts:

Nightly patterns: activity graph of the levels of activity according to the time of recording (adjusted for sunset). Unlike the interim report, these now use ‘minutes after sunset’ on the X-axis. This is preferable to account for the shift in sunset times over the course of the survey.

Seasonal patterns: activity graph of the levels of activity per week to show how to activity changes over the course of the entire survey

Results

Six bat species were recorded across the study sites. *Eptesicus ognevi* and *Pipistrellus pipistrellus* were the most common, followed by *Eptesicus turcomanus* and *Vespertilio murinus* while *Pipistrellus kuhlii* and *Plecotus sp.* were recorded infrequently.

	BD1	BD17
Eptesicus ognevi	927	1881

Eptesicus turcomanus (formerly Eptesicus serotinus)	325	604
Pipistrellus kuhlii	2	2
Pipistrellus pipistrellus	2428	3531
Plecotus sp.	4	2
Vespertilio murinus	383	459

Table 1: Detail of sequence numbers for all species recorded on site for Bat Detector 1 and Bat Detector 17.

	April	May	June	July	August	September	October	November
Eptogn	104	133	157	536	456	1332	90	0
Epttur	43	62	107	286	320	92	16	3
Pipkuh	0	0	0	0	2	1	1	0
Pippip	153	299	8	413	1392	3496	195	3
Plesp	1	2	1	0	1	1	0	0
Vesmur	92	102	34	194	133	255	31	1

Table 2: Detail of sequence numbers per month for all species recorded on site for Bat Detector 1 and Bat Detector 17.

Note: April and November only include the last two and first two weeks respectively. BD17 suffered a hardware failure in the first half of August.

Overall patterns

Most of the species recorded are aerial hawkers, which is expected given the open character of the landscape. This is also reflected in the nightly activity patterns that indicate that the sites are used as foraging grounds throughout the night.

Overall seasonal patterns suggest low activity during the breeding season (June and first half of July) and increase in activity in August/September. Activity is low in October and almost negligible in November.

Additionally, three species, Eptesicus ognevi, Pipistrellus pipistrellus and Vesperilio murinus show increased activity during the autumn, suggesting swarming behaviours and/or migration.

1. Pipistrellus kuhlii

Pipistrellus kuhlii was identified from a handful of sequences that fall outside the expected variation for *Pipistrellus pipistrellus*. Given that this species is known to occur in the region, its presence at the site is expected. No graphs were produced due to the limited data.

2. Plecotus sp

An unidentified Plecotus species was recorded on both sites, possibly P.turkmenicus based on known distribution, but only five sequences were assigned. As expected, this genus is notoriously difficult to record due to its low-intensity echolocation calls, which may explain the low number of detections. Species in this genus also tend to be difficult to separate based on echolocation calls alone. This issue is exacerbated by the rarity of reference sequences for any of the potential candidates. No graphs were produced for this species due to the limited data.

3. Eptesicus ognevi/gobiensis

This species displays high levels of activity on both sites.

Nightly activity patterns: Peak activity occurred early in the evening (first three hours), suggesting a local population with limited nightly movements. This appears to shift at the end of the summer, suggesting that individuals are more mobile in the summer and in the autumn.

Seasonal activity patterns: Activity peaked towards the end of summer, with a shift towards later hours as the season progressed. Nightly peaks subsequently sharply drop to the beginning of the night for September onwards. This pattern, combined with an overall activity peak in week 37 (like Pipistrellus pipistrellus) is indicative of regional movements, either tied to swarming behaviours or purely migratory. Very little is known about this species when it comes to regional movements.

Limitations: Differentiating *E. ognevi* from *E. gobiensis* based on echolocation calls is challenging. More work is needed to establish reliable identification markers for these sympatric species.

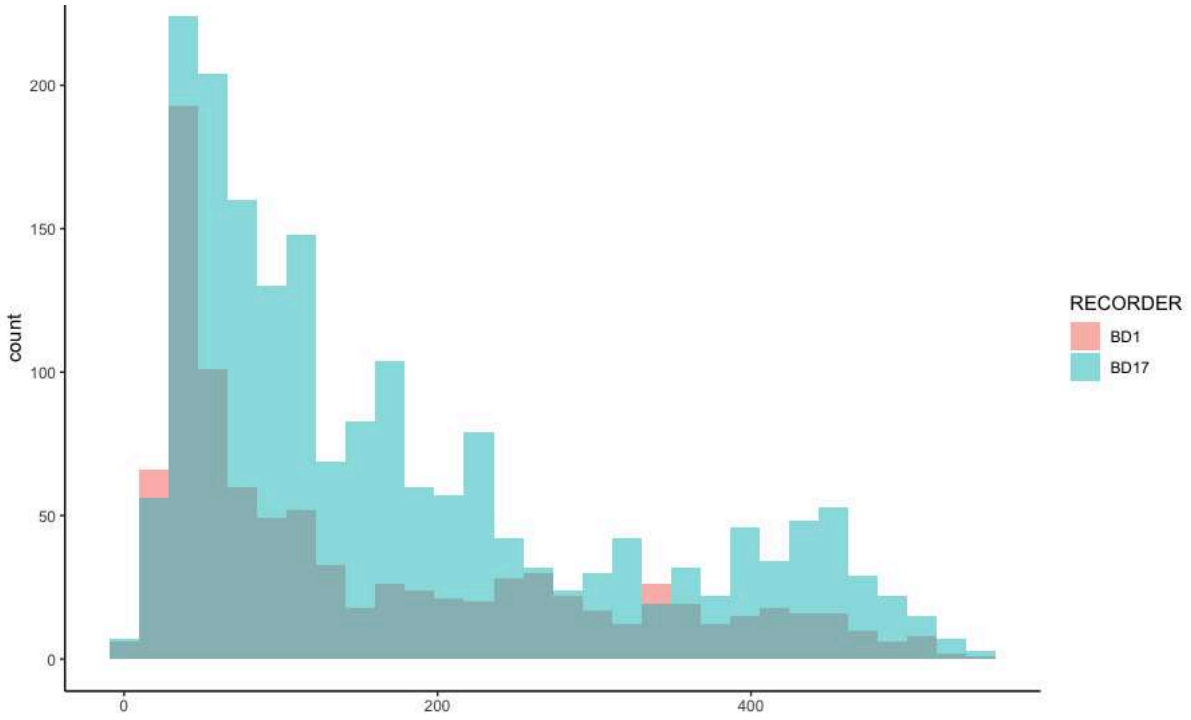


Figure 1: Nightly variation (minutes after sunset) in bat activity for *Eptesicus ognevi/gobiensis*, showing the distribution of call sequences throughout the night across all survey dates

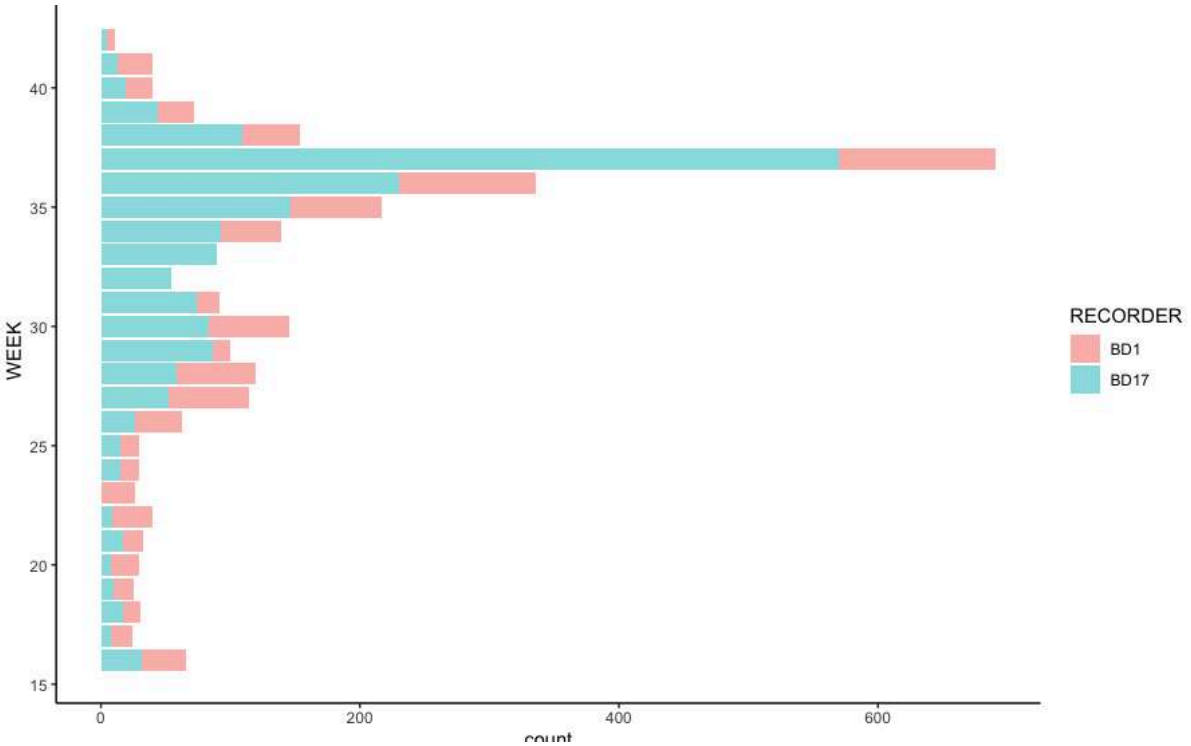


Figure 2: Seasonal variation in bat activity for *Eptesicus ognevi/gobiensis*, highlighting changes in activity over the survey period.

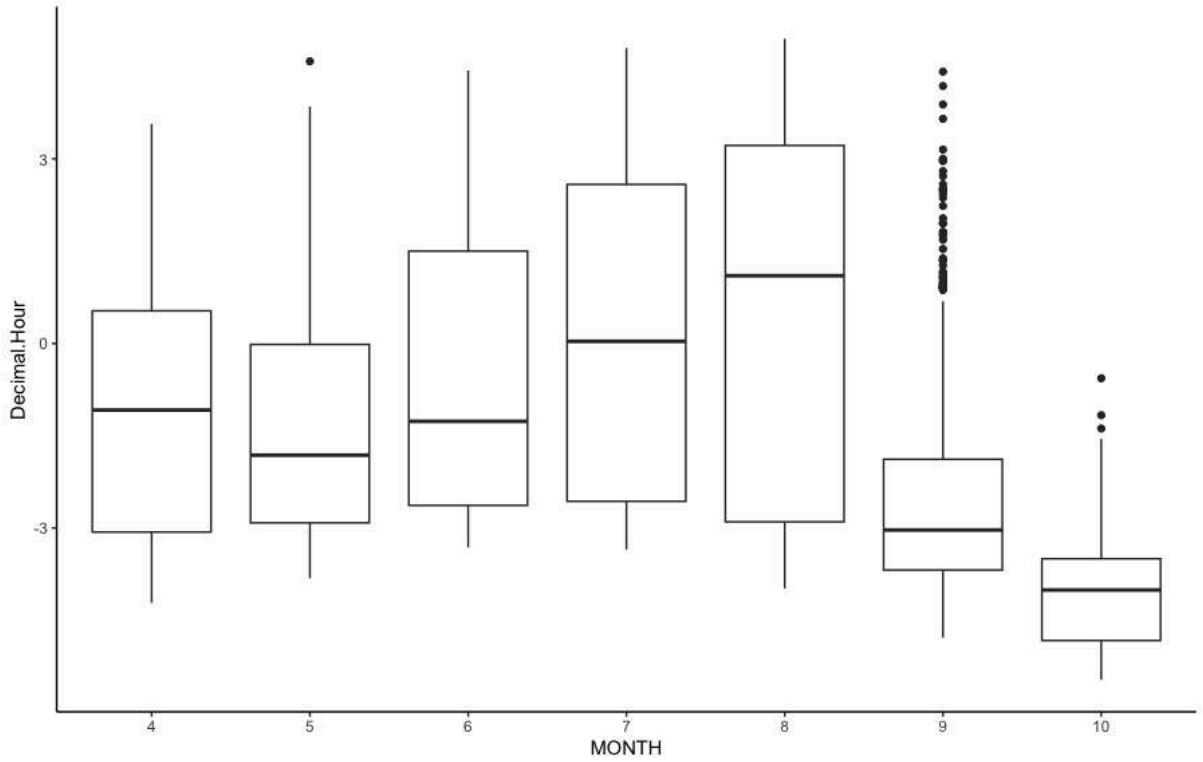


Figure 3: Seasonal variation in bat activity for *Eptesicus ognevi/gobiensis*, highlighting changes in nightly activity patterns over the survey period.

4. Eptesicus turcomanus

This newly recognised species (sometimes still considered to be a subspecies of *Eptesicus serotinus* such as by the IUCN Red List. The newly described taxon's first assessment is in progress) was recorded on both sites with a relatively high number of sequences.

Nightly activity patterns: *E. ognevi/gobiensis*, the activity of this species is relatively uniform throughout the night, particularly around BD17.

Seasonal activity patterns: Like *E. ognevi/gobiensis*, *E. turcomanus* showed increased activity towards the end of summer, with peaks occurring later in the night. However, the nightly peak drop only appears in October as the peak in September is still close to midnight. Unlike *E. ognevi/gobiensis*, however, this species does not exhibit a strong peak around mid-september, instead, the activity is highest throughout the summer (between weeks 26 and 36).

Limitations: Identification was based on the assumption that calls of *E. turcomanus* resemble those of *E. serotinus*, as no published reference calls for this species exist. However, differences between *E. serotinus* and *E. ognevi* are well-documented in Western Asia (e.g., Armenia).

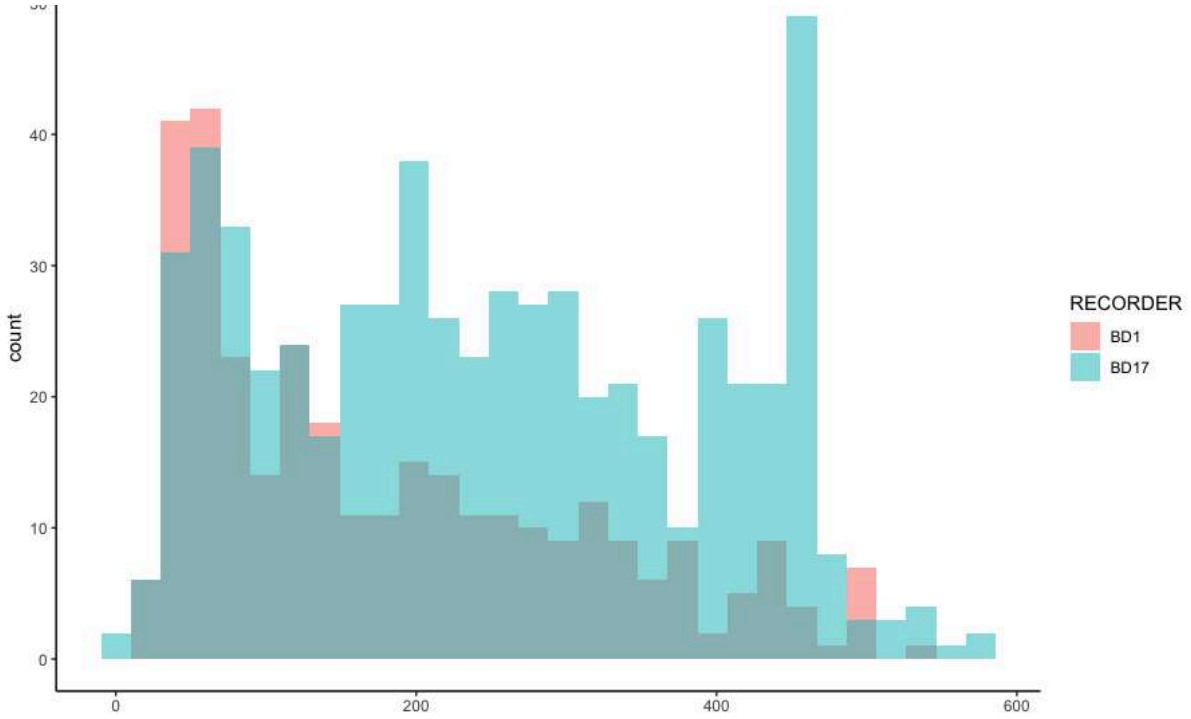


Figure 4: Nightly variation (minutes after sunset) in bat activity for *Eptesicus turcomanus*, showing the distribution of call sequences throughout the night across all survey dates

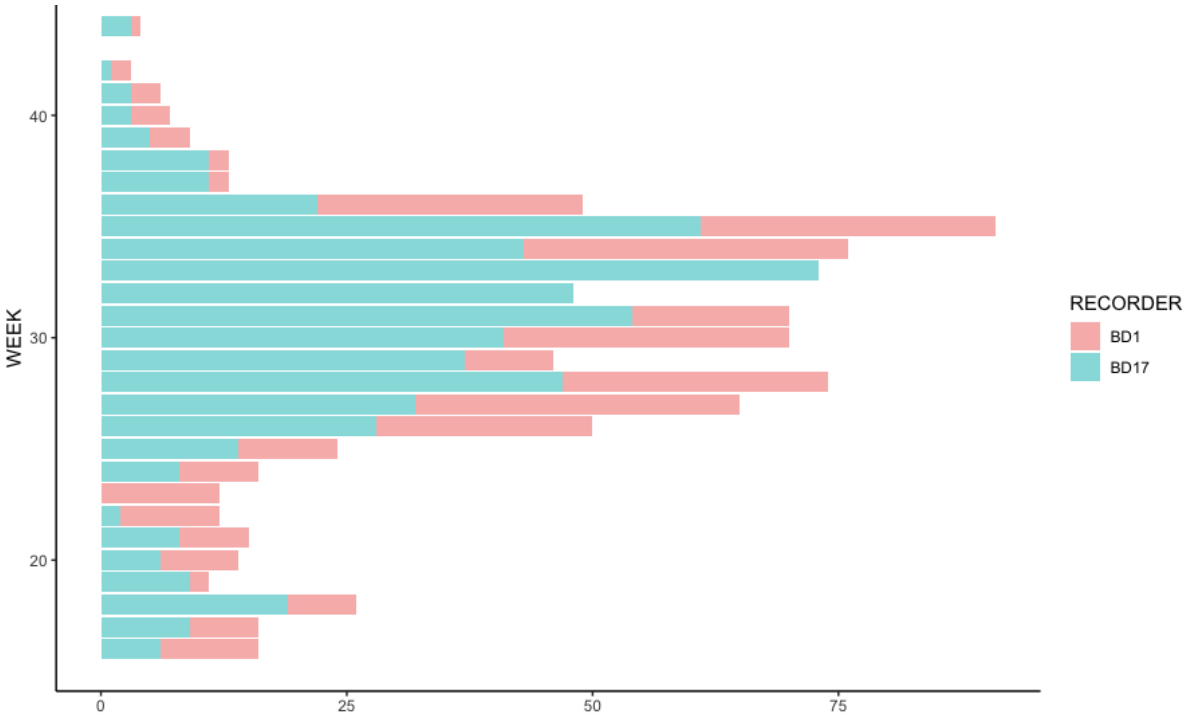


Figure 5: Seasonal variation in bat activity for *Eptesicus turcomanus*, highlighting changes in activity over the survey period.

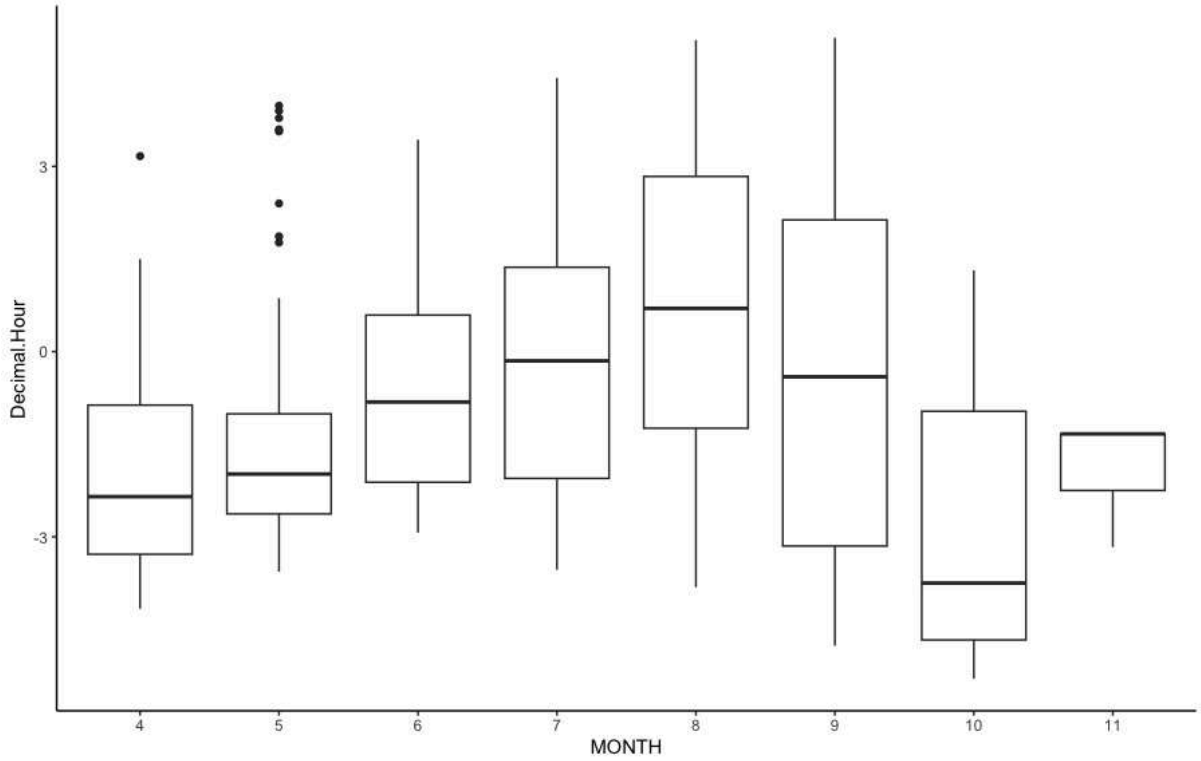


Figure 6: Seasonal variation in bat activity for *Eptesicus turcomanus*, highlighting changes in nightly activity patterns over the survey period.

5. Pipistrellus pipistrellus

Most commonly recorded species across both sites.

Nightly activity patterns: Activity gradually increased over the first two hours following sunset, suggesting individuals travelled from their roosting site to reach the survey sites for foraging. After a peak near midnight, the activity gradually decreases until sunrise. Many sequences exhibit signs of foraging behaviour (e.g. feeding buzzes) as well occasional social calls.

Seasonal activity patterns: No clear seasonal patterns were observed, which is consistent with this species' non-migratory and non-swarming nature. The significant increase in activity levels during weeks 35-38 are likely tied to display behaviours, known to occur at around the same time of the year in the rest of the species' distribution. Activity during the summer is very low, suggesting that the breeding populations do not use this site for foraging (potentially linked to specific insect species availability).

Additionally, activity peaks earlier in the night in September-October-November, likely following significant drops in temperature (and therefore insect activity).

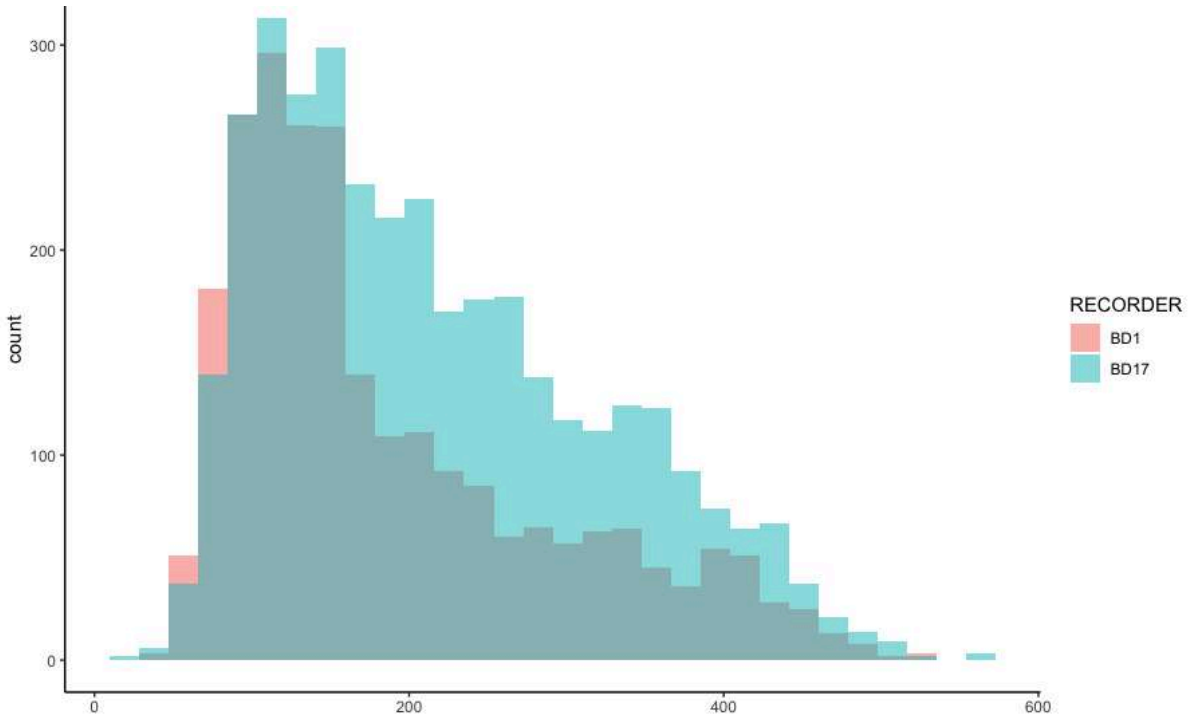


Figure 7: Nightly variation (minutes after sunset) in bat activity for *Pipistrellus pipistrellus*, showing the distribution of call sequences throughout the night across all survey dates

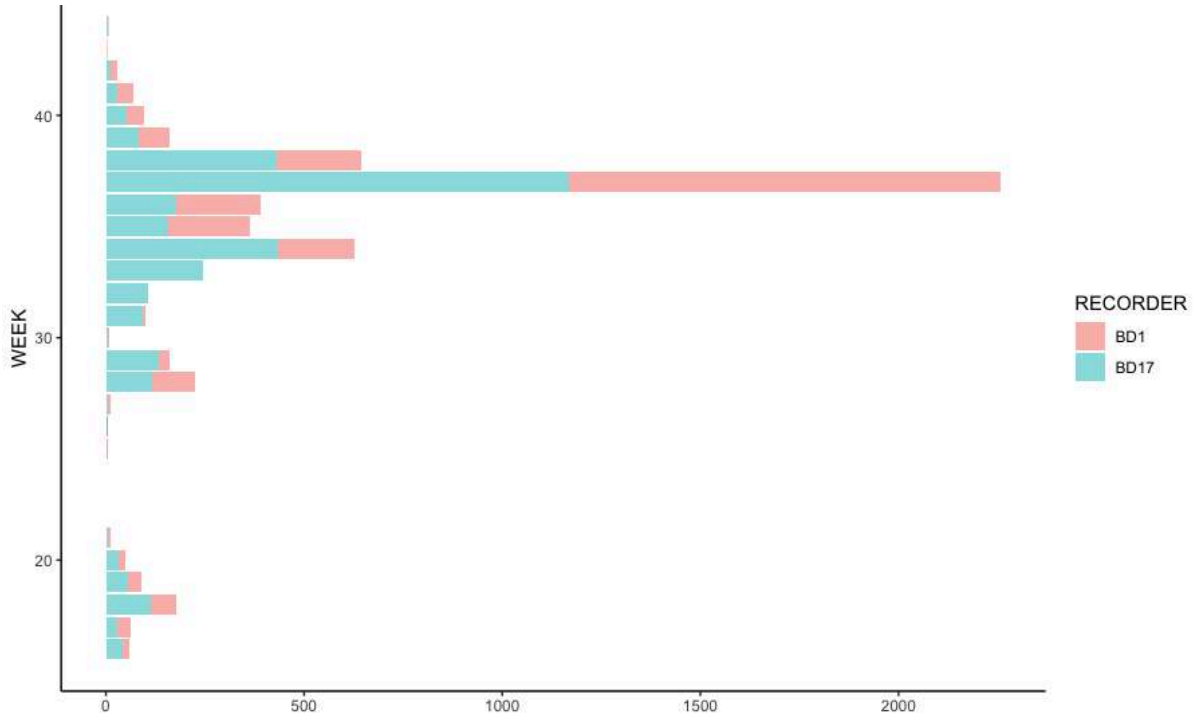


Figure 8: Seasonal variation in bat activity for *Pipistrellus pipistrellus*, highlighting changes in activity over the survey period.

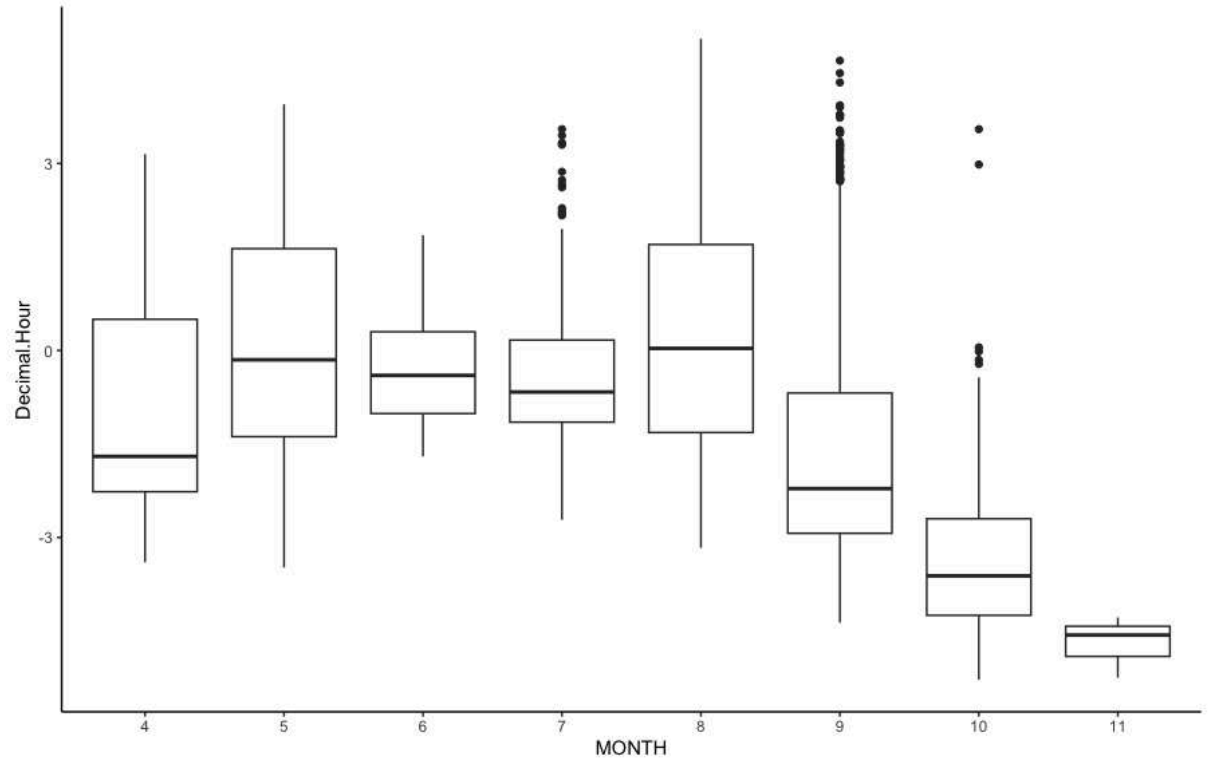


Figure 9: Seasonal variation in bat activity for *Pipistrellus pipistrellus*, highlighting changes in nightly activity patterns over the survey period.

6. Vespertilio murinus

Nightly activity patterns: activity peaked early in the evening, with a later peak as the season progressed (September-october), likely linked to migration.The activity is also more spread out across the night in the late summer and autumn, again suggesting seasonal movements.

Seasonal activity patterns: Peak occurs later as the season progresses and slight increase in activity but patterns are less obvious than for other species. Activity remains late in the night up until November, suggesting a stronger resilience to cold nights than other species, a behaviour that has been observed throughout the range of this species. It is not known to swarm but it is known to migrate over long distances. Activity during the month of September, in particular, appears to be high throughout the night and peaks in the second half of the night, both strong indicators of migration behaviour.

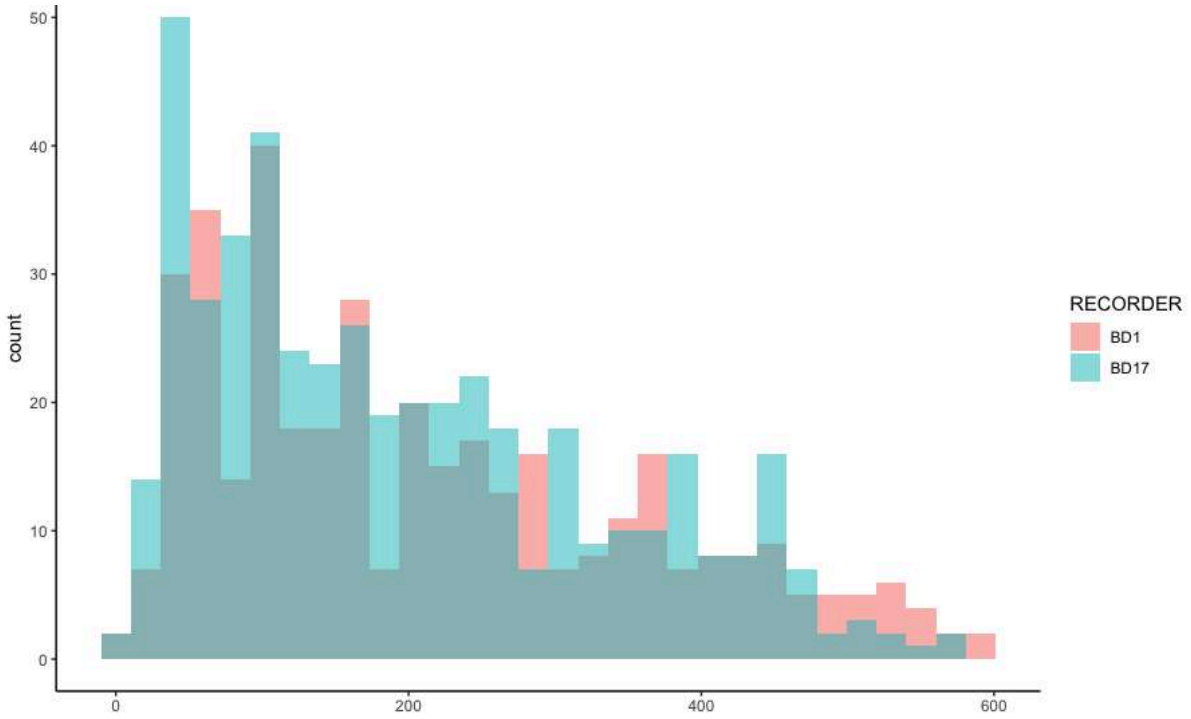


Figure 10: Nightly variation (minutes after sunset) in bat activity for *Vespertilio murinus*, showing the distribution of call sequences throughout the night across all survey dates

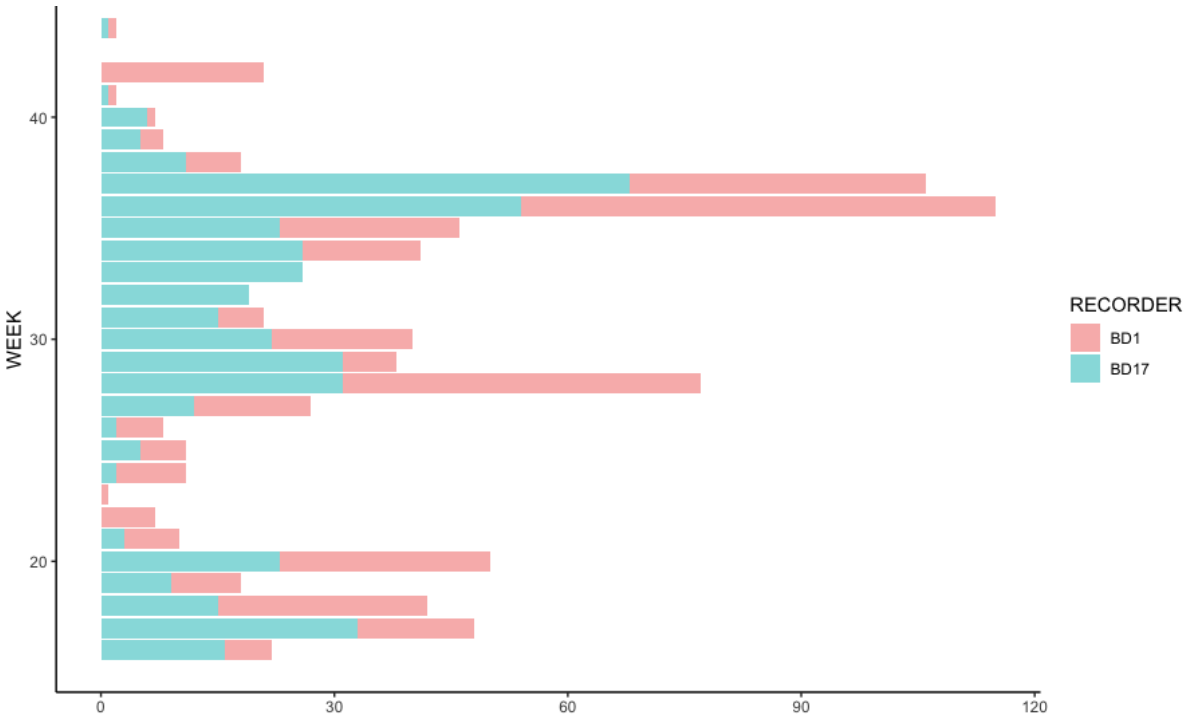


Figure 11: Seasonal variation in bat activity for *Vespertilio murinus*, highlighting changes in activity over the survey period.

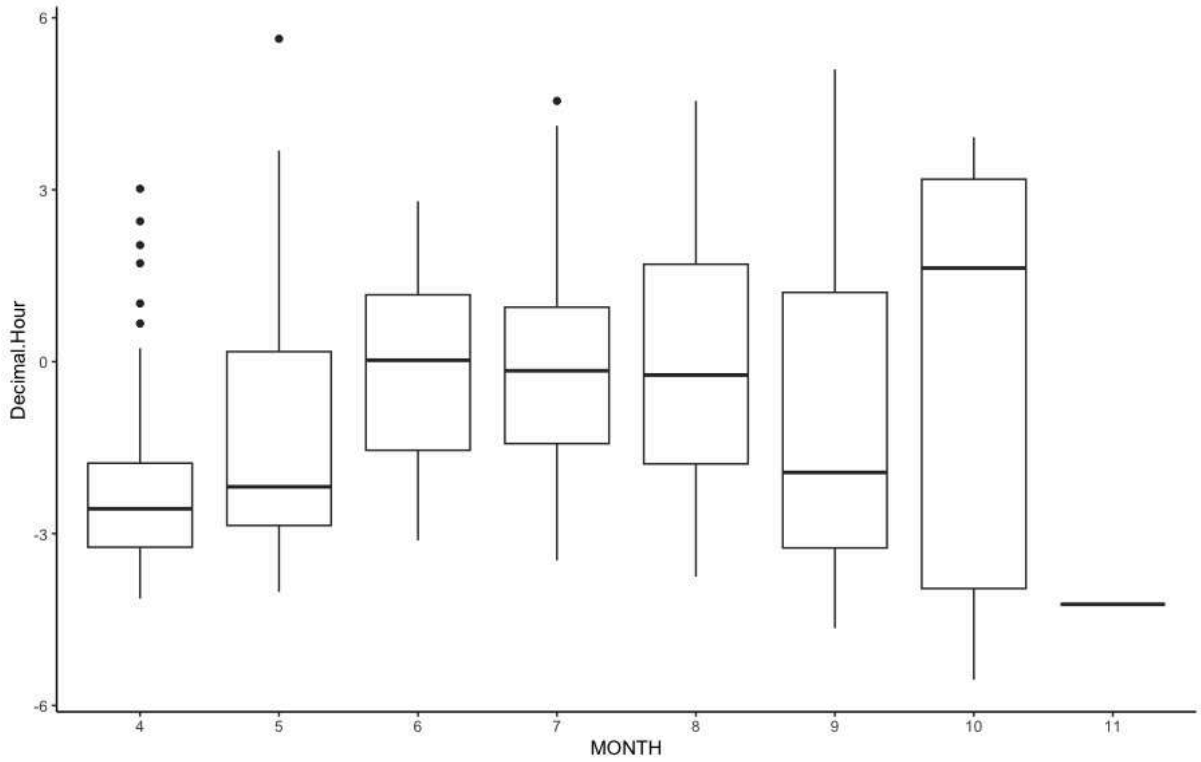


Figure 12: Seasonal variation in bat activity for *Vespertilio murinus*, highlighting changes in nightly activity patterns over the survey period.

Discussion

The survey identified six species, showing greater species diversity than previously recorded in the project's Environmental and Social Impact Assessment (ESIA). This may reflect seasonal shifts in bat assemblages and activity, particularly with *Eptesicus* and *Vespertilio* species, which demonstrated increased activity towards the end of summer and the autumn. It is also expected that longer deployments lead to a better understanding of the local diversity.

Overall, we appear to be dealing with sites that are predominantly used for transiting and foraging, particularly during seasonal movements e.g. swarming and migration. This makes bat species like *Vespertilio murinus* and those in the *Eptesicus* genus especially susceptible to wind turbine-related fatalities due to their flight behaviour, particularly during migration.

Limitations

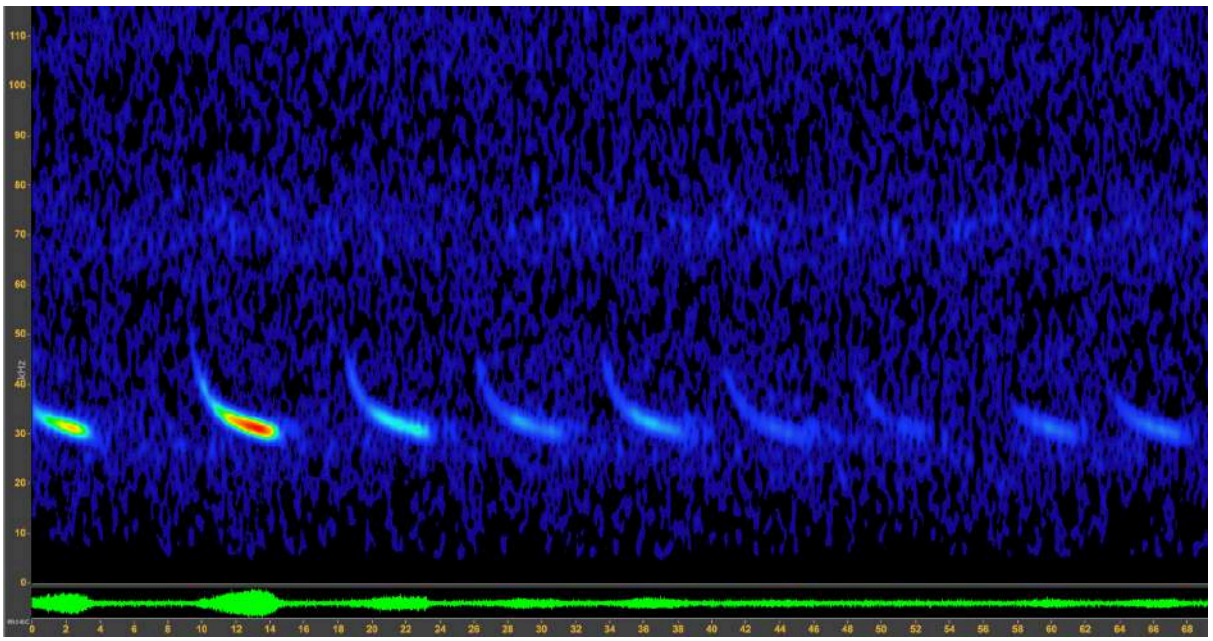
Species abundance cannot be reliably inferred from call sequence numbers, as individual bats may produce multiple recordings in a single night. Additionally, the taxonomy of Central Asian bats remains under-researched, leading to uncertainties in species identification based solely on acoustic data. Taxonomic revisions, such as the recent recognition of *Eptesicus turcomanus*, further complicate the interpretation of these results.

Data from the months of April and November only include two weeks of recordings. However, conclusions would be unlikely to change, had the recordings been running for the entirety of those months. Activity during those two months is expected to be (very) low due to low temperatures and limited prey availability.

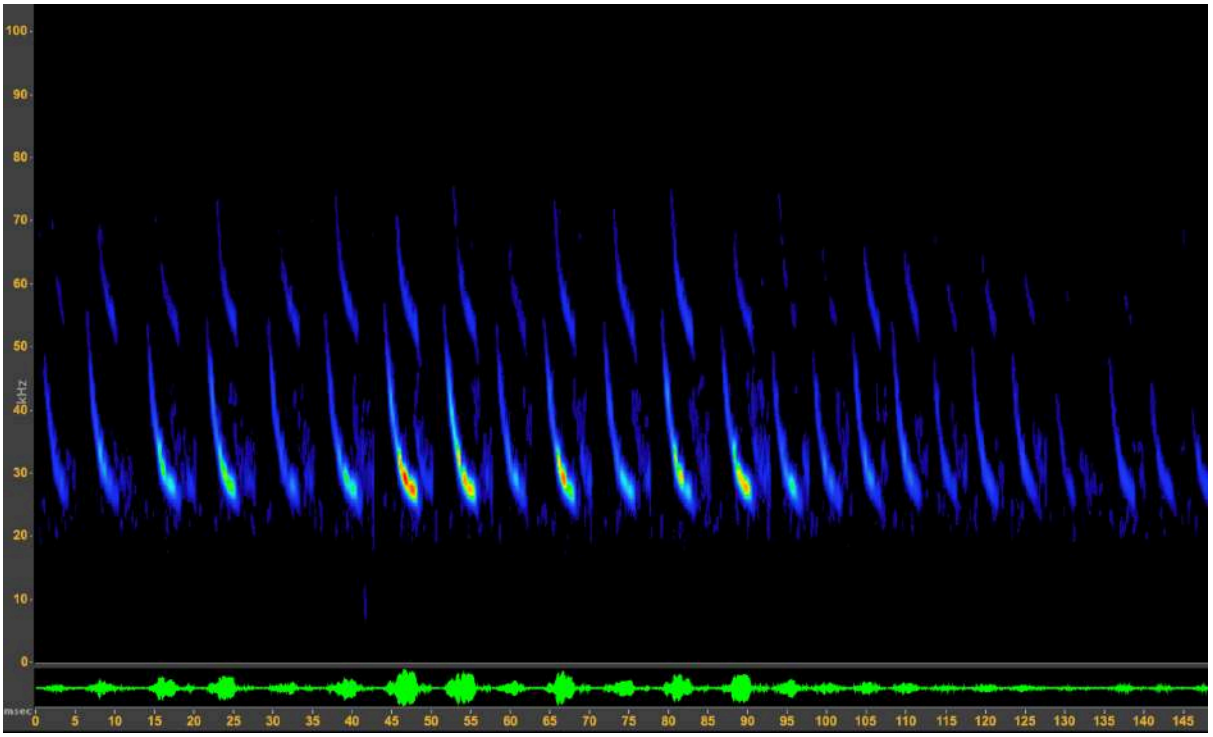
It is worth noting that activity levels in August appear lower than reality due to an equipment failure on one of the recorders between 31/07 and 21/08.

Appendix: Examples of call sequences

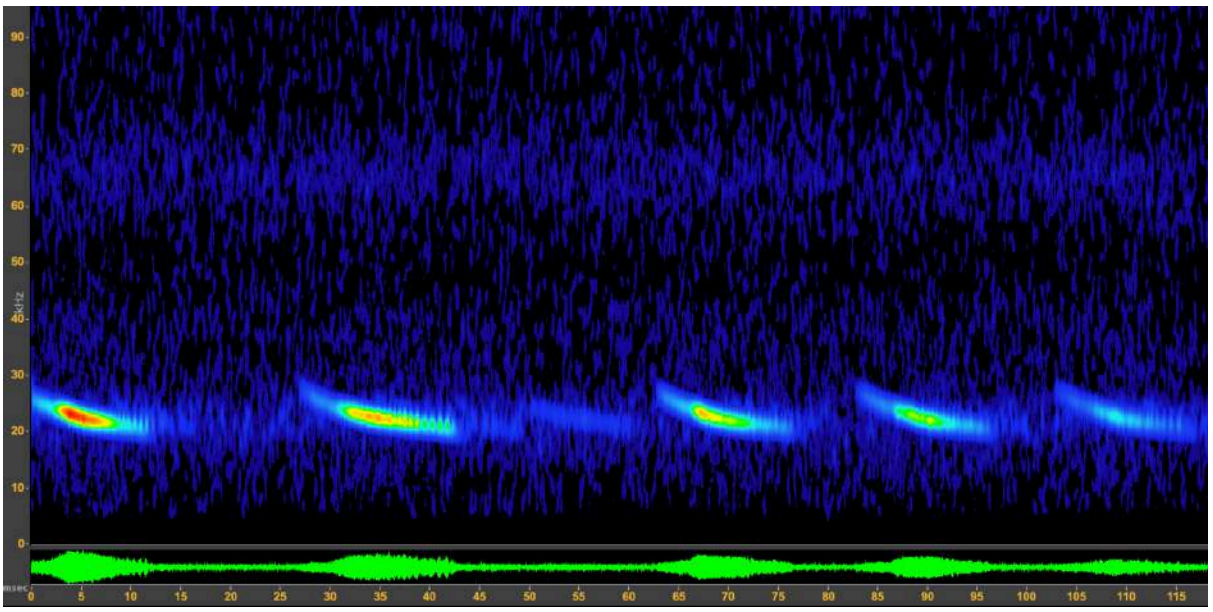
Eptesicus ognevi/gobiensis



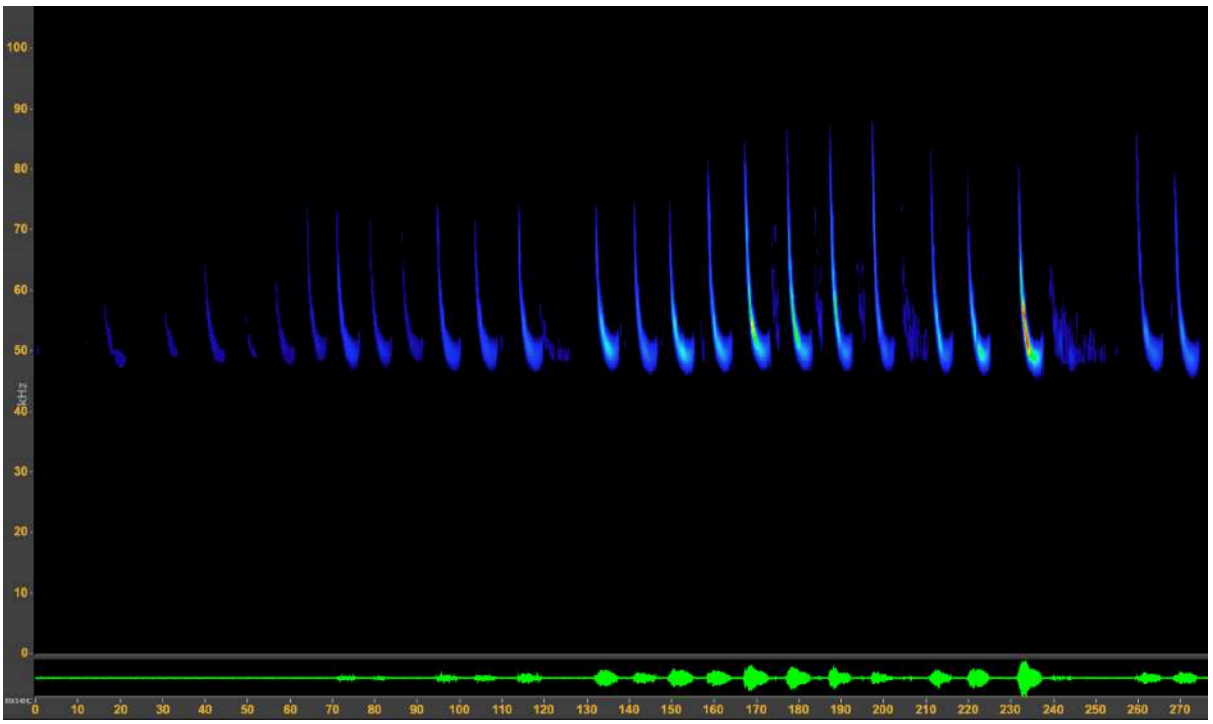
Eptesicus turcomanus



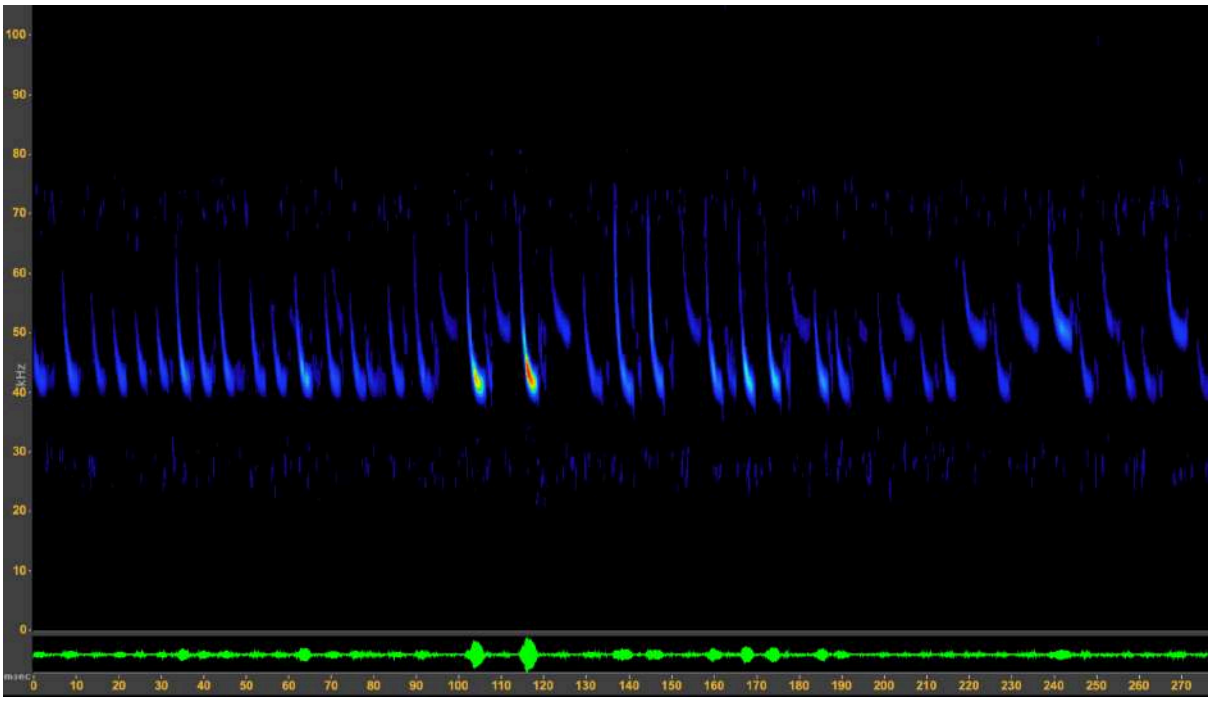
Vespertilio murinus



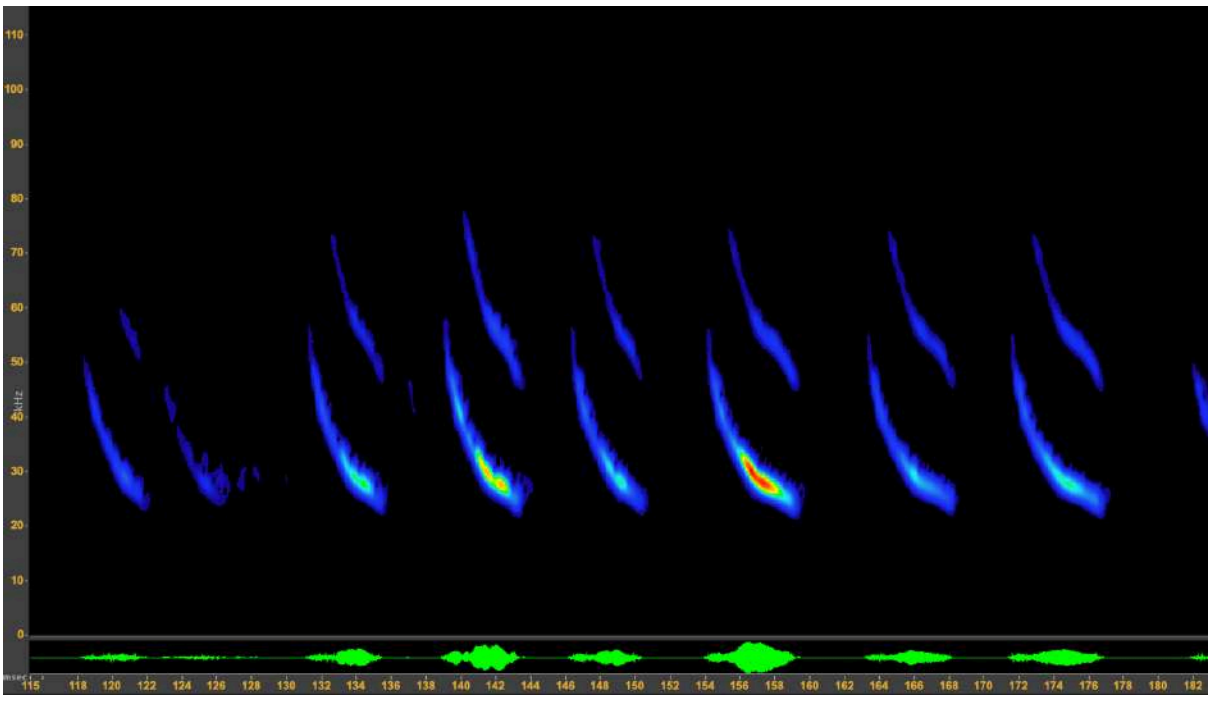
Pipistrellus pipistrellus



Pipistrellus kuhlii



Plecotus sp.



Botanical Survey Report

Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan

Consulting Firm:

Juru Energy Ltd

Suite 1, One George Yard, London, United Kingdom, EC3V 9DF

www.juruenergy.com

Prepared for:

5 Capitals Environmental and Management Consulting

Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE

www. 5capitals.com.

Document Information

Project Name	Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan
Document Title	Flora and vegetation Report
Jurur's Project Reference	UZB-ACWA-Nukus 200 MW ESIA
Client	5 Capitals
Juru's Project Manager	Dinara Rustami
Juru's Project Director	Jushkinbek Ismailov

Document Control

Version	Date	Description	Author	Reviewer	Approver
1	03.06.2024	Botanical Survey Report	Beshko Natalya Yu.	Anna Ten	Dinara Rustami

Disclaimer

Botanical Survey Report (the "Report") has been prepared by Juru Limited. Whilst the information contained in the Report reflects the current status, Juru makes no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report and accepts no liability for any information that may have been misstated or omitted.

This Report has been prepared exclusively for 5 Capitals. 5 Capitals makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. 5 Capitals has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains 5 Capitals property

Table of content

1. Introduction 4
2. Literature review 5
3. Materials and methods 10
4. Results of the field survey 13
4.1. Habitat assessment 13
4.2. Flora assessment 17
4.3. Findings and results 17
5. Conclusion 38
References 42
ANNEX 1. Check-list of flora 44
ANNEX 2. Photo materials on habitats 49

1. Introduction

The project area of Nukus II 200 MW Wind Farm is situated in central and eastern part of the range Sultan Uvays (also called Sultanuizdag), in Beruniy district of Karakalpakstan, Republic of Uzbekistan (Figure 1). The terrain is gentle to more or less rugged, with sabulous-loamy, loamy-skeleton and stony slopes. Within the wind park area, the elevations are 290–390 m.s.l., the lowest point of proposed power line at its connection with an existing electric substation is 95 m.s.l.

The range Sultan Uvays is an insular relic low mountain chain, stretching on about 70 km in the sub-latitudinal direction between the valley of Amudarya and sands of Kyzylkum. Sultan Uvays belongs to the northwestern group of low mountains of Kyzylkum. Its highest point is the mount Ashchytau (478 m.s.l.) located in the northwestern part of the range. Sultan Uvays has a rather gentle northern slope and a steep, stony, strongly eroded southern slope.

The climate is arid and sharply continental, with dry, hot summers, relatively severe winters and low rainfall. The mean temperature of January is near -5°C, the mean temperature of July is +27 °C, the lowest temperature recorded in this area is -34°C (1969), the highest recorded temperature is +45°C, and a mean annual precipitation is approximately 100 mm. According to the Köppen climate classification (Kottek & al., 2006), this region has cold arid desert climate (BWk). The soil is represented by gray-brown desert soils and fixed sands.

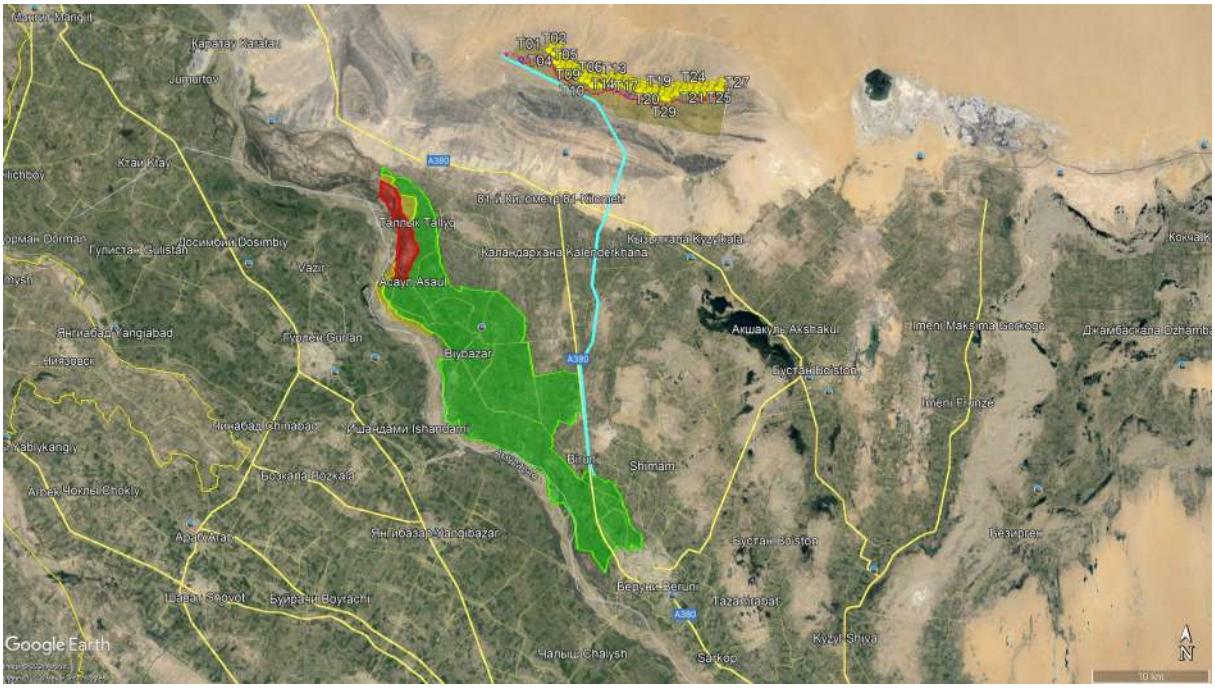


Figure 1. Project area. Note: blue line – planned OTHL, yellow markers T01–T29 – planned wind turbine locations, red fill – the core area of the Lower Amudarya Biosphere Reserve; yellow fill – buffer zone of the biosphere reserve; green fill – transition zone of the biosphere reserve.

At the foot of the northwestern part of Sultan Uvays, in the Amudarya floodplain, there is Baday-tugay riparian forest protected in the core zone of Lower Amudarya Biosphere Reserve (LABR). The total area of biosphere reserve is 68,717.8 hectares, it is divided into three functional zones, core, buffer and transitional. The strictly protected core zone covers 11,568 hectares (including the former Baday-Tugay Nature Reserve). The buffer zone covers 6,731 ha, and transition zone (or economic development zone) is 50,418 ha. This is one of the largest areas of natural riparian (tugay) ecosystems in Central Asia. In 2021, this protected area was included to the World Network of Biosphere Reserves by MAB UNESCO (https://en.unesco.org/biosphere/aspac/lower-amudarya-state). The core area of the biosphere reserve is situated 16 km to the southwest of the wind park project area (Figure 1).

2. Literature review

The flora of the desert Kyzylkum (including the Sultan Uvays range) has been well studied. The history of botanical research in this region has about two centuries. The first surveys of the flora and vegetation has been conducted in the middle of the 19th Century by European and Russian naturalists (Ch. Pander, E. Ewersmann, A. Lehmann, I.G. Borszczow, S.M. Smirnov, and others) who took part in several Russian diplomatic missions to Bukhara and Khiva Khanates. The history of botanical research of the 19th Century and early 20th Century has been described in great details by Russian botanist Vladimir Lipsky in his work "Flora of Central Asia, i.e. Russian Turkestan and Bukhara and Khiva Khanates" (1902–1905). A huge amount of herbarium material collected from this region is kept mainly in the National Herbarium of Uzbekistan in Tashkent (TASH), Herbarium of the Komarov Botanical Institute in St. Petersburg (LE), Herbarium of the Lomonosov Moscow State University (MW) and Herbarium of Institute of Botany and Phytointroduction in Almaty (AA).

In 1908–1917, the Migration Department of Russian government organized a number of large-scale expeditions for investigation of soils and vegetation of Central Asia within the framework of colonization of this region. In particular, a special expedition headed by Nikolay Dimo explored the Amudarya River basin. Thus, in 1913, Russian botanist Mikhail Popov carried out a short-term survey in Sultan Uvays and later published "Botanical-geographical sketch of the mountains Sultanuizdag" with the checklist of 121 plant species (1958).

In 1928, Central Asian State University organized a reconnaissance expedition to northwestern Kyzylkum and lower reaches of Amydarya, headed by I.M. Krasheninnikov. In 1931, K.D. Muravlyansky, Sh.M. Agababyan and M.A. Kasimenko studied rangelands and fodder plants of Kyzylkum (including Sultan Uvays and its surroundings). In 1932, the Karakalpak complex expedition headed by geobotanist A.G. Poretsky was established for the systematic and purposeful study of the flora and

vegetation of Kyzylkum, especially, desert pastures. Several famous botanists (F.N. Russanov, K.S. Afanassiev and others) participated in this expedition, collected extensive herbarium material, and made a great contribution to the investigation of the flora and ecosystems of nortwestern and central parts of the Kyzylkum desert (including project area). The published materials of the Karakalpak expedition gave the first detailed description of the vegetation cover of this territory.

One of the first estimates of the flora of Sultan Uvays was published by R. Abdurakhmanov (1967), who reported 240 plant species.

In 1962–1967, P.K Zakirov explored the flora and vegetation of the low mountains of Kyzylkum and the range Nuratau and published a monograph "Botanical geography of Nuratau Range and low mountains of Kyzylkum" (1971). This book contains detailed descriptions of the vegetation and a check-list of the flora with 556 species of vascular plants recorded for low mountains of Kyzylkum in total. Among them, 246 species have been listed for the Sultan Uvays. P.K. Zakirov also identified 26 plant associations of 6 formations in the vegetation of Sultan Uvays and compiled a geobotanical map.

According to B. Sherbaev (1978, 1988), the flora of the Karakalpak part of the Kyzylkum Desert includes 732 species of vascular plants, among them 444 species from 226 genera and 51 families are recorded for Sultan Uvays range (nearly twice that amount given by Abdurakhmanov and Zakirov). An unpublished check-list of the flora of Sultan Uvays with 448 plant species was compiled within the framework of research project "Botanical geography of Uzbekistan" (Tojibaev et al., 2017) performed by the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan. Shomurodov et al. (2018) studied populations of rare and endemic plants of the low mountains of Kyzylkum, including Sultan Uvays.

Several books devoted to the flora of the Republic of Karakalpakstan also contain the data on the flora and vegetation of the project area (Bondarenko, 1964; Turemuratov, 1978; Erezhepov, 1978; Korovina et al., 1982, 1983; Maylun, 1987–1990). A number of publications devoted to the vegetation of Kyzylkum desert, Uzbekistan and Central Asia (Korovin, 1961, 1962; Vegetation cover of Uzbekistan, 1971–1984; Rachkovskaya et al., 2003; Gintzburger et al., 2003; Tojibaev et al., 2017; Shomurodov et al., 2018; Shomurodov, 2018), as well as fundamental taxonomical treatments, including "Flora of the U.S.S.R." (1934–1964, in 30 volumes), 1st edition of the "Flora of Uzbekistan" (1941–1962, in 6 volumes), "Conspectus Florae Asiae Mediae" (1963–2015, in 11 volumes), and recently published first three volumes of the 2nd edition of the "Flora of Uzbekistan" (2016, 2017, 2019, 2022, 2023a, 2023b), should also be mentioned among the most important sources of botanical information.

The most recent floristic study in Sultan Uvays carried out by R. Esemuratova (2021, 2022) revealed 526 species of vascular plants, belonging to 257 genera and 55 families. The majority of species recorded for this region are typical for desert zone of Central Asia and more or less common and widely spread. Following 11 species are included in the Red Data Book of Uzbekistan (2019):

Astragalus centralis E. Sheld. (Fabaceae), category 2 (rare, endangered species) in the Red Data Book of Uzbekistan (2019). Perennial plant, national endemic and endemic to relic mountains of Kyzylkum. Flowering in April-May, fruiting in May-June. Grows on gravelly and stony slopes. According to data by Esemuratova (2021, 2022), this species was recorded on north-eastern slope of Sultan Uvays Range.

Astragalus holargyreus Bunge (Fabaceae), category 1 (disappearing, critically endangered species) in the Red Data Book of Uzbekistan (2019). Perennial plant, national endemic and endemic to relic mountains of Kyzylkum. Flowering in May, fruiting in June. Grows on rocks and stony slopes. According to data by Esemuratova (2021, 2022), this species was recorded on north-eastern slope of Sultan Uvays Range.

Ferula kyzylkumica Korovin (Apiaceae), category 3 (reducing, vulnerable species) in the Red Data Book of Uzbekistan (2019). Perennial plant, national endemic and endemic to relic mountains of Kyzylkum with a disjunction in the Nuratau Mountains. Flowering in May, fruiting in June. Grows on outcrops of variegated beds, gravelly and stony slopes. According to data by Esemuratova (2021, 2022), this species was recorded on north-eastern slope of Sultan Uvays.

Lagochilus vvedenskyi Kamelin & Zukerw. (Lamiaceae), category 3 (reducing, vulnerable species) in the Red Data Book of Uzbekistan (2019). Perennial plant, national endemic and endemic to relic mountains of Kyzylkum. Grows on eroded slopes. Flowering in June, fruiting in July–August. According to data by Esemuratova (2021, 2022), this species was recorded on north-eastern slope of Sultan Uvays.

Lappula aktaviensis Popov & Zakirov (Boraginaceae), category 1 (disappearing, critically endangered species) in the Red Data Book of Uzbekistan (2019). Annual plant, national endemic and endemic to relic mountains of Kyzylkum. Grows on rocks, outcrops of variegated beds, gravelly and stony slopes. Flowering in April, fruiting in May. According to data by Esemuratova (2021, 2022), this species was recorded on north-eastern slope of Sultan Uvays.

Lappula parvula Nabiev & Zakirov (Boraginaceae), category 2 (rare, endangered species) in the Red Data Book of Uzbekistan (2019). It is annual plant endemic to Sultan Uvays and endemic of Uzbekistan, which grows on sandy piedmonts of Sultan Uvays. Flowering in April, fruiting in May. According to

herbarium and published data, the nearest known location of *L. parvula* is the surroundings of the village Karatau. In accordance with the most actual treatment of Boraginaceae of Uzbekistan (2022), this species considered synonym of *Paracaryum bungei* (Boiss.) Brand widely spread in desert areas of Central Asia, Iran, Afghanistan and Pakistan.

Lepidium subcordatum Botsch. & Vved. (Brassicaceae), category 2 (rare, endangered species) in the Red Data Book of Uzbekistan (2019). It is perennial herb, national endemic of Uzbekistan, endemic to low mountains of Kyzylkum and plateau Ustyurt. It grows on stony and skeleton slopes and sandy piedmonts of remnant uplands and on outcrops of variegated beds. Flowering in April–May, fruiting in May–June. The nearest known location of *L. subcordatum* is situated in the surroundings of the Sultan Uvays cemetery and in the surroundings of the village Taldyk.

Scorzonera bungei Krasch. & Lipsch. (Asteraceae), category 2 (rare, endangered species) in the Red Data Book of Uzbekistan (2019). It is perennial herb, national endemic of Uzbekistan, endemic to low mountains Sultan Uvays and plateau Ustyurt growing on stony and gypsaceous slopes and rocks. Flowering in April, fruiting in May. The nearest known locations of this species are situated in the surroundings of the Sultan Uvays cemetery and on north-eastern slope of Sultan Uvays.

Silene tomentella Schischk. (Caryophyllaceae), category 2 (rare, endangered species) in the Red Data Book of Uzbekistan (2019). It is perennial herb, national endemic of Uzbekistan and endemic to relic mountains of Kyzylkum. Grows on stony slopes and rocks. Flowering in April–May, fruiting in May–June. According to data by Esemuratova (2021, 2022), this species was recorded on north-eastern slope of Sultan Uvays.

Stipa aktauensis Roshev. (Poaceae), category 2 (rare, endangered species) in the Red Data Book of Uzbekistan (2019). Perennial, national endemic and endemic to relic mountains of Kyzylkum. Grows on gravelly and stony slopes and rocks. Flowering and fruiting in April-June. According to data by Shomurodov et al. (2018), the nearest known location of this species is situated on north-eastern slope of Sultan Uvays.

Xylosalsola chiwensis (Popov) Akhani & Roalson (*Salsola chiwensis* Popov, Amaranthaceae), category 2 (rare, endangered species) in the Red Data Book of Uzbekistan (2019). It is a semishrub growing on grey-brown gypsaceous and marl soils in Ustyurt and Sultan Uvays. This species occurs in Uzbekistan and Turkmenistan. Flowering in July, fruiting in September. The nearest known location of this species is situated in the surroundings of the village Karatau.

Threatened species included in the IUCN Red List with the status of CR, EN or VU, are not known for the flora of Sultan Uvays.

According to the published data (Zakirov, 1971; Vegetation cover of Uzbekistan, 1971–1984; Geographical atlas of Uzbekistan, 2012), the vegetation of the Sultan Uvays range is represented with plant communities with domination of saltworts (*Xylosalsola arbuscula (Salsola arbuscula)*, *Oreosalsola arbusculiformis (S. arbusculiformis)*, *Caroxylon orientale (Salsola orientalis))*, *Caroxylon gemmascens (Salsola gemmascens))*, sagebrush (*Artemisia diffusa*, *A. terrae-albae, A. turanica*), species of *Astragalus* section *Ammodendron* (*Astragalus unifoliolatus*, *A. villosissimus),* and with participation of *Anabasis eriopoda*, *Anabasis salsa, Calligonum junceum, Climacoptera sp., Convolvulus fruticosus, C. hamadae, Haloxylon ammodendron*, *Halothamnus subaphyllus*. These communities are typical for gypsaceous, loamy-skeleton, sometimes saline or gypsaceous grey-brown desert soil of the low mountains of Kyzylkum. Large areas (particularly on the southern slope) are rocky, stony or strongly covered with gravel and practically devoid of vegetation, except for petrophytic species, such as *Astragalus subbijugus*, and single individuals of *Ephedra sp., Artemisia terrae-albae*, *Anabasis salsa, Anabasis annua, Haloxylon ammodendron*, *Salsola sp.*, *Atraphaxis compacta, Halothamnus subaphyllus, Halimocnemis longifolia, Halimocnemis macrantha, Halogeton glomeratus.* Psammophilous communities with domination of desert shrubs (*Haloxylon persicum, H. ammodendron, Ammodendron conollyi, Calligonum aphyllum*, *C. caput-medusae, C. leucocladum*, *C. microcarpum, Xylosalsola arbuscula (Salsola arbuscula), Xylosalsola richteri (Salsola richteri), Astragalus villosissimus),* sagebrush (*Artemisia diffusa, A. terrae-albae),* and desert sedge (*Carex physodes)* are represented on the sandy northern piedmonts of the Sultan Uvays. Psammophilous vegetation, particularly desert woodlands, forms a unique landscape of sandy deserts of Central Asia. The roots of plants, especially, the desert sedge, form a dense network fixing sands. In this connection, sowing of saxaul for sand fixation along the roads running through sandy deserts is recommended (Babayev, 1986).

Currently, the Lab of Geobotany of the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan carries out the state research program named “Assessment of the current state of vegetation cover and pasture resources in the Republic of Karakalpakstan”. In 2023, a digital map of more than 2 mln. hectares of pastures of the Karakalpak part of northwestern Kyzylkum was created on the basis of remote data and field research; 88 mapping units (pasture types) were identified within the study area of Karakalpak Kyzylkum (Annual Report, 2023).

3. Materials and methods

The field survey was carried out 13 April 2024, by traditional methods of botanical research commonly used for sampling and mapping of native non-forest vegetation, recognition of floristic composition and spatial patterns of plant communities (Field geobotany, 1959–1976; Granitov, 1980; Kent, 2011). All proposed turbine locations (T-01 to T-29) within the project site were inspected, as well as the route of the planned electric line from the Beruni substation to wind park area. The structure of plant communities was studied on 100x100 m geobotanical sample plots; check-lists of plant species recorded for each sample plot and a summary check-list of the flora of wind park project area were compiled.

For each sample plot, photographs of the landscape and vegetation were taken using a digital camera, and following data were recorded: location and physical environment (including GPS coordinates, elevation, topography, and soil type), state of vegetation, type of land use and disturbance factors (grazing, roads, etc.), plant community, canopy cover (%), all plant species present at the plot, their cover and abundance, phenological stage and height. Species abundance was determined using the Braun-Blanquet cover-abundance scale (+ – occasional and less than 1% cover of the sample plot area; 1 – abundant with low cover, or less abundant but with higher cover, 1–5% of the sample plot area; 2 – abundant with >5–25% of the sample plot area, irrespective of the number of individuals; 3 – >25–50% cover of the sample plot area, irrespective of the number of individuals; 4 – >50–75% cover of the sample plot area, irrespective of the number of individuals; 5 – >75% cover of the sample plot area, irrespective of the number of individuals) and the DACFOR scale: D – Dominant; A – Abundant, C – Common, F – Frequent, O – Occasional, R – Rare.

The final check-list of plant species recorded for the project area was compiled (Annex 1), and botany data template (MS Excel table) was filled. Species in the checklist are arranged in taxonomical order in accordance with the APG system (APG IV, 2016). Accepted scientific names are provided in accordance with the online global databases Plants of the World Online (www.plantsoftheworldonline.org/), International Plant Names Index (www.ipni.org) and Global Biodiversity Information Facility (www.gbif.org), as well as with recently published treatments of different taxonomical groups of the flora of Uzbekistan (Sennikov, 2016, 2017, 2019, 2022, 2023a, 2023b).

Plant species were identified using special literature, as “Conspectus Florae Asiae Mediae” (1963–1993), “Flora of Uzbekistan” (1941–1963, 2016, 2017, 2019, 2022, 2023a, 2023b) and “Flora of USSR” (1934–1964). Available publications and online databases (Nikitin, 1983; IUCN/ISSG, 2014; CABI, 2017; Sennikov et al., 2018) were used for identification of alien species, while the Red Data Book of

Uzbekistan (1984, 1998, 2006, 2009, 2019) and the IUCN Red List (www.iucnredlist.org) were used for identification of threatened species.

It should be noted that currently only 289 taxa of more than 4380 species recorded for the flora of Uzbekistan were assessed by IUCN (6.6% of the flora), 27 species of them were included in the IUCN Red List as threatened (7 – CR, 10 – EN, 10 – VU), 17 of them are redlisted at the national level. 12 plant species were assessed as Near Threatened (NT), 227 – Least Concern (LC), and 23 species belong to the category DD (Data Deficient). The majority of species of the flora of Uzbekistan has not yet been assessed by IUCN and belongs to the category NE (Not Evaluated).

To date, 5 editions of the Red Data Book of Uzbekistan have been published. The first (1984) included 163 plant species, the second (1998) – 301, the third (2006) – 302, the fourth (2009) – 321, and an actual, fifth edition (2019), includes 314 plant species. National categories of threatened plants are follows: 0 (probably extinct species) – more or less corresponds to EX or EW categories of the IUCN Red List (www.iucnredlist.org), 1 (endangered, disappearing species) – meets CR category of IUCN, 2 (rare species) – meets EN category of IUCN and 3 (vulnerable, declining species) – corresponds to VU or NT category of IUCN. In 2023, Instututes of Botany and Zoology of the Academy of Sciences of Uzbekistan began a project supported by the Minisry of Ecology, Environmental Protection and Climate Change, and aimed at bringing the Red Data Book of Uzbekistan to the modern global standards of the IUCN Red List. The publication of the sixth edition of the Red Data Book of Uzbekistan based on the IUCN Red List Categories and Criteria is planned for 2025.

For the purposes of implementation of IFC Performance Standard 6, habitats are divided into modified, natural, and critical. Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition. Modified habitats are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. Critical habitats are a subset of modified or natural habitats.

As defined by the International Finance Corporation (IFC) Performance Standard 6 (PS6) and EBRD Performance Requirement 6 (PR6), critical habitats are areas with high biodiversity value which meet at least one following criteria:

- Criterion 1. Habitat of significant importance to Critically Endangered and/or Endangered species;
- Criterion 2. Habitat of significant importance to endemic and/or restricted-range species;

- Criterion 3. Habitat supporting globally significant concentrations of migratory species and/or congregatory species;
- Criterion 4. Highly threatened and/or unique ecosystems;
- Criterion 5. Areas associated with key evolutionary processes.

Numerical thresholds have been defined for the first four critical habitat criteria, based on these published by IUCN in "A Global Standard for the Identification of Key Biodiversity Areas" (2016) and "IUCN Red List Categories and Criteria" (2012). Assessment parameters are: i) number of mature individuals, ii) area of occupancy, iii) extent of suitable habitat, iv) range, v) number of localities, vi) distinct genetic diversity.

According to the IFC Guidance Note 6, quantitative thresholds of critical habitat are following:

Criterion 1. CR/EN species: a) habitat required to sustain at least 10% of global population of CR or EN species, where there are known, regular occurrences of the species and where that habitat could be considered a discrete management unit for that species; (b) habitat with known, regular occurrences of CR or EN species where that habitat is one of 10 or fewer discrete management sites globally for that species; (c) habitat supports the regular occurrence of a single individual of a CR species and/or habitat containing regionally important concentrations of a red-listed EN species where that habitat could be considered a discrete management unit for that species/subspecies; (d) habitat of significant importance to CR or EN species that are wide-ranging and/or whose population distribution is not well understood and where the loss of such a habitat could potentially impact the long-term survivability of the species; (e) as appropriate, habitat containing nationally/regionally important concentrations of an EN, CR or equivalent national/regional listing.

Criterion 2. Endemic / restricted range species: (a) habitat known to sustain ≥95% of the global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species (e.g. a single-site endemic); (b) habitat known to sustain ≥1% but <95 % of the global population of an endemic or restricted-range species where that habitat could be considered a discrete management unit for that species, where data are available and/or based on expert judgment.

Criterion 3 (migratory species) is inapplicable for plants. As for Criterion 4, unfortunately, the officially approved national list of highly threatened and/or unique ecosystems and habitats does not exist in Uzbekistan. For Criterion 5, there are no numerical thresholds.

The habitat and LULC maps were created using QGIS 3.32 free software on the basis of visual interpretation of Google Earth free satellite imagery, topographic maps (1:100,000, available online for free at http://loadmap.net/), and the data of field survey.

It should be noted that detailed classification and mapping of habitats, and identification of threatened habitat types (as it was done in EU) has not yet been carried out in Uzbekistan and Central Asia, and this topic is urgent. Since Uzbekistan has not developed the national system of classification of habitats, we used IUCN Habitats Classification Scheme, ver. 3.1 (https://www.iucnredlist.org/resources/habitat-classification-scheme) and typology of native vegetation published in the "Vegetation cover of Uzbekistan" (1971–1984) for the classification of habitats of project area. As far it was applicable to the local conditions, we also followed the pan-European system, EUNIS habitat classification scheme.

4. Results of the field survey

4.1. Habitat assessment

A field survey has been conducted 13 April 2024.

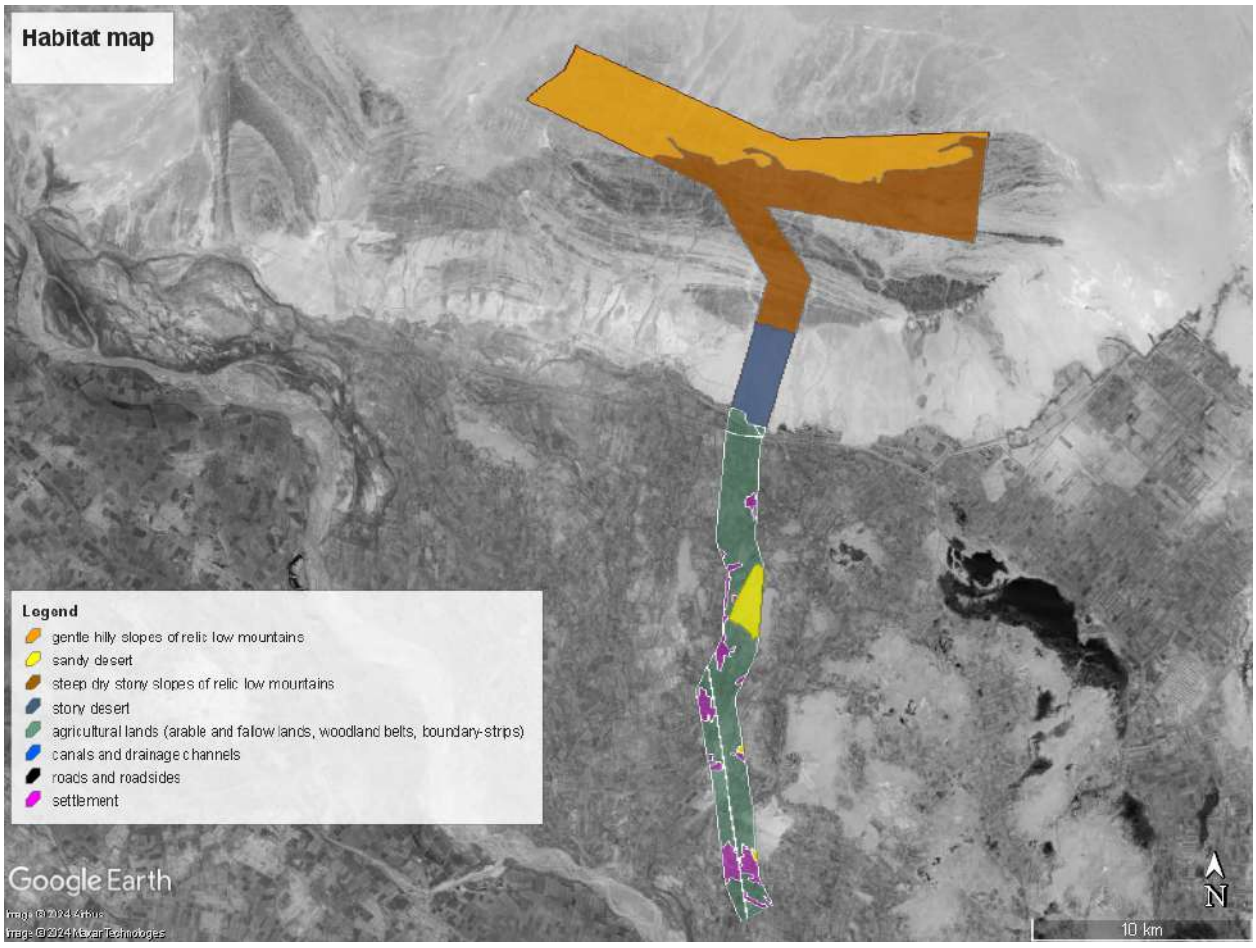


Figure 2: Habitat map

According to typology of native vegetation of Uzbekistan, IUCN Habitats Classification Scheme and EUNIS habitat classification, following habitat types and vegetation communities were identified within the project area (Figure 1):

Natural habitats are represented with 4 types:

1. Gentle hilly slopes of relic low mountains with sedge-saltwort-sagebrush and sagebrush-saltwort vegetation on sabulous-loamy and loamy grey-brown desert soil. Main dominants are sagebrush (*Artemisia diffusa, Artemisia turanica*), saltworts (*Oreosalsola arbusculiformis (Salsola arbusculiformis), Caroxylon orientale (Salsola orientalis), Xylosalsola arbuscula (Salsola arbuscula))*, desert sedge (*Carex physodes*) and bulbous bluegrass (*Poa bulbosa*). The canopy cover is 20–30%. This habitat type is represented within the wind park area along the crest of the range Sultan Uvays and on its northern slope. Proposed locations of wind turbines mostly fall into this habitat type, as well as the internal OTHL, BESS and wind farm substation and switching station. Currently, this habitat is used as pasture; the grazing pressure is moderate. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 8 – Desert and subtype 8.2 – Temperate desert. According EUNIS Habitats classification, this habitat more or less corresponds to the type S – Heathland, scrub and tundra and subtype S67 Aralo-Caspian semi-desert (Zonal scrub on loamy and sandy-loamy, often subsaline soils of the semi-deserts of the Caucasus foothills, South-Eastern European Russia and Kazakhstan).

2. Steep dry stony slopes of relic low mountains with rugged terrain and sparse petrophytic vegetation composed with *Ephedra sp., Atraphaxis compacta, Artemisia turanica*, *Anabasis sp., Haloxylon ammodendron*, *Salsola sp.*, *Halothamnus subaphyllus, Halimocnemis sp., Poa bulbosa* and annuals. The canopy cover is 10–20% or less, sometimes nearly 0. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 6 Rocky Areas (e.g., inland cliffs, mountain peaks). According to EUNIS habitat classification, this habitat corresponds to the type H Inland unvegetated or sparsely vegetated habitats, subtype H3 Inland cliffs, rock pavements and outcrops. This habitat type occupies the upper part of northern slope of the range Sultan Uvays (about 7 km in width), and the northern part of planned OTHL falls into this habitat type. Currently, this habitat is used as pasture; the grazing pressure is moderate. Other factors of human impact are small quarries, recreation and pollution with garbage.

3. Stony desert with skeleton or loamy-skeleton, sometimes gypsaceous grey-brown desert soil, with sparse black saxaul (*Haloxylon ammodendron*), sagebrush-saltwort and saltwort vegetation dominated by *Artemisia diffusa, Artemisia turanica*, *Caroxylon gemmascens (Salsola gemmascens), Caroxylon orientale (Salsola orientalis), Caroxylon incanescens (Salsola incanescens), Halimocnemis sp., Climacoptera sp.* The

canopy cover is 10–20%. This habitat is rather significantly disturbed due to human impact (ground roads, gravel extraction, railway, power lines, grazing, pollution with garbage). This habitat type is represented in weakly inclined southern piedmonts of the range Sultan Uvays (about 6–6 km in width), dissected with gravelly dry beds of temporary streams, and the northern part of planned OTHL falls into this habitat type. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 8 – Desert and subtype 8.2 – Temperate desert. According EUNIS Habitats classification, this habitat more or less corresponds to the type S – Heathland, scrub and tundra and subtype S67 Aralo-Caspian semi-desert (Zonal scrub on loamy and sandy-loamy, often subsaline soils of the semi-deserts of the Caucasus foothills, South-Eastern European Russia and Kazakhstan).

4. Sandy desert (semi-fixed sands with psammophilous vegetation). This habitat occupies small plot of about 1.5x3.5 km between settlements, agricultural lands, railway and roads, 12 km to the north of Beruni substation. Currently, this habitat is used as pasture; the human impact is high and connected with grazing and garbage pollution. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 8 – Desert and subtype 8.2 – Temperate desert. According EUNIS Habitats classification, this habitat more or less corresponds to the type S – Heathland, scrub and tundra and subtype S68 Semi-desert sand dune with sparse scrub (Open perennial vegetation of halophytic shrubs, e.g. *Artemisia spp.*, *Haloxylon spp.*, *Salsola spp.* and *Tamarix spp.*, and annuals on wind-blown drifting or stabilised dunes and sandy soils in the semi-desert region of the Caspian lowlands). The vegetation of this plot of sandy desert is represented with sparse community of *Xylosalsola arbuscula, Artemisia santolina, Astragalus villosissimus, Convolvulus hamadae, C. divaricatus,* desert sedge (*Carex physodes*) and annual saltworts (*Agriophyllum sp., Caroxylon scleranthum, Salsola paulsenii*). Small saline depressions between sandy hills are occupied with Russian box thorn or wolfberry (*Lycium ruthenicum*), tamarisk (*Tamarix laxa*) and camel thorn (*Alhagi pseudalhagi*). The canopy cover is 10–30%.

Modified habitats are represented with following types:

5. Arable lands with agricultural crops. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 14 Artificial – Terrestrial, subtype 14.1 Arable Land. According EUNIS Habitats classification, it corresponds to the type V – Vegetated man-made habitats, and represented with a subtype V1 Arable land and market gardens (V11 Intensive unmixed crops, on some areas with V14 Inundated or inundatable croplands, including rice fields). This is main type of modified (anthropogenic) habitats along the southern half of OTHL line, between Beruni substation and piedmonts of the range Sultan Uvays. Irrigated arable lands along the planned OTHL are used mainly under cotton (*Gossypium hirsutum*), wheat (*Triticum aestivum*), rice (*Oryza sativa*) and corn (*Zea mays*).

6. Fallow lands. IUCN habitat type 14 Artificial – Terrestrial, subtypes 14.1 Arable Land and 14.2 Pasture Land. It corresponds with EUNIS habitat type V – Vegetated man-made habitats, subtype V1 Arable land and market gardens (V15 Bare tilled, fallow or recently abandoned arable land). Saline abandoned fields are occupied with secondary plant communities with domination of camel thorn (*Alhagi pseudalhagi*), saltworts (*Suaeda sp., Climacoptera sp., Salsola sp., Caroxylon sp., Ceratocarpus arenarius*), annual and perennial weeds, sometimes with reeds (*Phragmites australis*) and sparse growth of halophytic shrubs, as tamarisk (*Tamarix hispida, T. ramosissima*), salt tree (*Caragana halodendron (Halimodendron halodendron*), Russian box thorn (*Lycium ruthenicum*), *Halocnemum strobilaceum* and *Halostachys caspica*. These communities represent different stages of succession. The species composition and abundance, and density of canopy cover very much varies on different areas depending of fallow land "age", level of soil salinization, meteorological conditions of the year and other local conditions.

7. Woodland belts, boundary-strips, roadsides, canals and drainage channels. This habitat type occupies a narrow stips (10–20 m in width) between the above-mentioned agricultural lands. IUCN habitat type 14 Artificial – Terrestrial, subtype 14.1 Arable Land. This habitat type corresponds with EUNIS habitat type V – Vegetated man-made habitats, and represented with a complex of 3 subtypes V64 Lines of planted trees, V38 Dry perennial anthropogenic herbaceous vegetation and V39 Mesic perennial anthropogenic herbaceous vegetation. These subtypes are often difficult to distinguish on a map as separate polygons because of their mosaic and small scale. Woodland belts are composed of poplar (*Populus euphratica, P. pruinose, P. afghanica, P. alba*), oleaster (*Elaeagnus angustifolia*), willow (*Salix alba*), elm (Ulmus sp.), mulberry (*Morus alba*), apricot (*Prunus armeniaca*), and other native and non-native trees. Banks of the Beruni collector channel (Kyrkkyz channel) and other smaller irrigation and drainage channels are occupied with poplar (*Populus euphratica, P. pruinosa*), oleaster (*Elaeagnus angustifolia*), tamarisk (*Tamarix ramosissima, T. hispida*), salt tree (*Caragana halodendron (Halimodendron halodendron*), Russian box thorn (*Lycium ruthenicum*), *Halostachys caspica,* and herbs, as camel thorn (*Alhagi pseudalhagi*), liquorice (*Glycyrrhiza glabra*), reeds (*Phragmites australis*), *Karelinia caspia*, *Aeluropus littoralis,* annual saltworts.

8. Settlements. The southern part of the planned OTHL crosses two villages, Makhtumkuli and Khanyap. The vegetation is represented with different native and non-native fruit and ornamental trees, vegetables, alfalfa (*Medicago sativa*), corn (*Zea mays*), and weeds. It corresponds with IUCN habitat type 14 Artificial – Terrestrial, subtype 14.4 Rural Gardens, and EUNIS habitat type J1 – Buildings of cities, towns and villages, subtype J1.2 Residential buildings of villages and urban peripheries.

The map of habitats and LULC map were created. During the field survey, all habitat types were inspected.

4.2. Flora assessment

In total, 89 plant species of 31 familes were recorded within the project area (8 species of trees, 10 shrubs, 11 semishrubs, 31 perennials, 29 annuals), none of them are included in the IUCN Red List as CR, EN or VU. 6 species of trees are introduced; these grow in the woodland belts and settlements. One species is nationally redlisted *Lepidium subcordatum* (Brassicaceae), national endemic and endemic to relic mountains of Kyzylkum and plateau Ustyurt, assessed as rare, endangered species (category 2) in the Red Data Book of Uzbekistan (2019). Small populations of this plant were found within the wind park area in following locations:

1. 42.068528° N 60.646931° E – wind park area, turbine T06, upper part of north slope near the crest of the range Sultan Uvays, top of gravelly hill, 6 specimens of *Lepidium subcordatum.*
2. 42.065274° N 60.652503° E – wind park area, turbine T07, crest of the range Sultan Uvays, top of stony-gravelly hill, 7 specimens of *Lepidium subcordatum.*
3. 42.063976° N 60.659053° E – wind park area, turbine T08, crest of the range Sultan Uvays, top of stony-gravelly hill, 6 specimens of *Lepidium subcordatum.*
4. 42.053653° N 60.735657° E – wind park area, turbine T18, crest of the range Sultan Uvays, top of stony hill, 8 specimens of *Lepidium subcordatum.*
5. 42.054827° N 60.751844° E – wind park area, turbine T-20, crest of the range Sultan Uvays, top of stony hill, 6 specimens of *Lepidium subcordatum.*
6. 42.03837° N 60.68888° E – near the planned OTHL, steep stony southern slope of the range Sultan Uvays, surroundings of the well Kokraly, 4 specimens of *Lepidium subcordatum.*

Most of species recorded for the project ares are typical for desert zone of Central Asia and more or less common and widely spread. The number of plant species recorded per sample plot in wind park area, varies from 11 to 24, along OTHL it varies from 11 to 44 species per sample plot. Checklist of flora is represented in Annex 1.

4.3. Findings and results

In total, 29 sample plots were described within wind park area, and 9 sample plots were described along the planned OHTL. Check-lists of plants recorded for each sample plot are presented below (Tables 1–38). Photographs are represented in Annex 2. The vegetation within the wind park area is

very uniform and sparse, with poor species composition; almost the same plant species, with minor variations, were recorded in each turbine location, BESS and substation area.

Table 1. Check-list of plants recorded for sagebrush-saltwort community (Caroxylon orientale, Oreosalsola arbusculiformis, Artemisia diffusa) on loamy grey-brown desert soil on the top of hill on gentle northern slope of the range Sultan Uvays (turbine T-01, 42.087134 N 60.622075 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	Perennial	15–20	R	+	vegetation
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	10–15	O	+	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	20–30	A	1	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Heterocaryum subsessile	perennial	10–12	R	+	Flowering, fruiting
Koelpinia linearis	annual	10–12	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	F	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–35	O	1	vegetation
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	O	+	Flowering, fruiting
Tulipa sogdiana	Perennial	10–15	R	+	fruiting

Table 2. Check-list of plants recorded for saltwort community (Caroxylon orientale, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the top of hill on gentle northern slope of the range Sultan Uvays (turbine T-02, 42.08455 N 60.628205 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	Perennial	15–20	R	+	vegetation
Artemisia diffusa	semishrub	15–20	O	+	vegetation
Carex physodes	Perennial	10–15	O	+	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	30–35	A	1	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Heterocaryum subsessile	perennial	10–12	R	+	Flowering, fruiting
Koelpinia linearis	annual	10–12	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	F	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	20–30	F	1	vegetation
Nanophyton erinaceum	semishrub	5–7	R	+	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering

Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	O	+	Flowering, fruiting
Tulipa sogdiana	Perennial	10–15	O	+	fruiting

Table 3. Check-list of plants recorded for sedge-saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Carex physodes) with solitary Ferula foetida on sabulous-loamy grey-brown desert soil on gentle northern slope of the range Sultan Uvays (turbine T-03, 42.08455 N 60.628205 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Arnebia transcaspica	annual	10–15	R	+	flowering
Artemisia diffusa	semishrub	15–20	C	1	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–17	F	1	flowering
Ceratocephala falcata	annual	5–6	R	+	fruiting
Caroxylon orientale (Salsola orientalis)	semishrub	30–35	A	1	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	30–40	R	+	Vegetation, budding
Heterocaryum subsessile	perennial	10–15	O	+	Flowering, fruiting
Hypecoum pendulum	annual	15–20	O	+	Flowering, fruiting
Koelpinia linearis	annual	10–12	O	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	F	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–35	O	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Scorzonera sericeolanata	perennial	15–20	R	+	flowering
Tulipa sogdiana	Perennial	10–15	R	+	fruiting

Table 4. Check-list of plants recorded for saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on gentle northern slope of the range Sultan Uvays (turbine T-04, 42.073059 N 60.634725 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Bromus tectorum	annual	10–15	R	+	vegetation
Carex physodes	Perennial	15–17	O	+	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	20–30	A	1	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	O	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	30–40	R	+	Vegetation
Hypecoum pendulum	annual	15–20	O	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	O	+	Flowering, fruiting
Nanophyton erinaceum	semishrub	7–10	O	+	vegetation
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	35–40	O	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering

Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 5. Check-list of plants recorded for sedge-sagebrush-saltwort community (Carex physodes, Artemisia diffusa, Caroxylon orientale) with Ferula foetida and solitary Atraphaxis compacta on sabulous-loamy grey-brown desert soil on gentle northern slope of the range Sultan Uvays (turbine T-05, 42.071225 N 60.640994 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Allium caspium	perennial	7–10	R	+	vegetation
Artemisia diffusa	semishrub	15–20	A	1	vegetation
Astragalus villosissimus	semishrub	30–35	R	+	vegetation
Atraphaxis compacta	shrub	20–25	O	+	flowering
Bromus tectorum	annual	7–10	O	+	vegetation
Carex physodes	Perennial	15–20	F	1	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	20–30	A	1	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	F	1	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Ferula foetida	perennial	20–25	F	1	Vegetation
Gagea divaricata	perennial	7–10	O	+	Flowering, fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Heterocaryum subsessile	annual	10–15	O	+	Flowering, fruiting
Hypecoum pendulum	annual	15–20	O	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	O	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	O	1	vegetation
Nonea caspica	annual	5–7	R	+	flowering
Peganum harmala	perennial	20–25	R	+	vegetation
Poa bulbosa	Perennial	10–15	F	1	flowering

Table 6. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale) with solitary Ferula foetida on the top of gravelly hill on the crest of the range Sultan Uvays (turbine T-06, 42.068528 N 60.646931 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Atraphaxis compacta	shrub	20–30	R	+	flowering
Bromus tectorum	annual	7–10	R	+	vegetation
Carex physodes	Perennial	15–17	R	+	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	20–30	A	1	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	O	+	vegetation
Ephedra lomatolepis	shrub	20–30	O	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	O	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting

Heterocaryum subsessile	annual	10–15	O	+	Flowering, fruiting
Hypecoum pendulum	annual	15–20	R	+	Flowering, fruiting
Lepidium subcordatum	perennial	7–10	R	+	vegetation
Leptaleum filifolium	annual	5–7	O	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	35–40	O	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	Perennial	7–10	R	+	fruiting

Table 7. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-07, 42.065274 N 60.652503 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Atraphaxis compacta	shrub	20–30	R	+	flowering
Bromus tectorum	annual	7–10	R	+	vegetation
Caroxylon orientale (Salsola orientalis)	semishrub	20–30	F	1	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	O	+	vegetation
Ephedra lomatolepis	shrub	20–30	O	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	15–20	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Lepidium subcordatum	perennial	7–10	R	+	vegetation
Leptaleum filifolium	annual	5–7	O	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	35–40	A	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 8. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-08, 42.063976 N 60.659053 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Atraphaxis compacta	shrub	10–15	R	+	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	20–30	F	1	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	O	+	vegetation
Ephedra lomatolepis	shrub	15–20	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting

Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Lepidium subcordatum	perennial	7–10	R	+	vegetation
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–35	F	1	vegetation
Poa bulbosa	Perennial	10–15	R	+	flowering

Table 9. Check-list of plants recorded for saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-09, 42.062834 N 60.665331 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	A	2	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 10. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-10, 42.059475 N 60.670215 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Carex physodes	Perennial	12–15	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	C	2	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Heterocaryum subsessile	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	O	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	O	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	Perennial	10–12	R	+	fruiting

Table 11. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-11, 42.060249 N 60.678646 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	A	2	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Ephedra lomatolepis	shrub	20–30	R	+	Vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 12. Check-list of plants recorded for saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on sabulous-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-12, 42.0631 N 60.688695 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	Perennial	15–20	R	+	vegetation
Artemisia diffusa	semishrub	15–20	A	2	vegetation
Atraphaxis compacta	shrub	20–30	R	+	Flowering, fruiting
Bromus tectorum	annual	7–10	R	+	vegetation
Carex physodes	Perennial	15–20	F	1	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	O	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	O	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Scorzonera sericeolanata	Perennial	15–20	R	+	Flowering, fruiting

Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 13. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on sabulous-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-13, 42.061371 N 60.694969 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	A	2	vegetation
Bromus tectorum	annual	7–10	R	+	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	30–40	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	O	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Papaver pavoninum	annual	7–10	R	+	flowering
Poa bulbosa	Perennial	10–15	O	+	flowering
Scorzonera sericeolanata	Perennial	15–20	R	+	Flowering, fruiting
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 14. Check-list of plants recorded for sparse saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-14, 42.06099 N 60.703817 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	perennial	15–20	R	+	vegetation
Artemisia diffusa	semishrub	15–20	A	1	vegetation
Astragalus subbijugus	perennial	7–10	R	+	Flowering, fruiting
Atraphaxis compacta	shrub	15–20	R	+	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	15–20	O	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Ephedra lomatolepis	shrub	15–20	R	+	vegetation
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting

Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	25–30	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	perennial	7–10	R	+	fruiting

Table 15. Check-list of plants recorded for sedge-sagebrush community (Artemisia diffusa, Carex physodes) on sabulous grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-15, 42.058235 N 60.70927 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Allium caspium	perennial	7–10	O	+	vegetation
Artemisia diffusa	semishrub	15–20	C	2	vegetation
Astragalus villosissimus	semishrub	30–40	R	+	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	C	1	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	O	+	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Ferula foetida	perennial	30–40	R	+	Vegetation, flowering
Gagea afghanica	perennial	7–10	R	+	Flowering, fruiting
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Iris longiscapa	perennial	15–17	R	+	flowering
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	R	+	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Scorzonera sericeolanata	Perennial	15–20	R	+	Flowering, fruiting

Table 16. Check-list of plants recorded for sparse saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-16, 42.056595 N 60.722344 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	perennial	15–20	R	+	vegetation
Anabasis eriopoda	semishrub	15–20	R	+	vegetation
Artemisia diffusa	semishrub	15–20	A	1	vegetation
Atraphaxis compacta	shrub	20–25	R	+	fruiting
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	15–20	O	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Ephedra lomatolepis	shrub	20–25	R	+	vegetation

Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	25–30	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 17. Check-list of plants recorded for sedge-sagebrush community (Artemisia diffusa, Carex physodes) with Ferula foetida on sabulous grey-brown grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-17, 42.05504 N 60.729312 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	perennial	20–25	R	+	vegetation
Allium caspium	perennial	7–10	O	+	vegetation
Anabasis eriopoda	semishrub	15–20	R	+	vegetation
Artemisia diffusa	semishrub	20–25	C	2	vegetation
Astragalus villosissimus	semishrub	30–40	R	+	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	C	1	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	O	+	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Ferula foetida	perennial	40–60	O	1	Vegetation, flowering
Gagea afghanica	perennial	7–10	R	+	Flowering, fruiting
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Heterocaryum subsessile	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	R	+	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Scorzonera sericeolanata	Perennial	15–20	R	+	Flowering, fruiting

Table 18. Check-list of plants recorded for sedge-sagebrush community (Artemisia diffusa, Carex physodes) on sabulous grey-brown grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-18, 42.053653 N 60.735657 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	perennial	20–25	R	+	vegetation
Anabasis eriopoda	semishrub	15–20	R	+	vegetation
Artemisia diffusa	semishrub	15–20	C	2	vegetation
Astragalus villosissimus	semishrub	30–40	R	+	vegetation

Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	C	1	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	O	+	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	O	+	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Ferula foetida	perennial	20–30	O	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Lepidium subcordatum	Perennial	10–15	R	+	vegetation
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	R	+	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Scorzonera sericeolanata	Perennial	15–20	R	+	Flowering, fruiting
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 19. Check-list of plants recorded for sparse saltwort-sagebrush community (Caroxylon orientale, Oreosalsola arbusculiformis, Artemisia diffusa) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-19, 42.052553 N 60.743357 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Gagea divaricata	perennial	7–10	R	+	fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 20. Check-list of plants recorded for sparse saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on stony grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-20, 42.054827 N 60.751844 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Anabasis eriopoda	semishrub	12–15	R	+	vegetation
Artemisia diffusa	semishrub	20–25	A	1	vegetation
Atraphaxis compacta	shrub	20–25	R	+	Flowering, fruiting
Carex physodes	Perennial	12–15	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–25	F	1	vegetation

Cousinia hamadae	Perennial	20–25	R	+	vegetation
Ephedra lomatolepis	shrub	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Lepidium subcordatum	Perennial	10–15	R	+	vegetation
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	perennial	7–10	R	+	fruiting

Table 21. Check-list of plants recorded for saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) with Ephedra lomatolepis on sabulous-stony grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-21, 42.056156 N 60.758105 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Bromus tectorum	annual	10-–15	O	+	vegetation
Carex physodes	Perennial	10–12	R	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Ephedra lomatolepis	shrub	20–25	F	1	vegetation
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	F	+	Flowering, fruiting

Table 22. Check-list of plants recorded for saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-22, 42.07173 N 60.766396 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	20–25	A	2	vegetation
Carex physodes	Perennial	15–20	C	1	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	fruiting
Heterocaryum subsessile	annual	10–15	R	+	Flowering, fruiting

Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	O	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Scorzonera sericeolanata	Perennial	15–20	R	+	Flowering, fruiting
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	perennial	7–10	R	+	fruiting

Table 23. Check-list of plants recorded for saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) with Ephedra lomatolepis on stony-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-23, 42.056914 N 60.773003 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	perennial	20–25	R	+	vegetation
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Ephedra lomatolepis	shrub	20–25	F	1	vegetation
Ferula foetida	perennial	20–25	R	+	Vegetation
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	F	+	Flowering, fruiting

Table 24. Check-list of plants recorded for saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on sabulous-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-24, 42.056824 N 60.780402 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	20–25	A	2	vegetation
Atraphaxis compacta	shrub	20–25	R	+	Flowering, fruiting
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Gagea divaricata	perennial	7–10	R	+	fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	O	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering

Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 25. Check-list of plants recorded for sagebrush-saltwort community (Caroxylon orientale, Oreosalsola arbusculiformis, Artemisia diffusa) on sabulous-stony grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-25, 42.057157 N 60.78694 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	30–40	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Papaver pavoninum	annual	10–15	R	+	flowering
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 26. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-26, 42.058675 N 60.795601 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Anabasis eriopoda	semishrub	12–15	R	+	vegetation
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Atraphaxis compacta	shrub	20–25	R	+	Flowering, fruiting
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	F	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	A	2	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Heterocaryum subsessile	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting

Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	perennial	7–10	R	+	fruiting

Table 27. Check-list of plants recorded for sagebrush-saltwort community (Oreosalsola arbusculiformis, Caroxylon orientale, Artemisia diffusa) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-27, 42.060537 N 60.806304 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	A	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Ephedra lomatolepis	shrub	20–25	R	1	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Krascheninnikovia ceratoides	semishrub	30–35	R	+	vegetation
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	perennial	7–10	R	+	fruiting

Table 28. Check-list of plants recorded for sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on sabulous-skeleton grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-28, 42.05763 N 60.715819 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	A	2	vegetation
Carex physodes	Perennial	15–20	F	1	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Ferula foetida	perennial	20–25	R	+	Vegetation
Gagea divaricata	perennial	7–10	R	+	fruiting
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation

Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting

Table 29. Check-list of plants recorded for sagebrush-saltwort community (Oreosalsola arbusculiformis, Caroxylon orientale, Artemisia diffusa) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-29, 42.051332 N 60.748797 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Artemisia diffusa	semishrub	15–20	F	1	vegetation
Atraphaxis compacta	shrub	20–25	R	+	fruiting
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	15–20	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	20–30	A	1	vegetation
Ceratocarpus arenarius	annual	7–10	R	+	vegetation
Ceratocephala falcata	annual	5–6	R	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Ephedra lomatolepis	shrub	20–25	O	+	vegetation
Eremopyrum bonaepartis	annual	7–10	R	+	flowering
Gagea divaricata	perennial	7–10	R	+	Flowering, fruiting
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Heterocaryum subsessile	annual	10–15	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Papaver pavoninum	annual	10–15	R	+	flowering
Paracaryum physodes	annual	5–7	R	+	Flowering, fruiting
Poa bulbosa	Perennial	10–15	O	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	R	+	Flowering, fruiting
Tulipa sogdiana	perennial	7–10	R	+	fruiting
Veronica campylopoda	annual	10–15	R	+	Flowering, fruiting

Table 30. Check-list of plants recorded for sedge-saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Carex physodes) with solitary Ferula foetida on sabulous grey-brown desert soil on the gentle north slope of the range Sultan Uvays (wind park, BESS area, 42.086454 N 60.593182 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	Perennial	20–25	R	+	vegetation
Arnebia transcaspica	annual	10–15	R	+	flowering
Artemisia diffusa	semishrub	25–30	A	2	vegetation
Artemisia turanica	semishrub	25–30	O	+	vegetation
Astragalus villosissimus	semishrub	30–40	R	+	vegetation
Atraphaxis compacte	shrub	30–35	R	+	Flowering, fruiting
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	12–15	C	1	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	25–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation

Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Ferula foetida	perennial	20–30	O	+	Vegetation
Gagea divaricata	perennial	7–10	O	+	Flowering, fruiting
Goldbachia laevigata	annual	12–15	O	+	Flowering, fruiting
Heterocaryum szovitsianum	annual	10–15	O	+	Flowering, fruiting
Hypecoum pendulum	annual	15–20	O	+	Flowering, fruiting
Krascheninnikovia ceratoides	semishrub	30–35	O	+	vegetation
Leptaleum filifolium	annual	5–7	F	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	perennial	10–15	O	+	flowering
Scorzonera sericeolanata	Perennial	10–15	R	+	vegetation
Tulipa sogdiana	Perennial	10–12	O	+	fruiting

Table 31. Check-list of plants recorded for sedge-saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Carex physodes) with solitary Ferula foetida on skeleton-sabulous grey-brown desert soil on the gentle north slope of the range Sultan Uvays (wind park, substation area, 42.060318 N 60.710131 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	Perennial	20–25	R	+	vegetation
Arnebia transcaspica	annual	10–15	R	+	flowering
Artemisia diffusa	semishrub	25–30	A	2	vegetation
Artemisia turanica	semishrub	25–30	O	+	vegetation
Astragalus villosissimus	semishrub	30–40	R	+	vegetation
Atraphaxis compacte	shrub	30–35	R	+	Flowering, fruiting
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	Perennial	12–15	C	1	flowering
Caroxylon orientale (Salsola orientalis)	semishrub	25–30	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Ferula foetida	perennial	20–30	O	+	Vegetation
Gagea divaricata	perennial	7–10	O	+	Flowering, fruiting
Goldbachia laevigata	annual	12–15	O	+	Flowering, fruiting
Heterocaryum szovitsianum	annual	10–15	O	+	Flowering, fruiting
Hypecoum pendulum	annual	15–20	O	+	Flowering, fruiting
Krascheninnikovia ceratoides	semishrub	30–35	O	+	vegetation
Leptaleum filifolium	annual	5–7	F	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Poa bulbosa	perennial	10–15	O	+	flowering

Scorzonera sericeolanata	Perennial	10–15	R	+	vegetation
Tulipa sogdiana	Perennial	10–12	O	+	fruiting

Table 32. Check-list of plants recorded for sparse community of xerophytic shrubs (Atraphaxis compacta, Ephedra lomatolepis), sagebrush (Artemisia diffusa, A. turanica), black saltwort (Oreosalsola arbusculiformis), camel thorn (Alhagi pseudalhagi) and ephemers with solitary black saxaul (Haloxylon ammodendron) on the steep stony southern slope of the range Sultan Uvays, dry valley Kokraly (OTHL, 42.028147 N 60.697602 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Acanthophyllum elatius	Perennial	20–25	R	+	vegetation
Alhagi pseudalhagi	Perennial	30–40	O	+	vegetation
Alyssum desertorum	annual	5–7	O	+	fruiting
Andrachne telephioides	semishrub	10–15	R	+	flowering
Arnebia decumbens	annual	10–15	R	+	flowering
Arnebia transcaspica	annual	10–15	O	+	flowering
Artemisia diffusa	semishrub	20–30	F	1	vegetation
Artemisia turanica	semishrub	20–30	F	1	vegetation
Astragalus subbijugus	perennial	10–15	R	+	flowering
Astragalus villosissimus	semishrub	30–35	O	+	vegetation
Atraphaxis spinosa	shrub	35-40	O	1	Flowering, fruiting
Bromus tectorum	annual	10–15	O	+	flowering
Carex physodes	Perennial	10–15	O	+	flowering
Caroxylon orientale (Salsola orientalis)	shrub	30–35	F	1	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	25–30	O	+	vegetation
Cuminum setifolium	annual	10–15	R	+	fruiting
Ephedra lomatolepis	shrub	30–35	O	1	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Eremopyrum distans	annual	7–10	O	+	flowering
Eremurus inderiensis	perennial	40–50	R	+	vegetation
Goldbachia laevigata	annual	10–15	R	+	Flowering, fruiting
Haloxylon ammodendron	Small tree	120–150	R	+	vegetation
Heterocaryum subsessile	annual	10–15	O	+	Flowering, fruiting
Heterocaryum szovitsianum	annual	10–15	O	+	Flowering, fruiting
Hypecoum pendulum	annual	12–15	O	+	Flowering, fruiting
Jurinea multiloba	perennial	20–25	R	+	vegetation
Koelpinia linearis	annual	10–15	R	+	Flowering, fruiting
Lallemantia royleana	annual	5–7	O	+	flowering
Lappula spinocarpos	annual	10–15	R	+	Flowering, fruiting
Lepidium subcordatum	Perennial	20–25	R	+	vegetation
Leptaleum filifolium	annual	5–7	O	+	Flowering, fruiting
Lomelosia olivieri (Scabiosa olivieri)	annual	10–15	R	+	Flowering
Lycium ruthenicum	shrub	70–100	R	+	vegetation
Nonea caspica	annual	5–7	R	+	flowering
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	35–40	A	2	vegetation

Papaver pavoninum	annual	10–15	R	+	Flowering
Poa bulbosa	Perennial	12–15	F	+	flowering
Roemeria hybrida	annual	7–10	R	+	Flowering
Scorzonera sericeolanata	Perennial	15–20	R	+	flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	15–20	O	+	Flowering
Tulipa sogdiana	Perennial	10–12	R	+	fruiting
Veronica campylopoda	annual	10–12	O	+	Flowering, fruiting

Table 33. Check-list of plants recorded for sparse saltwort community (Caroxylon orientale, Caroxylon gemmascens, Oreosalsola arbusculiformis) with solitary black saxaul (Haloxylon ammodendron) on gravelly-sabulous grey-brown desert soil on the southern piedmonts of the range Sultan Uvays (OTHL, 41.974304 N 60.696097 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Alyssum desertorum	annual	5–7	R	+	Flowering, fruiting
Anabasis eriopoda	semishrub	10–15	R	+	vegetation
Arnebia decumbens	annual	10–15	R	+	flowering
Arnebia transcaspica	annual	7–10	R	+	flowering
Artemisia diffusa	semishrub	15–20	O	+	vegetation
Carex physodes	Perennial	12–15	O	+	flowering
Caroxylon gemmascens (Salsola gemmascens)	semishrub	20–30	O	+	vegetation
Caroxylon orientale (Salsola orientalis)	semishrub	20–30	A	1	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Cousinia hamadae	Perennial	20–25	R	+	vegetation
Eremopyrum bonaepartis	annual	7–10	O	+	flowering
Goldbachia laevigata	annual	10–15	O	+	Flowering, fruiting
Haloxylon ammodendron	Small tree	50–100	R	+	vegetation
Hypecoum pendulum	annual	10–12	O	+	Flowering, fruiting
Koelpinia linearis	annual	12–15	O	+	Flowering, fruiting
Lallemantia royleana	annual	5–7	O	+	flowering
Leptaleum filifolium	annual	5–7	R	+	Flowering, fruiting
Oreosalsola arbusculiformis (Salsola arbusculiformis)	shrub	30–40	F	1	vegetation
Paracaryum physodes	annual	5–7	R	+	Flowering, fruiting
Peganum harmala	Perennial	20–25	R	+	vegetation
Poa bulbosa	Perennial	10–15	O	+	flowering
Roemeria hybrida	annual	7–10	R	+	Flowering
Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	12–15	O	+	Flowering, fruiting
Tulipa sogdiana	Perennial	7–10	O	+	fruiting
Veronica campylopoda	annual	10–12	R	+	Flowering, fruiting
Ziziphora tenuior	annual	5–7	R	+	Flowering
Zygophyllum miniatum	Perennial	10–15	R	+	Flowering

Table 34. Check-list of plants recorded for sparse oleaster and tamarisk thickets, reeds and saline fallow lands on the bank of canal Kyrkkyz (OTHL, 41.948249 N 60.683786 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Aeluropus littoralis	perennial	15-20	A	+	vegetation
Alhagi pseudalhagi	perennial	30-40	C	3	vegetation
Apocynum venetum subsp. scabrum (Trachomitum scabrum)	Perennial, liana	100-150	R	+	vegetation
Atriplex micrantha	annual	15-20	O	+	vegetation
Calamagrostis pseudophragmites	perennial	40-50	R	+	flowering
Caragana halodendron (Halimodendron halodendron)	shrub	100-150	R	+	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Clematis orientalis	Shrub, liana	100-150	R	+	vegetation
Cynanchum acutum subsp. sibiricum	Perennial, liana	100-150	R	+	vegetation
Elaeagnus angustifolia	tree	300-400	O	1	vegetation
Glycyrrhiza glabra	perennial	70-120	O	+	vegetation
Halostachys caspica	shrub	100-150	O	1	vegetation
Karelinia caspia	perennial	50-100	A	3	vegetation
Limonium otolepis	perennial	20–30	O	+	vegetation
Lycium ruthenicum	shrub	100–120	O	1	vegetation
Phragmites australis	perennial	150-200	F	1	vegetation
Salsola paulsenii	annual	40-50	O	+	dried
Tamarix laxa	shrub	150-200	F	+	flowering
Tamarix ramosissima	shrub	150-200	F	+	vegetation
Tripidium ravennae (Erianthus ravennae)	perennial	200-300	R	+	vegetation
Zygophyllum oxianum	perennial	25-30	F	1	vegetation

Table 35. Check-list of plants recorded for saline fallow land with sparse secondary tamarisk scrub in surroundings of the village Khalkabad (OTHL, 41.918739 N 60.680916 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Aeluropus littoralis	perennial	15-20	A	+	vegetation
Alhagi pseudalhagi	perennial	30-40	C	3	vegetation
Apocynum venetum subsp. scabrum (Trachomitum scabrum)	Perennial, liana	100-150	R	+	vegetation
Atriplex micrantha	annual	15-20	O	+	vegetation
Calamagrostis pseudophragmites	perennial	40-50	R	+	flowering
Caragana halodendron (Halimodendron halodendron)	shrub	100-150	R	+	vegetation
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Clematis orientalis	Shrub, liana	100-150	R	+	vegetation
Cynanchum acutum subsp. sibiricum	Perennial, liana	100-150	R	+	vegetation
Elaeagnus angustifolia	tree	300-400	O	1	vegetation
Glycyrrhiza glabra	perennial	70-120	O	+	vegetation
Halostachys caspica	shrub	100-150	O	1	vegetation
Karelinia caspia	perennial	50-100	A	3	vegetation
Limonium otolepis	perennial	20–30	O	+	vegetation

Lycium ruthenicum	shrub	100–120	O	1	vegetation
Phragmites australis	perennial	150-200	F	1	vegetation
Salsola paulsenii	annual	40-50	O	+	dried
Tamarix laxa	shrub	150-200	F	+	flowering
Tamarix ramosissima	shrub	150-200	F	+	vegetation
Tripidium ravennae (Erianthus ravennae)	perennial	200-300	R	+	vegetation
Zygophyllum oxianum	perennial	25-30	F	1	vegetation

Table 36. Check-list of plants recorded for small plot of sandy desert (semi-fixed sands with sparse psammophilous vegetation dominated by Xylosalsola arbuscula) (OTHL, 41.873903 N 60.684015 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Agriophyllum latifolium	annual	20-30	O	+	dried
Alhagi pseudalhagi	perennial	30-40	O	+	dried
Artemisia santolina	semishrub	30-40	R	+	vegetation
Bromus tectorum	annual	10–15	O	+	vegetation
Carex physodes	perennial	10-15	F	+	flowering
Caroxylon scleranthum (Salsola sclerantha)	annual	30-40	F	+	dried
Ceratocarpus arenarius	annual	7–10	O	+	vegetation
Ceratocephala falcata	annual	5–6	O	+	fruiting
Convolvulus divaricatus	semishrub	20-30	O	+	vegetation
Halostachys caspica	shrub	50-70	R	+	vegetation
Karelinia caspia	perennial	50-70	R	+	vegetation
Lycium ruthenicum	shrub	50-70	R	+	vegetation
Salsola paulsenii	annual	40-50	O	+	dried
Tamarix laxa	shrub	50-70	R	+	flowering
Xylosalsola arbuscula (Salsola arbuscula)	shrub	50-70	A	2	vegetation
Zygophyllum oxianum	perennial	25-30	F	1	vegetation

Table 37. Check-list of plants recorded for woodland belt and roadsides between villages Makhtumkuli and Khanyap (OTHL, 41.838559 N 60.671337 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Aeluropus littoralis	perennial	15-20	A	2	vegetation
Alhagi pseudalhagi	perennial	30-40	F	1	vegetation
Apocynum venetum subsp. scabrum (Trachomitum scabrum)	Perennial, liana	100-150	R	+	vegetation
Atriplex micrantha	annual	15-20	O	+	vegetation
Calamagrostis pseudophragmites	perennial	40-50	R	+	vegetation
Clematis orientalis	Shrub, liana	100-150	O	+	vegetation
Convolvulus arvensis	perennial	10-15	O	+	vegetation
Cynanchum acutum subsp. sibiricum	Perennial, liana	100-150	R	+	vegetation
Elaeagnus angustifolia	tree	4-5 m	O	1	vegetation
Fraxinus angustifolia subsp. syriaca	tree	3-4 m	R	+	vegetation
Glycyrrhiza glabra	perennial	70-120	O	+	vegetation
Karelinia caspia	perennial	50-100	O	1	vegetation
Phragmites australis	perennial	150-200	F	1	vegetation
Plantago lanceolata	perennial	10-15	O	+	vegetation
Populus afghanica	tree	3-4 m	O	1	vegetation

Populus alba	tree	6-7 m	O	1	vegetation
Populus euphratica	tree	6-7 m	F	2	vegetation
Salix alba	tree	6-7 m	O	1	vegetation
Suaeda altissima	annual	50-70	F	1	dried
Tamarix ramosissima	shrub	150-200	R	+	vegetation
Trifolium repens	perennial	5-10	O	+	vegetation
Tripidium ravennae (Erianthus ravennae)	perennial	200-300	R	+	vegetation
Ulmus pumila	tree	6-7 m	R	1	vegetation
Zygophyllum oxianum	perennial	25-30	O	1	vegetation

Table 38. Check-list of plants recorded for saline fallow land in surroundings of Beruni substation and village Makhtumkuli (OTHL, 41.75759 N 60.688762 E)

Species	Life form	Height, cm	Abundance		Phenol. Stage
			DACFOR	Braun-Blanquet	
Aeluropus littoralis	perennial	15-20	O	+	vegetation
Alhagi pseudalhagi	perennial	30-40	A	2	vegetation
Halostachys caspica	shrub	100-150	O	1	vegetation
Karelinia caspia	perennial	50-100	A	3	vegetation
Limonium otolepis	perennial	20–30	R	+	vegetation
Lycium ruthenicum	shrub	100–120	R	+	vegetation
Phragmites australis	perennial	150-200	F	1	vegetation
Suaeda altissima	annual	50-70	F	1	dried
Tamarix hispida	shrub	150-170	O	1	vegetation
Tamarix laxa	shrub	150-170	O	1	flowering
Zygophyllum oxianum	perennial	25-30	O	+	vegetation

5. Conclusion

Following 4 types of natural habitats and 4 types of modified habitats can be identified within the project area:

Natural habitats:

1. Gentle hilly slopes of relic low mountains with sedge-saltwort-sagebrush and sagebrush-saltwort vegetation on sabulous-loamy and loamy grey-brown desert soil. This habitat type is represented within the wind park area along the crest of the range Sultan Uvays and on its northern slope. Proposed locations of wind turbines mostly fall into this habitat type, as well as the internal OTHL, BESS and wind farm substation and switching station. Currently, this habitat is used as pasture; the grazing pressure is moderate. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 8 – Desert and subtype 8.2 – Temperate desert. According EUNIS Habitats classification, this habitat more or less corresponds to the type S – Heathland, scrub and tundra and subtype S67 Aralo-Caspian semi-desert (Zonal scrub on loamy and sandy-loamy, often subsaline soils of the semi-deserts of the Caucasus foothills, South-Eastern European Russia and Kazakhstan).

2. Steep dry stony slopes of relic low mountains with rugged terrain and sparse xerophilous shrubs and petrophytic vegetation. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to

the type 6 Rocky Areas (e.g., inland cliffs, mountain peaks). According to EUNIS habitat classification, this habitat corresponds to the type H Inland unvegetated or sparsely vegetated habitats, subtype H3 Inland cliffs, rock pavements and outcrops. This habitat type occupies the upper part of northern slope of the range Sultan Uvays (about 7 km in width), and the northern part of planned OTHL falls into this habitat type. Currently, this habitat is used as pasture; the grazing pressure is moderate. Other factors of human impact are small quarries, recreation and pollution with garbage.

3. Stony desert with skeleton or loamy-skeleton, sometimes gypsaceous grey-brown desert soil, with sparse black saxaul, sagebrush-saltwort and saltwort vegetation. This habitat is rather significantly disturbed due to human impact (ground roads, gravel extraction, railway, power lines, grazing, pollution with garbage). This habitat type is represented in weakly inclined southern piedmonts of the range Sultan Uvays (about 6–6 km in width), dissected with gravelly dry beds of temporary streams, and the northern part of planned OTHL falls into this habitat type. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 8 – Desert and subtype 8.2 – Temperate desert. According EUNIS Habitats classification, this habitat more or less corresponds to the type S – Heathland, scrub and tundra and subtype S67 Aralo-Caspian semi-desert (Zonal scrub on loamy and sandy-loamy, often subsaline soils of the semi-deserts of the Caucasus foothills, South-Eastern European Russia and Kazakhstan).

4. Sandy desert (semi-fixed sands with psammophilous vegetation). This habitat occupies small plot of about 1.5x3.5 km between settlements, agricultural lands, railway and roads, 12 km to the north of Beruni substation. Currently, this habitat is used as pasture; the human impact is high and connected with grazing and garbage pollution. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 8 – Desert and subtype 8.2 – Temperate desert. According EUNIS Habitats classification, this habitat more or less corresponds to the type S – Heathland, scrub and tundra and subtype S68 Semi-desert sand dune with sparse scrub (Open perennial vegetation of halophytic shrubs, e.g. *Artemisia spp.*, *Haloxylon spp.*, *Salsola spp.* and *Tamarix spp.*, and annuals on wind-blown drifting or stabilised dunes and sandy soils in the semi-desert region of the Caspian lowlands).

Modified habitats:

5. Arable lands with agricultural crops. According IUCN Habitats Classification, ver. 3.1, this habitat belongs to the type 14 Artificial – Terrestrial, subtype 14.1 Arable Land. According EUNIS Habitats classification, it corresponds to the type V – Vegetated man-made habitats, and represented with a subtype V1 Arable land and market gardens (V11 Intensive unmixed crops, on some areas with V14 Inundated or inundatable croplands, including rice fields). This is main type of modified

(anthropogenic) habitats along the southern half of OTHL line, between Beruni substation and piedmonts of the range Sultan Uvays.

6. Fallow lands. IUCN habitat type 14 Artificial – Terrestrial, subtypes 14.1 Arable Land and 14.2 Pasture Land. It corresponds with EUNIS habitat type V – Vegetated man-made habitats, subtype V1 Arable land and market gardens (V15 Bare tilled, fallow or recently abandoned arable land). Saline abandoned fields are occupied with secondary plant communities with domination of camel thorn, saltworts, annual and perennial weeds, sometimes with reeds and sparse growth of halophytic shrubs. This modified habitat occurs sporadically along the southern half of OTHL line, between Beruni substation and piedmonts of the range Sultan Uvays.

7. Woodland belts, boundary-strips, roadsides, canals and drainage channels. This habitat type occupies a narrow stips (10–20 m in width) between agricultural lands. IUCN habitat type 14 Artificial – Terrestrial, subtype 14.1 Arable Land. This habitat type corresponds with EUNIS habitat type V – Vegetated man-made habitats, and represented with a complex of 3 subtypes V64 Lines of planted trees, V38 Dry perennial anthropogenic herbaceous vegetation and V39 Mesic perennial anthropogenic herbaceous vegetation.

8. Settlements. The southern part of the planned OTHL crosses two villages, Makhtumkuli and Khanyap. The vegetation is represented with different native and non-native fruit and ornamental trees, crops, and weeds. It corresponds with IUCN habitat type 14 Artificial – Terrestrial, subtype 14.4 Rural Gardens, and EUNIS habitat type J1 – Buildings of cities, towns and villages, subtype J1.2 Residential buildings of villages and urban peripheries.

The habitats within the wind park area are natural and slightly to moderately affected with human impact (livestock grazing and ground roads); the vegetation within the wind park area is very uniform and sparse, with poor species composition (this is a typical feature for relic low mountains of Kyzylkum). It should be noted that all natural habitats of arid zone of Central Asia are very sensitive to human impact and climate change.

The map of habitats and LULC map were created. During the field survey, all habitat types were inspected.

In total, 89 plant species of 31 familes were recorded within the project area (8 species of trees, 10 shrubs, 11 semishrubs, 31 perennials, 29 annuals), none of them are included in the IUCN Red List as CR, EN or VU. 6 species of trees are introduced; these grow in the woodland belts and settlements. One species is nationally redlisted endemic, *Lepidium subcordatum* (Brassicaceae), assessed as rare,

endangered species (category 2) in the Red Data Book of Uzbekistan (2019). Several small populations of this plant have been found on the crest of Sultan Uvays range within the wind park area and along the planned OTHL on the southern slope of Sultan Uvays. This endemic species does not trigger Critical habitat Criterion 2 (habitat of significant importance to endemic and/or restricted-range species) because the project area contains less than 10% of its global habitat and population. Collection of seeds and sowing in the same habitat away of the power line is an option for protection and/or relocation of this rare plant. Most of species recorded for the project ares are typical for desert zone of Central Asia and more or less common and widely spread.

References

1. A Global Standard for the Identification of Key Biodiversity Areas. Version 1.0. 2016. IUCN, Gland, Switzerland. 37 p.
2. Abdurakhmanov R. A. 1967. Plant formations of Sultanuizdag. Uzbek. Biol. Zhurn. 3: 47–51 (In Russian).
3. Abdurakhmanov R. A. 1969. Flora and vegetation of the low mountains Sultanuizdag and Aristantau in the Kyzylkum desert. Abstr. Cand. Diss. Tashkent. 22 p. (In Russian).
4. Bondarenko O. N. 1964. An identification guide of vascular plants of the Karakalpakia. Fan Publishers, Tashkent. 303 p. (In Russian).
5. Brauneder K.M., Montes C., Blyth S., Bennun L., Butchart S.H., Hoffmann M., Burgess N.D., Cuttelod A., Jones M.I., Kapos V., Pilgrim J., Tolley M.J., Underwood E.C., Weatherdon L.V., Brooks S.E. 2018. Global screening for Critical Habitat in the terrestrial realm. PloS one, 13(3), p.e0193102. doi:10.1371/journal.pone.0193102
6. Conspectus Florae Asiae Mediae. In 11 vol. 1963–2015. Fan Publishers, Tashkent. (In Russian).
7. Erezhepov S.E. 1978. Flora of Karakalpakstan, its economical value, use and conservation. Fan Publishers, Tashkent. 300 p. (In Russian).
8. Esemuratova R.X. 2021. Rare and endemic plants of the relic mountain of Sultan Uvays. American Journal of Plant sciences, 12: 1–6.
9. Esemuratova R.X. 2022. Flora of Sultan Uvays mountain ridge. Abstr. PhD. Diss. Tashkent. 44 p. (In Uzbek and Russian).
10. Flora of the U.S.S.R. In 30 vol. 1934–1964. Academy of Sciences of the USSR, Moscow & Leningrad. (In Russian).
11. Flora of Uzbekistan. In 6 vol. 1941–1963. Academy of Sciences of the Uzbek SSR, Tashkent. (In Russian).
12. GBIF. 2024. Global Biodiversity Information Facility. Available from: https://www.gbif.org/
13. Geographical atlas of Uzbekistan. 2012. Goskomgeodeskadastr, Tashkent. 119 p. (In Russian).
14. Gintzburger G., Toderich K.N., Mardonov B.K. & Mahmudov M.M. 2003. Rangelands of the arid and semi-arid zones in Uzbekistan. CIRAD, ICARDA. 434 p.
15. IFC (International Finance Corporation) (January 1, 2012, updated June 27, 2019) Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Word Bank Group, Washington, DC. 69 p.
16. Iljin M. N. 1958. Flora of Middle Asian deserts, its origin and stages of development. Materials on history of the flora and vegetation of USSR 3. Moscow & Leningrad: 129–229.
17. International Plant Names Index. 2024. Available from: http://www.ipni.org.
18. IUCN Red List of Threatened species. 2024. Available from: http://www.iucnredlist.org.
19. Korovin E. P. 1934. Vegetation of Middle Asia and South Kazakhstan. Moscow & Tashkent. 479 p. (In Russian).
20. Korovin E. P. 1961. Vegetation of Middle Asia and South Kazakhstan. Vol. 1. Tashkent. 452 p. (In Russian).
21. Korovin E. P. 1962. Vegetation of Middle Asia and South Kazakhstan. Vol. 2. Tashkent. 547 p. (In Russian).
22. Lipsky V. I. 1902–1905. Flora of Central Asia, i.e. Russian Turkestan and Bukhara and Khiva Khanates. Vol. 1–3. Herald Publishers, St. Petersburg (In Russian).
23. Maylun Z. A. (ed.) 1987–1990. Floristic and geobotanical researches in Karakalpakstan. In 3 vol. Fan Publishers, Tashkent. (In Russian).
24. Maylun Z. A. 1973. Tugay vegetation – Potamophyta. In: Vegetation cover of Uzbekistan and the ways of its practical use. Vol. 2. Fan Publishers, Tashkent. Pp. 368–371. (In Russian).
25. Plants of the World Online. 2022. Available from: www.plantsoftheworldonline.org/
26. Popov M.G. 1958. Botanical-geographical sketch of the mountains Sultanuizdag. In: Popov M.G. Selected writings. Academy of Sciences of Turkmen SSR, Ashkhabad.
27. Rachkovskaya E. I., Volkova E. A. & Khramtsov V. N. (eds.). 2003. Botanical geography of Kazakhstan and Middle Asia. Leningrad. 425 p. (In Russian and Engl.).

28. Red Data Book of the Uzbek SSR (1984) Vol. 2. Plants. Tashkent. 150 p. (in Uzbek and Russian).
29. Red Data Book of the Republic of Uzbekistan (1998) Vol. 1. Plants. Chinor ENK, Tashkent. 335 p. (in Uzbek and Russian).
30. Red Data Book of the Republic of Uzbekistan (2006) Vol. 1. Plants and Fungi. Chinor ENK, Tashkent. 250 p. (in Uzbek, Russian and English).
31. Red Data Book of the Republic of Uzbekistan (2009) Vol. 1. Plants and Fungi. Chinor ENK, Tashkent. 360 p. (in Uzbek, Russian and English).
32. Red Data Book of the Republic of Uzbekistan (2019) Vol. 1. Plants. Tasvir, Tashkent. 356 p. (in Uzbek, Russian and English).
33. Sennikov A.N. (ed.) 2016. Flora of Uzbekistan, 2nd Edition. Vol. 1. Amaryllidaceae. Navroʻz Publishers, Tashkent. Xxviii + 173 p. (In Russian).
34. Sennikov A.N. (ed.) 2017. Flora of Uzbekistan, 2nd Edition. Vol. 2. Navroʻz Publishers, Tashkent. Xii + 200 pp. (In Russian)
35. Sennikov A.N. (ed.) 2019. Flora of Uzbekistan, 2nd Edition. Vol. 3. Ma'naviat Publishers, Tashkent. Xii + 201 pp. (In Russian)
36. Sennikov A.N. (ed.) 2022. Flora of Uzbekistan, 2nd ed. Vol. 4. Fan Publishers, Tashkent. xviii + 238 pp. (In Russian)
37. Sennikov A.N. (ed.) 2023. Flora of Uzbekistan, 2nd ed. Vol. 5. Fan Publishers, Tashkent. Xiv + 469 pp. (In Russian)
38. Sennikov A.N. (ed.) 2023. Flora of Uzbekistan, 2nd ed. Vol. 6. Ma'naviat Publishers, Tashkent. Xiv + 209 pp. (In Russian)
39. Sherbaev B. Sh. 1978. Flora of the relic hills and low mountains of Karakalpakia. Fan Publishers, Tashkent. 112 p. (In Russian).
40. Sherbaev B. Sh. 1988. Flora and vegetation of Karakalpakia. Nukus. 304 p. (In Russian).
41. Shomurodov Kh.F. 2018. Fodder plants of Kyzylkum and the prospects fortheir use. Dsci Diss. Tashkent. 296 p. (In Russian).
42. Shomurodov Kh.F., Rakhimova T., Rakhimova N.K., Adylov B.A., Sarybaeva Sh., Abduraimov O.S. & Esov R.A. 2018. Coenopopulations of rare and endangered plant species of remnant low mountains of Kyzylkum. Navroʻz Publishers, Tashkent. 230 p. (In Russian)
43. Tojibaev K.Sh., Beshko N.Yu., Popov V.A., Jang C.G., Chang K.S. Botanical Geography of Uzbekistan. – Korea National Arboretum, Pocheon, Republic of Korea, 2017. – 250 p.
44. Turemuratov U. 1978. Vegetation cover of North-western Kyzylkum. Fan Publishers, Tashkent. 276 p.
45. Vegetation cover of Uzbekistan and the ways of its practical use. 1971-1984. In 4 vol. Fan Publishers, Tashkent. (In Russian).
46. Zakirov P. K. 1971. Botanical geography of low mountains of Kyzylkum and Nuratau range. Tashkent. 203 p. (In Russian).

ANNEX 1. Check-list of flora

Plant species	Life form	Abundance	Distribution	Habitat	IUCN status	National status
Ephedraceae						
1. Ephedra lomatolepis	shrub	R–F	Regional	Slopes of relic low mountains	Least Concern (LC)	none
Liliaceae						
2. Gagea afghanica	perennial	R	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
3. Gagea divaricata	perennial	R-O	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
4. Tulipa sogdiana	Perennial	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
Iridaceae						
5. Iris longiscapa	perennial	R	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
Asphodelaceae						
6. Eremurus inderiensis	perennial	R	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
Amaryllidaceae						
7. Allium caspium	Perennial	R-O	Regional	gentle northern slope	Not Evaluated (NE)	none
Cyperaceae						
8. Carex physodes	Perennial	D–F	Regional	All types of natural habitats	Not Evaluated (NE)	none
Poaceae						
9. Aeluropus litoralis	Perennial	R-A	Regional	dry riverbeds, all modified habitats	Least Concern (LC)	none
10. Bromus tectorum	annual	F–O	Transcontinental	All types	Not Evaluated (NE)	none
11. Calamagrostis pseudophragmites	Perennial	R–O	Transcontinental	Banks of channels	Least Concern (LC)	none
12. Eremopyrum bonaepartis	annual	R–O	Regional	All types of natural habitats	Not Evaluated (NE)	none
13. Eremopyrum distans	annual	R–O	Regional	All types of natural habitats	Not Evaluated (NE)	none
14. Phragmites australis	Perennial	F–O	Transcontinental	Banks of channels	Least Concern (LC)	none
15. Poa bulbosa	Perennial	F–O	Transcontinental	Slopes of relic low mountains	Not Evaluated (NE)	none
16. Tripidium ravennae (Erianthus ravennae)	Perennial	R–O	Regional	modified	Least Concern (LC)	none
Papaveraceae						
17. Hypecoum pendulum	annual	R–O	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
18. Papaver pavoninum	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
19. Roemeria hybrida	annual	R	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none

Ranunculaceae						
20. Ceratocephala falcata	annual	F–O	Regional	All types of natural habitats	Not Evaluated (NE)	none
21. Clematis orientalis	Perennial	R–O	Regional	modified	Not Evaluated (NE)	none
Zygophyllaceae						
22. Zygophyllum miniatum	Perennial	R	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
23. Zygophyllum oxianum	Perennial	F-O	Regional	all modified habitats	Not Evaluated (NE)	none
Fabaceae						
24. Alhagi pseudalhagi	Perennial	R–C	Regional	All types	Not Evaluated (NE)	none
25. Astragalus subbijugus	perennial	R	Endemic	Slopes of relic low mountains	Not Evaluated (NE)	none
26. Astragalus villosissimus	semishrub	F–R	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
27. Caragana halodendron (Halimodendron halodendron)	shrub	R–O	Regional	modified	Not Evaluated (NE)	none
Elaeagnaceae						
28. Elaeagnus angustifolia	tree	F–R	Regional	modified	Least Concern (LC)	none
Ulmaceae						
29. Ulmus pumila	tree	F–R	Regional	Woodland belts	Least Concern (LC)	none
Salicaceae						
30. Populus afghanica	tree	F–R	Regional	Woodland belts, settlements	Data Deficient (DD)	none
31. Populus alba	tree	F–R	Regional	Woodland belts, settlements	Least Concern (LC)	none
32. Populus euphratica	tree	F–R	Regional	Woodland belts, settlements	Least Concern (LC)	none
33. Salix alba	tree	O-R	Regional	Woodland belts, settlements	Least Concern (LC)	none
Euphorbiaceae						
34. Andrachne telephioides	semishrub	R	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
Nitrariaceae						
35. Peganum harmala	Perennial	R–O	Regional	All types	Not Evaluated (NE)	none
Brassicaceae						
36. Alyssum desertorum	annual	R–O	Regional	All types	Not Evaluated (NE)	none
37. Goldbachia laevigata	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
38. Lepidium subcordatum	perennial	R	Endemic	Slopes of relic low mountains	Not Evaluated (NE)	UzRDB 2 (rare species)
39. Leptaleum filifolium	annual	R–F	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
Tamaricaceae						

40. Tamarix hispida	shrub	O	Regional	Saline fallow lands, banks of channels	Least Concern (LC)	none
41. Tamarix laxa	shrub	F-R	Regional	Saline fallow lands, banks of channels	Not Evaluated (NE)	none
42. Tamarix ramosissima	shrub	O	Regional	Saline fallow lands, banks of channels	Least Concern (LC)	none
Plumbaginaceae						
43. Limonium otolepis	Perennial	R–O	Regional	Saline fallow lands, banks of channels	Not Evaluated (NE)	none
Polygonaceae						
44. Atraphaxis compacta	shrub	R–F	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
45. Atraphaxis spinosa	shrub	R–O	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
Caryophyllaceae						
46. Acanthophyllum elatius	Perennial	R–F	Regional	All types of natural habitats	Not Evaluated (NE)	none
Amaranthaceae						
47. Agriophyllum latifolium	annual	O	Regional	Sandy desert	Not Evaluated (NE)	none
48. Anabasis eriopoda	semishrub	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
49. Atriplex micrantha	annual	R–O	Transcontinental	Saline fallow lands, banks of channels	Not Evaluated (NE)	none
50. Caroxylon gemmascens (Salsola gemmascens)	semishrub	O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
51. Caroxylon orientale (Salsola orientalis)	semishrub	A–R	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
52. Caroxylon scleranthum (Salsola sclerantha)	annual	F	Regional	Sandy desert	Not Evaluated (NE)	none
53. Ceratocarpus arenarius	annual	O–R	Regional	All types	Not Evaluated (NE)	none
54. Halostachys caspica	shrub	R-F	Regional	Saline fallow lands, banks of channels	Not Evaluated (NE)	none
55. Haloxylon ammodendron (*Haloxylon aphyllum*)	Small tree	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
56. Krascheninnikovia ceratoides	semishrub	O–R	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
57. Nanophyton erinaceum	semishrub	O–R	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
58. Oreosalsola arbusculiformis	semishrub	A–R	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none

(Salsola arbusculiformis)						
59. Salsola paulsenii	annual	O–R	Regional	modified	Not Evaluated (NE)	none
60. Suaeda altissima	annual	A–R	Regional	modified	Not Evaluated (NE)	none
61. Xylosalsola arbuscula (Salsola arbuscula)	Shrub	A	Regional	Sandy desert	Not Evaluated (NE)	none
Apocynaceae						
62. Apocynum venetum subsp. scabrum (Trachomitum scabrum)	perennial	O–R	Regional	Saline fallow lands, banks of channels	Not Evaluated (NE)	none
63. Cynanchum acutum subsp. sibiricum	perennial	O–R	Regional	Saline fallow lands, banks of channels	Least Concern (LC)	none
Boraginaceae						
64. Arnebia decumbens	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
65. Arnebia transcaspica	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
66. Heterocaryum subsessile	annual	R–O	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
67. Heterocaryum szovitsianum	annual	R–O	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
68. Lappula spinocarpos	annual	R-O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
69. Nonea caspica	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
70. Paracaryum physodes	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
Convolvulaceae						
71. Convolvulus arvensis	perennial	O	Transcontinental	Modified habitats	Not Evaluated (NE)	none
72. Convolvulus divaricatus	semishrub	O	Regional	Sandsy desert	Not Evaluated (NE)	none
Solanaceae						
73. Lycium ruthenicum	Shrub	R–F	Regional	Dry beds, sandy desert, modified habitats	Not Evaluated (NE)	none
Oleaceae						
74. Fraxinus angustifolia subsp. syriaca	tree	R-O	Regional	Woodland belts, settlements	Least Concern (LC)	none
Plantaginaceae						
75. Plantago lanceolata	perennial	O	Transcontinental	Modified habitats	Least Concern (LC)	none

76. Veronica campylopoda	annual	R-O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
Lamiaceae						
77. Lallemantia royleana	annual	R-O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
78. Ziziphora tenuior	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
Asteraceae						
79. Artemisia diffusa	semishrub	O–C	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
80. Artemisia turanica	semishrub	O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
81. Cousinia hamadae	perennial	R–F	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
82. Jurinea multiloba	perennial	R	Regional	Slopes of relic low mountains	Not Evaluated (NE)	none
83. Karelinia caspia	Perennial	O–A	Regional	Saline fallow lands, banks of channels	Not Evaluated (NE)	none
84. Koelpinia linearis	annual	R–O	Regional	All types of natural habitats	Not Evaluated (NE)	none
85. Scorzonera sericeolanata	perennial	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
86. Takhtajaniantha pusilla (Scorzonera pusilla)	Perennial	R–F	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
Caprifoliaceae						
87. Lomelosia olivieri (Scabiosa olivieri)	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
Apiaceae						
88. Cuminum setifolium	annual	R–O	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none
89. Ferula foetida	Perennial	O–R	Regional	Slopes of relic low mountains, piedmonts	Not Evaluated (NE)	none

ANNEX 2. Photo materials on habitats



Figure 3. Sagebrush-saltwort community (Caroxylon orientale, Oreosalsola arbusculiformis, Artemisia diffusa) on loamy grey-brown desert soil on the top of hill on gentle northern slope of the range Sultan Uvays (turbine T-01, 42.087134 N 60.622075 E).



Figure 4. Saltwort community (Caroxylon orientale, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the top of hill on gentle northern slope of the range Sultan Uvays (turbine T-02, 42.08455 N 60.628205 E).



Figure 5. Sedge-saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Carex physodes) with solitary Ferula foetida on sabulous-loamy grey-brown desert soil on gentle northern slope of the range Sultan Uvays (turbine T-03, 42.08455 N 60.628205 E).



Figure 6. Saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on gentle northern slope of the range Sultan Uvays (turbine T-04, 42.073059 N 60.634725 E).



Figure 7. Sedge-sagebrush-saltwort community (Carex physodes, Artemisia diffusa, Caroxylon orientale) with Ferula foetida and solitary Atraphaxis compacta on sabulous-loamy grey-brown desert soil on gentle northern slope of the range Sultan Uvays (turbine T-05, 42.071225 N 60.640994 E).



Figure 8. Sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale) with solitary Ferula foetida on the top of gravelly hill on the crest of the range Sultan Uvays (turbine T-06, 42.068528 N 60.646931 E).



Figure 9. Sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-07, 42.065274 N 60.652503 E).



Figure 10. Sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-08, 42.063976 N 60.659053 E).



Figure 11. Saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-09, 42.062834 N 60.665331 E).



Figure 12. Sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-10, 42.059475 N 60.670215 E).



Figure 13. Sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-11, 42.060249 N 60.678646 E).



Figure 14. Saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on sabulous-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-12, 42.0631 N 60.688695 E).



Figure 15. Sagebrush-saltwort community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on sabulous-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-13, 42.061371 N 60.694969 E).



Figure 16. Sparse saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-14, 42.06099 N 60.703817 E).



Figure 17. Sedge-sagebrush community (Artemisia diffusa, Carex physodes) on sabulous grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-15, 42.058235 N 60.70927 E).



Figure 18. Sparse saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-16, 42.056595 N 60.722344 E).



Figure 19. Sedge-sagebrush community (Artemisia diffusa, Carex physodes) with Ferula foetida on sabulous grey-brown grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-17, 42.05504 N 60.729312 E)



Figure 20. Sedge-sagebrush community (Artemisia diffusa, Carex physodes) on sabulous grey-brown grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-18, 42.053653 N 60.735657 E)



Figure 21. Sparse saltwort-sagebrush community (Caroxylon orientale, Oreosalsola arbusculiformis, Artemisia diffusa) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-19, 42.052553 N 60.743357 E)



Figure 22. Sparse saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on stony grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-20, 42.054827 N 60.751844 E)



Figure 23. Saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) with Ephedra lomatolepis on sabulous-stony grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-21, 42.056156 N 60.758105 E)



Figure 24. Sparse saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-22, 42.07173 N 60.766396 E).



Figure 25. Saltwort-sagebrush community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) with Ephedra lomatolepis on stony-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-23, 42.056914 N 60.773003 E)



Figure 26. Saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Oreosalsola arbusculiformis) on sabulous-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-24, 42.056824 N 60.780402 E)



Figure 27. Sagebrush-saltwort community (Caroxylon orientale, Oreosalsola arbusculiformis, Artemisia diffusa) on sabulous-stony grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-25, 42.057157 N 60.78694 E)



Figure 28. Sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-26, 42.058675 N 60.795601 E)



Figure 29. Sagebrush-saltwort community (Oreosalsola arbusculiformis, Caroxylon orientale, Artemisia diffusa) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-27, 42.060537 N 60.806304 E)



Figure 30. Sagebrush-saltwort community (Artemisia diffusa, Oreosalsola arbusculiformis, Caroxylon orientale) on sabulous-skeleton grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-28, 42.05763 N 60.715819 E)



Figure 31. Sparse sagebrush-saltwort community (Oreosalsola arbusculiformis, Caroxylon orientale, Artemisia diffusa) on skeleton-loamy grey-brown desert soil on the crest of the range Sultan Uvays (turbine T-29, 42.051332 N 60.748797 E)



Figure 32. Sedge-saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Carex physodes) with solitary Ferula foetida on sabulous grey-brown desert soil on the gentle north slope of the range Sultan Uvays (wind park, BESS area, 42.086454 N 60.593182 E)



Figure 33. Sedge-saltwort-sagebrush community (Artemisia diffusa, Caroxylon orientale, Carex physodes) with solitary Ferula foetida on skeleton-sabulous grey-brown desert soil on the gentle north slope of the range Sultan Uvays (wind park, substation area, 42.060318 N 60.710131 E)



Figure 34. Sparse community of xerophytic shrubs (Atraphaxis compacta, Ephedra lomatolepis), sagebrush (Artemisia diffusa, A. turanica), black saltwort (Oreosalsola arbusculiformis), camel thorn (Alhagi pseudalhagi) and ephemers with solitary black saxaul (Haloxylon ammodendron) on the steep stony southern slope of the range Sultan Uvays, dry valley Kokraly (OTHL, 42.028147 N 60.697602 E)



Figure 35. Sparse saltwort community (Caroxylon orientale, Caroxylon gemmascens, Oreosalsola arbusculiformis) with solitary black saxaul (Haloxylon ammodendron) on gravelly-sabulous grey-brown desert soil on the southern piedmonts of the range Sultan Uvays (OTHL, 41.974304 N 60.696097 E)



Figure 36. Oleaster, tamarisk, reeds and saline fallow lands on the bank of canal Kyrkkyz (OTHL, 41.948249 N 60.683786 E)



Figure 37. Saline fallow land with sparse secondary tamarisk scrub in surroundings of the village Khalkabad (OTHL, 41.918739 N 60.680916 E)



Figure 38. Small plot of sandy desert, semi-fixed sands with sparse psammophilous vegetation dominated by Xylosalsola arbuscula (OTHL, 41.873903 N 60.684015 E)



Figure 39. Woodland belt along the road between the villages Makhtumkuli and Khanyap



Figure 40. Village Makhtumkuli. Lines of ornamental and fruit trees planted along the road (OTHL, 41.770308 N 60.683621 E)



Figure 41. Saline fallow land in surroundings of Beruni substation and village Makhtumkuli (OTHL, 41.75759 N 60.688762 E)



Figure 42. Saline fallow land in surroundings of Beruni substation and village Makhtumkuli (OTHL, 41.75759 N 60.688762 E)



Figure 43. Nationally redlisted endemic Lepidium subcordatum on steep stony southern slope of the range Sultan Uvays, surroundings of the well Kokraly, the planned OTHL area (42.03837° N 60.68888° E).



Figure 44. Nationally redlisted endemic Lepidium subcordatum on the crest of the range Sultan Uvays, wind park area (turbine T-20, 42.054827° N 60.751844° E)

Reptile Report
Spring 2024

Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan

Consulting Firm:

Juru

Juru Ltd

Suite 1, One George Yard, London, United Kingdom, EC3V 9DF

www.juru.org

Prepared for:

5capitals

5 Capitals Environmental and Management Consulting

Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE

www. 5capitals.com.

Document Information

Project Name	Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan
Document Title	Reptile Report Spring 2024
Juru's Project Reference	UZB-ACWA-Nukus 200 MW ESIA
Client	5 Capitals
Juru's Project Manager	Dinara Rustami
Juru's Project Director	Jushkinbek Ismailov

Document Control

Version	Date	Description	Author	Reviewer	Approver
1	31.05.2024	Reptile report_v.1	Roman Nazarov, Elizaveta Ignateva	Anna Ten	Dinara Rustami

Disclaimer

The Reptile survey (the "Report") has been prepared by Juru Limited. Whilst the information contained in the Report reflects the current status, Juru makes no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report and accepts no liability for any information that may have been misstated or omitted.

This report has been prepared exclusively for 5 Capitals. 5 Capitals makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. 5 Capitals has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains 5 Capitals property.

Table of Content

1. Introduction....4
2. Study Area Description....4
3. Materials and methods....4
4. Findings and Results....8
5. Key species descriptions....11
6. Impact of Wind farm on Reptiles....15
7. Conclusion....16
8. References....19

Table of Figures

Figure 1: Project site....4
Figure 2: Reptile survey tracks (April 27-28)....5
Figure 3: Reptile transects on the project site....7
Figure 4: Central Asian tortoises found on the project site....8
Figure 5: The Central Asian tortoise in the landscape....8
Figure 6: Central Asian tortoise. Photo by Abduraupov T.V....11
Figure 7: Map of the turtle population density in various regions of the Republic.....13
Figure 8: Steppe agama. Photo by Abduraupov T.V....13
Figure 9: Rapid racerunner. Photo by Abduraupov T.V.....14
Figure 10: Current construction on the project site....17
Figure 11 Tortoise concentration.....18

Table of Tables

Table 1: Transect locations....6
Table 2: Check list of reptile species founded on project site....8
Table 3: Field data....9

1. Introduction

The purpose of this report is to provide an assessment of reptile fauna with a focus on Central asian tortoise (*Testudo horsfieldi*) in the project area as an important component of the biodiversity surveys for the proposed Nukus 200 MW wind farm. Data presented in this report based on surveys conducted in April 2024. The study area covers the WF site and 220 kV OHTL line route within the Beruni district. The length of the overhead line is 44.3 kilometres. The 220 kV overhead line route starts from the existing Beruni substation to the projected Karatau substation of the NUKUS 200 MW WPP.

2. Study Area Description

The project area is located in the middle part of the Sultan Uvais mountain and its adjusment (Figure 1). There are few identified points along the OHTL route and windfarm territory with the western and central parts of the Sultan Uvais plateau, featuring gently undulating hills and sparse sagebrush vegetation; moving forward to the southern slope of the plateau, a road through a gravel desert with saxaul and parallel gas pipes; an agricultural landscape with a canal and magistral gas pipe, showcasing diverse vegetation; and settlements on the southern part of the OHTL, where the Beruni substation, power lines, residential buildings, country road, and agricultural fields are visible.



Figure 1: Project site

3. Materials and methods

During the field survey conducted by herpetologist Dr.Roman Nazarov on 27-28 April 2024, an attempt was made to assess the status of reptiles in the study area. The assessment included species composition and density, spatial distribution, including concentration sites, and habitat condition.

However, it should be noted that a combination of field surveys and desktop analysis was used to obtain data.

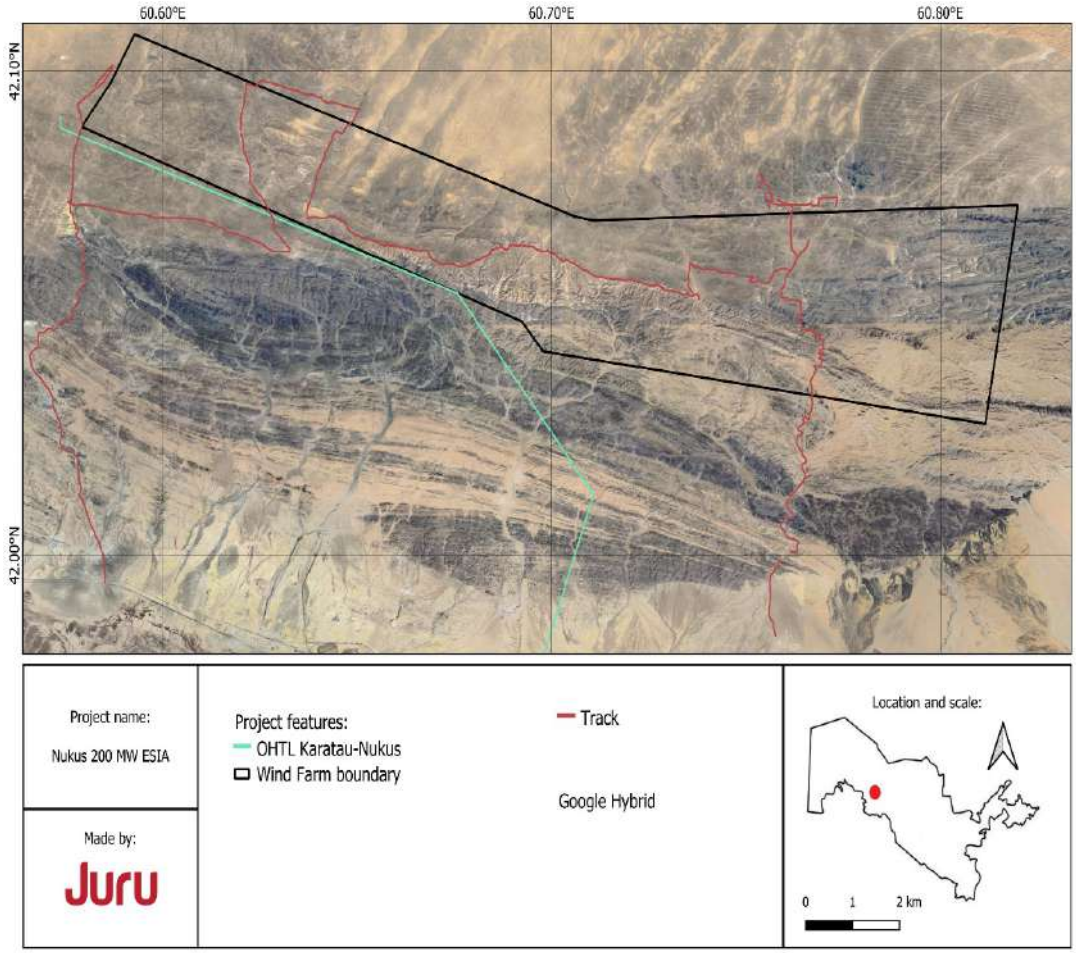


Figure 2: Reptile survey tracks (April 27-28)

Field studies were carried out according to generally accepted zoological methods for identifying species composition. The following methodological guidelines were used in the survey: L.T. Dinesman, M. L. Kaletskaya (1952), V. M. Makeev, A. T. Bozhansky (1988), D.A. Bondarenko, N.G. Chelintsev (1996). Literature sources and statistical data had been processed.

The main research method used transect survey. Transects for conducting research were outlined at the project monitoring stations in accordance with different types of habitats.

The field research methodology reflects the following aspects:

- species composition in the study area;
- distribution across habitats.

Thus, the method of quantitative assessment was based on the ecology of the species under consideration, landscape and geographical conditions, season, and type of work.

The quantitative assessment of reptiles and amphibians was based on the transect survey. The transect method consists of counting individuals along a fixed long line (transect) on both sides of it, with the duration of the survey determined by the known distance, which is selected depending on the type of reptile and the area but does not exceed 1 km in one way. In this case, all individuals encountered on the transect are registered, regardless of the distance they are identified at. The perpendicular distance is measured between the transect axis and each individual. The results obtained are used to calculate the density of recorded reptiles. A 1 km transect was chosen because significant errors can arise when long transects are used for species with high density and fluctuating daily and seasonal activity cycles, such as the Central Asian Tortoise. Incorrect selection of a minimum survey area for a particular species can also lead to inaccuracies (Vashetko et al., 2003).

The Central Asian tortoise population density (D) was calculated using the following formula:

$$D = \frac{n}{2LB}$$

where n – number of animal individuals recorded on the transect; L – length of the transect (1 km); B – width of the limited strip on both sides of the transect axis (20 meters).

The abundance of the reptiles in habitats was estimated using the following population density scale for 1 ha (Kuzyakin, 1962): 0.1 – 0.9 – rare, 1.0 – 9.9 – common, 10.0 and higher – abundant.

Table 1: Transect locations

Transect No	Date	Beginning time	Coordinate N, E°	
			Beginning of the transect	End of the transect
1	27/04/24	17:18:00	42.07277, 60.76717	42.07301, 60.75671
2	28/04/24	09:53:00	42.07893, 60.75326	42.07098, 60.75585
3	28/04/24	10:45:00	42.05917, 60.75975	42.0575, 60.75185
4	28/04/24	11:34:00	42.05367, 60.73531	42.05607, 60.72357
5	28/04/24	12:22:00	42.06274, 60.68448	42.06012, 60.67365
6	28/04/24	13:06:00	42.07887, 60.63971	42.08735, 60.64435
7	28/04/24	13:17:00	42.09715, 60.62173	42.08807, 60.62017
8	28/04/24	13:29:00	42.08716, 60.62017	42.0782, 60.62261
9	28/04/24	13:55:00	42.07226, 60.62721	42.06409, 60.63168
10	28/04/24	14:25:00	42.09508, 60.58074	42.10184, 60.58848

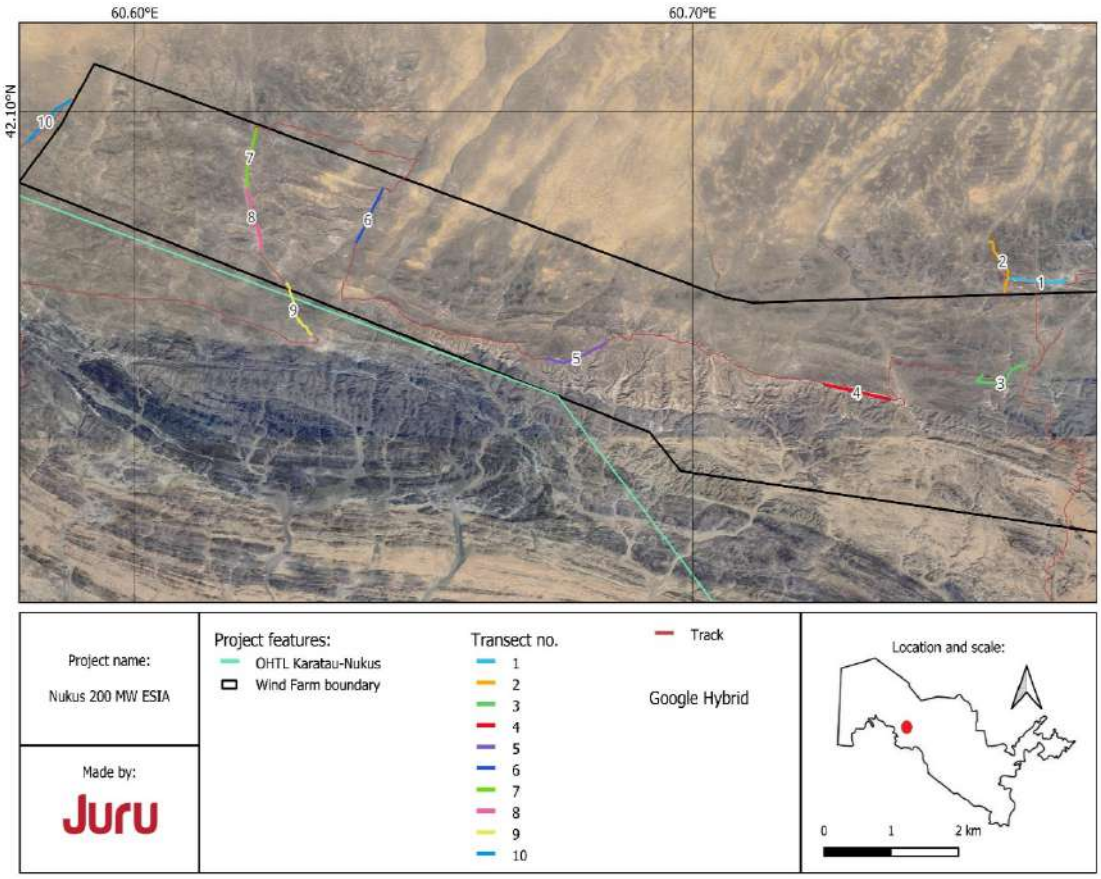


Figure 3: Reptile transects on the project site

4. Findings and Results

During the herpetological research conducted in the Wind Farm area, four reptile species were discovered, including the Central Asian Tortoise listed in the IUCN Red List as Vulnerable (VU) and the Red Book of Uzbekistan (VU).



Figure 4: Central Asian tortoises found on the project site



Figure 5: The Central Asian tortoise in the landscape

Table 2: Check list of reptile species founded on project site

Species	Common name	IUCN RL	Uzbekistan Red data book
Testudo horsfieldii	Central Asian tortoise	VU	VU
Eremias velox	Rapid race runner	LC	
Trapelus sanguinolentus	Steppe Agama	LC	
Platyceps karelini	Spotted desert racer	LC	

Table 3: Field data

Transect no.	Species	Distance (m)	Time	Population density on the site, individuals/ha
1	*Testudo horsfieldii*	1	17:48	*Testudo horsfieldii*: 0.5
	Testudo horsfieldii	1	17:49	
	Testudo horsfieldii	2	17:14	
	Testudo horsfieldii	50	17:18	
2	*Testudo horsfieldii*	20	09:53	*Testudo horsfieldii*: 1.34
	Testudo horsfieldii	4	09:55	
	Testudo horsfieldii	5	09:57	
	Testudo horsfieldii	10	09:58	
	Testudo horsfieldii	11	10:01	
	Testudo horsfieldii	1	10:02	
	Testudo horsfieldii	15	10:04	
	Testudo horsfieldii	1	10:09	
3	*Trapelus sanguinolentus*	1	10:45	*Trapelus sanguinolentus*: 3.1 *Eremias velox*: 6.3 *Testudo horsfieldii*: 1.85
	Eremias velox	1	10:47	
	Eremias velox	1	11:02	
	Testudo horsfieldii	2	11:07	
	Testudo horsfieldii	5	11:27	
	Testudo horsfieldii	4	11:26	
	Testudo horsfieldii	8	11:28	
4	*Testudo horsfieldii*	1	11:34	*Testudo horsfieldii*: 1.2
	Testudo horsfieldii	0.5	11:40	
	Testudo horsfieldii	3	11:45	
	Testudo horsfieldii	50	11:59	
	Testudo horsfieldii	6	12:05	
	Testudo horsfieldii	4	12:10	
	Testudo horsfieldii	8	12:11	
5	*Eremias velox*	1	12:22	*Testudo horsfieldii*: 3
	Trapelus sanguinolentus	1	12:26	
	Testudo horsfieldii	5	12:35	
	Testudo horsfieldii	5	12:48	
	Testudo horsfieldii	10	12:59	
	Testudo horsfieldii	4	13:00	
6	*Testudo horsfieldii*	5	13:06	*Testudo horsfieldii*: 0.44
	Testudo horsfieldii	10	13:16	
7	*Testudo horsfieldii*	2	13:17	*Testudo horsfieldii*: 3.7
	Testudo horsfieldii	10	13:19	
	Testudo horsfieldii	2	13:20	
	Testudo horsfieldii	2	13:23	
	Testudo horsfieldii	5	13:23	
8	*Testudo horsfieldii*	6	13:29	*Platyceps karelini*: 3.1 *Eremias velox:* 3.9 *Testudo horsfieldii*: 1.5
	Eremias velox	1	13:31	
	Testudo horsfieldii	6	13:32	
	Eremias velox	2	13:27	
	Testudo horsfieldii	2	13:39	
	Platyceps karelini	1	13:45	
9	*Testudo horsfieldii*	15	13:55	*Testudo horsfieldii*: 0.6

	Testudo horsfieldii	10	13:56	
	Testudo horsfieldii	10	14:02	
10	*Trapelus sanguinolentus*	1	14:25	*Trapelus sanguinolentus:* 3.1 *Eremias velox*: 1.6 *Testudo horsfieldii*: 0
	Eremias scripta	2	*14:39*	

The average density of the *Testudo horsfieldii* based on 9 tracks was 1.4 individuals/ha.

5. Key species descriptions

CLASS REPTILIA

FAMILY TORTOISES (TESTUDINIDAE)

CENTRAL ASIAN TORTOISE

***Testudo horsfieldii* (Gray, 1844)**



Figure 6: Central Asian tortoise. Photo by Abduraupov T.V

Steppe Tortoise is a vulnerable, declining Central Asian endemic species. Included in the IUCN Red List [VU] and the Red Book of the Republic of Uzbekistan 2 (VU) (2019), as well as listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Apart from southern Kazakhstan, Turkmenistan, Uzbekistan, Kyrgyzstan, and Tajikistan, it is also found in northern and eastern Iran, Afghanistan, northwest China, and northern Pakistan (Ananyeva et al., 1998; Bogdanov, 1960, 1965).

Carapace length is up to 286.4 mm. The carapace is flat with weakly serrated edges. The front edge notch is shallow. The front legs have four claws. The forelimbs are covered with six to seven transverse rows of shield-like scales. The hind thighs have several horn-like bumps arranged in a group. The horn scales of the shell are usually monochromatic, yellowish, or brown-olive tones, sometimes with black wide spots, more pronounced on the plastron.

It inhabits deserts, both sandy and clay, plains, mountain slopes, depressions, valleys, gorges, and mountain steppes, reaching altitudes of up to 1150 m above sea level (Dahl, 1936, 1937). Occasionally

settles on agricultural lands: on the outskirts of fields, gardens, and orchards. Avoids areas with dense grass cover and places with intense livestock grazing.

It has a strictly diurnal lifestyle. During hot weather, it is only active in the morning and before sunset. In the middle of the day, animals hide from the heat in temporary shelters under bushes, where they partially bury themselves in the soil, in rodent burrows, or in their own burrows. In a day, tortoises can travel distances from 120 m to 2 km. At night, they bury themselves in shallow pits or sometimes stay on the surface.

After winter diapause, tortoises appear on the surface in March to early April, and in warm winters and in the southern part of their range, as early as February. Mating begins a few days after emerging. The breeding period extends from late March to the end of May. Hatchlings with a carapace length of 30-50 mm hibernate underground and usually emerge on the surface in the spring of the following year.

Growth is slow. Sexual maturity is reached at the age of 10-13 years, with a carapace length of 11 cm. In the wild, they can live for at least 30 years.

In June, when ephemeral vegetation dries up, the Central Asian tortoise enters a period of estivation (summer dormant state), digging burrows up to 1 m long. They disappear from deserts by the end of May, but in the mountains or irrigated lands, individual specimens can still be found in June and even July. Estivation often transitions to hibernation (the winter dormant period).

The population of tortoises undergoes significant fluctuations (Bogdanov, 1965), which depend on winter and spring meteorological conditions, as well as the productivity of the habitats where the animals live. Land cultivation, livestock grazing, and habitat disturbance have a significant impact on reducing the population.

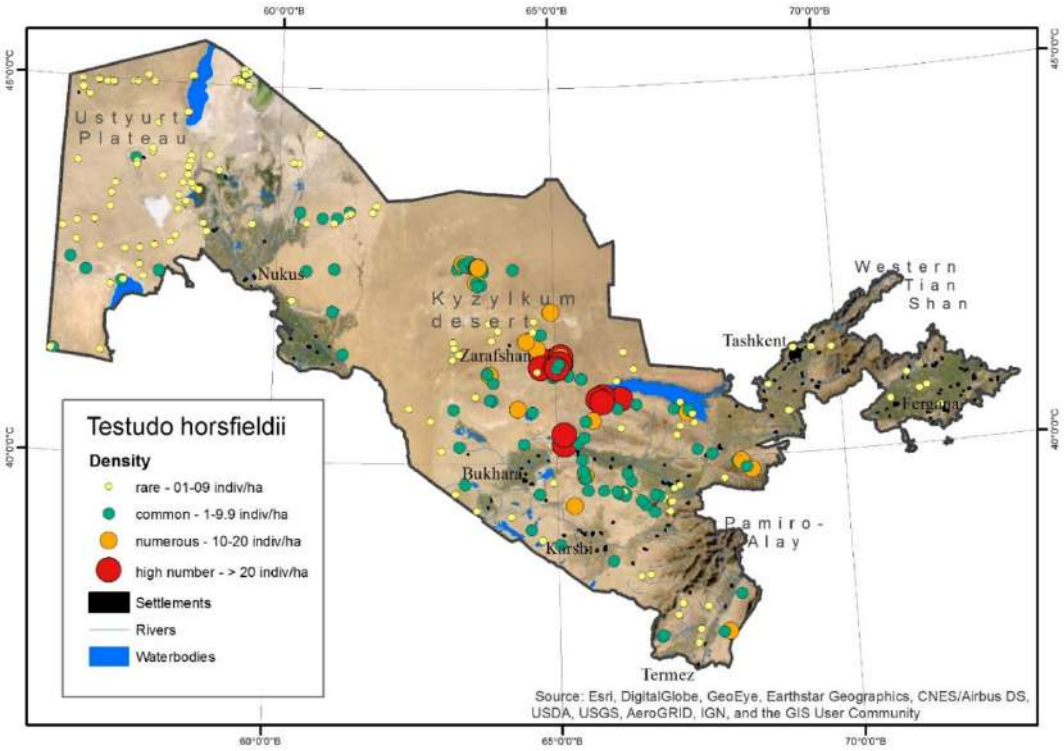


Figure 7: Map of the turtle population density in various regions of the Republic.

FAMILY AGAMIDAE

STEPPE AGAMA

***Trapelus sanguinolentus aralensis* (Lichtenstein, 1823)**



Figure 8: Steppe agama. Photo by Abduraupov T.V

Steppe Agama, of medium size. The overall length of the Steppe Agama does not exceed 300 mm, with a body length including the head is up to 120 mm, and the tail is 1.3 to 2 times longer than the body.

It inhabits sandy, clayey, and rocky deserts and semi-deserts, preferring areas with shrubby or semi-woody vegetation. It is also found on gentle rocky slopes in foothills, along the edges of loosely fixed sands, on riverbanks and in thickets, on the outskirts of settlements, and on roadsides. As shelters, it uses burrows of sand rats, ground squirrels, small lizards, hedgehogs, and tortoises, as well as voids under rocks and cracks in the soil. During hot periods, agamas often climb onto the branches of shrubs, thus protecting themselves from overheating on the scorching ground. While perched on an elevation, males survey their territory, defending it against intruding rivals. After hibernation, they emerge in mid-February, March, or early April, depending on the weather conditions of that period, with males emerging from winter shelters before females.

In Uzbekistan, it is widely distributed in arid zones.

FAMILY TRUE LIZARDS LACERTIDAE

Rapid racerunner

***Eremias velox velox* (Pallas, 1771)**



Figure 9: Rapid racerunner. Photo by Abduraupov T.V.

Length of body with head up to 84 mm, males up to 84 mm, females up to 81 mm. In young individuals, three straight black-brown or black stripes run along the back, with the middle stripe bifurcated at the neck. On the sides of the body, there is one stripe of the same color, with round light spots located on them. In adults (with the main color of the upper surface being grey or sandy, often with an olive or brown tint), these stripes break up into separate spots. On the sides of the body, there are light, black-bordered, rounded spots, which become blue in the front part of the body, especially in males. It should be noted that the pattern of this lizard is highly variable. The belly and throat are white. In young individuals, the underside of the tail and sometimes the small scales of the thighs and shins are red or reddish-orange.

Economically significant species. One of the most widespread and numerous lizard species in the Palearctic region. Widely distributed in Uzbekistan.

After winter hibernation, they appear in the second half of March. Mass emergence is observed in early April. They enter hibernation at the end of October to early November. During summer, these lizards are primarily active in the morning and evening hours.

In Uzbekistan, the swift runner lizard is a typical inhabitant of river valleys, where it is most numerous. However, this lizard is also found in various other habitats, and its distribution depends on the presence of other lizard species.

According to the observations of M. V. Kalugin (1951), this species of lizard is the most common in the Zarafshan valley, from Karakul to Pendjikent (near Bitkana, between Kyrgyz-Bulak and Dengi-Ali, in the area of Sengir-Bulak, in Dzhuma-Bazar, and Kattakurgan). S. K. Dal (1936, 1937) also reports the presence of the swift runner lizard in the same valley, having encountered it near Lake Karangi, in the vicinity of Arap-Khana, around Sengir-Bulak, at the lakes Kuljaku and Khodjcab, in the vicinity of Vaganz, in the Bitkona area, in the Malikkulya area, in the Zeravshan heights between the villages of Sypki and Tym.

This species has been observed multiple times in the studied territory.

6. Impact of Wind farm on Reptiles

Due to the intensive development of the renewable energy industry worldwide, the number of scientific studies has increased on a comprehensive assessment of the impact of the use of alternative energy on various biocenoses (Thaker et al. 2018; Shuster et al. 2015; Thaxter et al. 2015 etc.). And in most cases, thanks to these studies, it is possible to identify the deep processes of the negative impact of the development of "green" energy on the environment and biodiversity. Accordingly, this understanding helps to develop effective ways to reduce the negative pressure on nature and preserve rare and endangered species of plants and animals.

- Development of natural habitats for many reptile species (including rare ones) threatens to kill part of the population;
- Animals (insects, amphibians, reptiles, birds, mammals) may get into the excavations and trenches created during construction, which may lead to their damage and death. These trenches are particularly dangerous for Central Asian Tortoise;
- Earthworks, disturbance of the existing topography will result in partial loss of habitat for animals inhabiting the project area;

- If construction activities begin during the winter season, some reptile populations (including rare reptiles) may die;
- Linear structures to the construction site will also pose a threat to most reptiles, especially Central Asian Tortoise.

The construction phase is mainly related to the withdrawal of land resources for permanent and temporary communications, and will include a set of activities with negative impact on the environment, such as laying an additional road or increasing the level of use of existing unpaved roads, use of roadside vehicles and construction machinery, construction of temporary bases and settlements, soil extraction, etc.

Many reptiles do not dig deep burrows. Their burrows are located in the upper layers of soil, which is primarily affected by any construction works on the territory. Excavation of the upper layers of soil destroys burrows, crushes clutches of eggs in soil cracks and kills the animals themselves, which are located in the burrows.

Any highway poses a threat to the fauna of the project area and serves as an additional element fragmenting the existing desert ecosystem. The main types of impacts include: death of reptiles during the day and especially at night; fauna is negatively affected by transportation emissions. The frequency of animal deaths depends on the degree of demand, use of the road, as well as its quality. It should be noted that mortality is much lower on unpaved roads than on asphalt roads - this is due to the fact that asphalt heats up quickly in the morning hours and cools down slower in the night hours, and since reptiles receive heat from the substrate, asphalt attracts them very strongly in the morning and after sunset.

The noise generated by construction works and the constant presence of people on the territory frightens animals, they will be afraid to approach watering sources, negative anxiety affects the natural cycles such as feeding, breeding, hibernation, etc., which in the best case will entail a change of habitats, in the worst case will lead to death.

7. Conclusion

During the herpetological research, four reptile species were observed, including the Central Asian Tortoise, listed as Vulnerable (VU) on both the IUCN Red List and the Red Book of Uzbekistan.

The Central Asian Tortoise is concentrated in gullies, low relief areas, and temporary watercourses. Its density is common (1.4 individuals/ha), but there are concentrations of tortoises in some places. Some female individuals are very large, weighing up to 3 kg.

Additionally, it was noted that work is already underway in the area of the substation, including the erection of houses and road construction (Figure 10).



Figure 10: Current construction on the project site

Recommendations:

- Avoid places where tortoises concentrate (beams, ravines, temporary watercourses) during the design phase (Figure 11).
- Conduct construction work during the period of greatest tortoise activity (March-April).
- Use existing roads and observe the speed limit to avoid crushing tortoises and other reptiles.
- Implement strict measures to protect reptiles from being caught by workers.

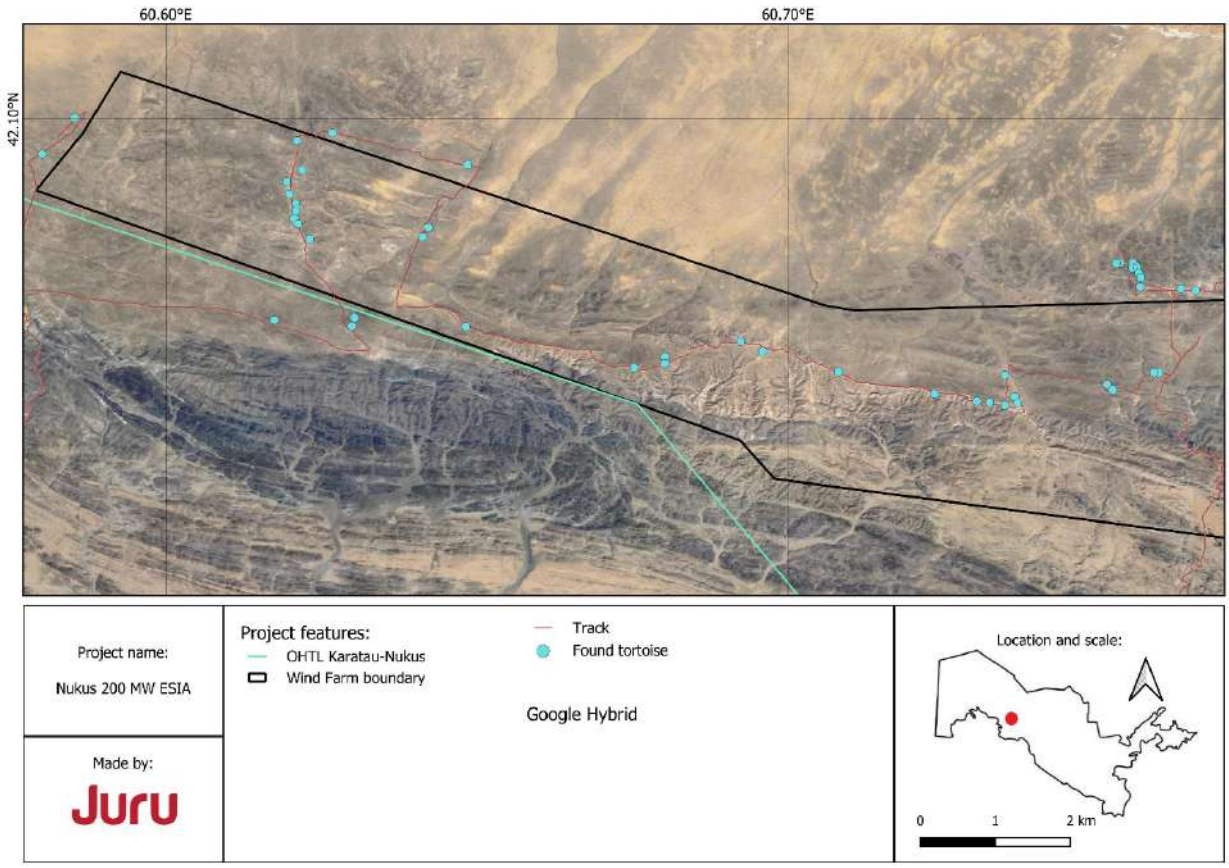


Figure 11 Tortoise concentration.

8. References

1. Ananyeva N.B., Borkin L.Ya., Darevsky I.S., Orlov N.L. Amphibians and Reptiles. Encyclopedia of Nature of Russia. - Moscow: ABF, 1998.
2. Bogdanov O.P. Fauna of the Uzbek SSR. Part 1. Amphibians and Reptiles. – Tashkent: Publishing House of the Academy of Sciences of the Uzbek SSR, 1960. – 260 p.
3. Bogdanov O.P. Ecology of Reptiles of Central Asia. Tashkent: Nauka, 1965. - 257 p.
4. Bondarenko D.A., Peregontsev E.A. Distribution of the Central Asian Tortoise (Agrionemis horsfieldii (Gray, 1844)) in Uzbekistan (range, regional and landscape distribution, population density) // Contemporary Herpetology, 2017. - Vol. 17, No. 3/4. - P. 124 – 146.
5. CITES. A reference to the appendices to the convention on International Track in Endangered Species of Wild Fauna and Flora, 1998. - 312 p., www.cites.org
6. Dal S.K., Vertebrates of the lower reaches of the Zeravshan River. Proceedings of UzSU, vol. VII, Samarkand, 1936.
7. Dal S.K. To Ecology of terrestrial vertebrate systems of the Zaravshan valley. Proceedings of UzSU, vol. 10. Samarkand, 1937. - c. 167-176.
8. Dinesman L.T., Kaletskaya M.L. Methods of counting the number and geographical distribution of terrestrial vertebrates. Moscow: AN USSR, 1952 [in Russian]
9. Red Book of the Republic of Uzbekistan, Volume II: Animals; edited by Zh.A. Azimov. T., 2019. - 374 p.
10. Kuzyakin A.P. 1962. Zoogeography of the USSR. Scientific notes of the Moscow regional pedagogical institute. 109: 9-182 pp.
11. Makeev V.M., Bozhansky A.T., (1988). Some results herpetological inspections East Turkmenistan /Rare and little-studied animals of Turkmenistan. Ashgabat. Ylym. (in Russian).
12. Vashetko E.V., Khodjaev A.F., Nuridjanov A.S., Chikin Yu.A.. Resources of Testudo horsefieldii in Uzbekistan. // Congress of Testudo. Gonfaron, France, 2001.
13. IUCN Red List of Threatened Species. Version 2021-2. www.iucnredlist.org

Contact Us

Phone: +998 78 202 0440

Email: info@juru.org

Website: www.juru.org



Asian Houbara Survey Report

Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan

Client: 5 Capitals

Date: May 31, 2024

Document Information

Project Name	Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan
Document Title	Asian Houbara survey report
Juru's Project Reference	UZB-ACWA-Nukus 200 MW ESIA
Client	5 Capitals
Juru's Project Manager	Dinara Rustami
Juru's Project Director	Jushkinbek Ismailov

Document Control

Version	Date	Description	Author	Reviewer	Approver
1	31.05.2024	Asian Houbara survey report	Valentin Soldatov, Anna Ten	Ludmila Slobodkina	Dinara Rustami

Disclaimer

The Asian Houbara survey report (the "Report") has been prepared by Juru Limited. Whilst the information contained in the Report reflects the current status, Juru makes no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report and accepts no liability for any information that may have been misstated or omitted.

This report has been prepared exclusively for 5 Capitals. 5 Capitals makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. 5 Capitals has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains 5 Capitals property.

Table of Content

1. Introduction....4
2. Study Area Description....4
3. Asian Houbara in Uzbekistan and region....5
4. Materials and methods....8
5. Results....11
References....13

Table of Figures

Figure 1: Protected area....4
Figure 2: Distribution range of Asian Houbara Bustard....7
Figure 3: Displaying Houbara male, Kyzylkum desert....8
Figure 4: Vantage point locations....9
Figure 5: The habitat on vantage points was suitable for Asian Houbara but birds were not registered (at point AH02 , 23.03.2024)....10
Figure 6: Field transects (March 23, April 23 and 24, 2024)....12

Table of Tables

Table 1: Asian Houbara Vantage point locations....9
Table 2: Asian Houbara survey results 2024....11

1. Introduction

The Asian Houbara Bustard, or Houbara Bustard (*Chlamydotis macqueenii*) is a large, turkey-like bird of Central Asian deserts and shrub-steppe that is classified as Vulnerable (VU) on both the national and IUCN Global red lists.

The purpose of this report is to provide an assessment of Asian Houbara in the project area as an important component of the biodiversity surveys for the proposed ESIA Nukus 200 MW wind farm. The study area covers the WF site and 220 kV OHTL line route within the Beruni district. The length of the overhead line is 44.3 kilometres. The 220 kV overhead line route starts from the existing Beruni substation to the projected Karatau substation of the NUKUS 200 MW WPP.

2. Study Area Description

The project area is located in the middle part of the Sultan Uvais mountain and its adjusment (Figure 1). There are few identified points along the OHTL route and windfarm territory with the western and central parts of the Sultan Uvais plateau, featuring gently undulating hills and sparse sagebrush vegetation; moving forward to the southern slope of the plateau, a road through a gravel desert with saxaul and parallel gas pipes; an agricultural landscape with a canal and magistral gas pipe, showcasing diverse vegetation; and settlements on the southern part of the OHTL, where the Beruni substation, power lines, residential buildings, country road, and agricultural fields are visible.

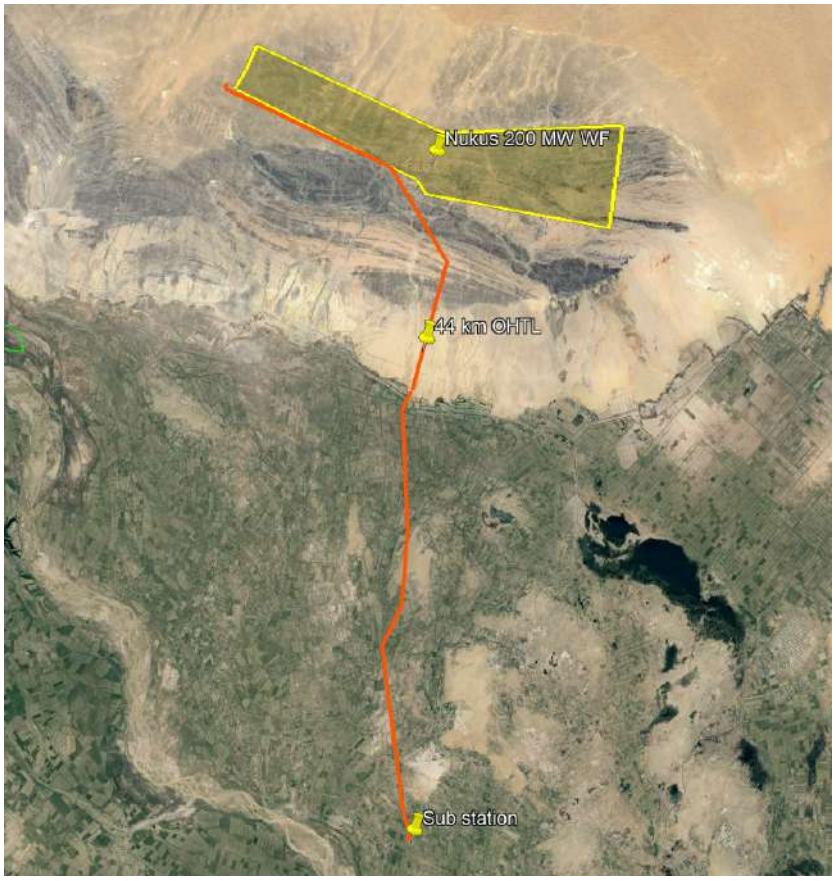


Figure 1: Protected area

3. Asian Houbara in Uzbekistan and region

Asian Houbara (hereinafter the “Houbara”) is one of the most characteristic representatives of the avifauna of Uzbekistan, occurring during the nesting and migration mainly on the territory of Kyzylkum and Ustyurt, and occasionally wintering in the southern regions of the country (Kreutzberg-Mukhina, 2003).

History of survey on this species.

Due to the intensive development of desert areas since the mid-20th century in Uzbekistan, the area of Houbara's habitat significantly decreased (Meklenburtsev, 1990). In addition, its number has decreased because of poaching, including falconry, both in the wintering areas and on flyways. Houbara is included in the Red Data Book of the Republic of Uzbekistan (2019) as a vulnerable species with a declining population. The population of this species has been regularly declining over the past decades, and the habitat is highly fragmented. Consequently, as the Red List Authority for birds on the IUCN Red List, BirdLife has recommended to IUCN that the Houbara be classified as Vulnerable under Criterion A4acd, owing to an estimated population reduction of between 30% and 49% across a period of three generations, starting in the past and projected into the future. Should more accurate trend data become available, future reassessment as Endangered may prove warranted. Conversely, potential population increases driven by expanding captive breeding and release programmes could alternatively necessitate future downlisting (BirdLife International 2014)

Information about Houbara in Kyzylkum was first given by M. N.Bogdanov (1882), who obtained it during his expedition from Kazalinsk to the Khiva oasis in 1873. In his opinion, Houbara nests everywhere in suitable places. N. A. Zarudny (1915) found Houbara nesting in the northern and eastern extremities of the studied area of the Kyzylkum desert. At Tamdy's oasis, he considered Houbara a common species. In the years before the Second World War, during the war, and for several years after it, T. Zahidov surveyed the Kyzylkum desert, and wrote (1971) that Houbara is distributed unevenly and is absent from most places in Central Kyzylkum. Much more often he observed it in the South-Western Kyzylkum. There, nesting grounds were also recorded by D.L. Lakhanov (1977). O. V. Mitropolsky regularly visited Kyzylkum from late 1972 to April 1985 and registered Houbara in many places in Central Kyzylkum. Nesting was also reliably recorded in Ayakguzhumdy, the northern foothills of Tamdytau, Kurkuduk. The biology of Houbara and the population were studied by O. S. Bakaev (1972), A. F. Alekseev (1980), T. S. Ponomareva (1979, 1983, 1985). In the 1980s the Ecocenter "Jeyran" studied the Houbara’s nesting biology and captive breeding (Mukhina, 1988).

From 2011 to the present, Robert Burnside, Maxim Koshkin and other specialists from the University of East Anglia, with the financial support of the Ahmed bin Zayed Charitable Foundation, as well as the Emirates Bird Breeding Center for Conservation, have been studying Houbara in the southern part of the Kyzylkum desert within the borders of Bukhara region. During this period, the number of Houbara was estimated on an area of more than 14,300 km^2 based on a comprehensive survey effort, and the nesting biology, migration routes, threats (livestock, predators, power lines), were studied. Additional research on Houbaras conducted in the Bukhara region by this research group included adaptation of the captive-bred Houbara to natural conditions, and telemetry of captive-bred and wild birds to characterize movement patterns and survivorship rates. These studies were the basis for a number of publications by Burnside et al. 2017, Burnside et al. 2020, Koshkin et al. 2014, Koshkin et al. 2016a, Koshkin et al. 2016b, Guilherme et al. 2018.

Since 2008, in the central part of the Kyzylkum desert, the Emirates Bird Breeding Center for Conservation (UAE) has been operating a captive breeding and wild release program for Houbaras. In total they have released approximately 14 thousand captive-bred Houbara to date in the Bukhara region (according to Gazeta.uz). Parallel work is carried out in the nursery located in Karnabchul.

Thus, Houbara is quite well studied within the Kyzylkum desert, overall, but data available on its distribution in the project area, located to the north of the Bukhara region, are quite old and much more limited.

Ecology

Houbara is an iconic inhabitant of steppe and semi-desert in Central Asia and the Middle East. A highly terrestrial bird, capable of going long periods without taking flight, it is nonetheless a true long-distance migrant, with some individuals travelling more than 7,500 km over the course of a single year (Figure 2) (Combreau et al. 2011).

All authors consider deserts to be the habitat of Houbara. It seems that a good all-round view is important for this bird, so it prefers to nest in flat areas with sparse vegetation. At the same time, fairly dense soil is important. Houbara can inhabit clay plains with sagebrush grass cover (Zahidov, 1971) and the extremities of takyrs near solonchaks with scattered saltwort and camel thorn shrubs. Houbara also lives on the clay-solonchak plains and Anabasis salsa takyrs of the ancient delta of the Amu Darya (Alekseev, 1981). According to N. A. Zarudny (1915), Houbara prefers slightly undulating spaces with sandified surface, covered with various low shrubs, alternating sagebrush communities and small solonchaks and takyrs. O. V. Mitropolsky (oral report) repeatedly visited Kyzylkum in 1971-1985 and repeatedly encountered Houbara, with only two records in sand areas. The rest were found on piedmont plains, plateaus, takyrs, i.e. on open flat areas with more or less dense vegetation. All authors confidently point out that Houbara is absent in loose sand dunes, as well as in landscapes transformed by humans even to a smallest degree (Meklenburtsev, 1990). Houbara abandons areas where roads appear or the number of livestock increases (Alekseev, 1981, but see Koshkin et. al. 2016).

During migrations, Houbara practically does not go beyond the nesting area. In northern Kyzylkum, it flies in a widely spread flock, in central Kyzylkum, according to R. N. Meklenburtsev (1990), the migration starts in the last third of March, in April the flight still continues, but at the end of April, only pairs remain. The autumn migration is most thoroughly studied for north-western Kyzylkum, where birds begin flying noticeably from the last third of September and continue to fly until late October, with rare individuals recorded on November 15 and 19. The main direction of the flight is south-west (Alekseev, 1980). Houbara is active during the day; apparently, it migrates during the day as well. In this respect, its behaviour is similar to that of Great Bustard and opposite to that of Little Bustard, which is a nocturnal migrant (Meklenburtsev, 1990). Houbara winters in Uzbekistan, but not regularly. Local residents of the Tamdy oasis in Kyzylkum reported to Zarudny N. A. (2015) about rare encounters in winter. According to N. A. Azimov (2020, oral report), in the Pistalitau area, poachers shot 2 ringed Houbaras. Further study of this question showed that the birds were most likely from the breeding center.

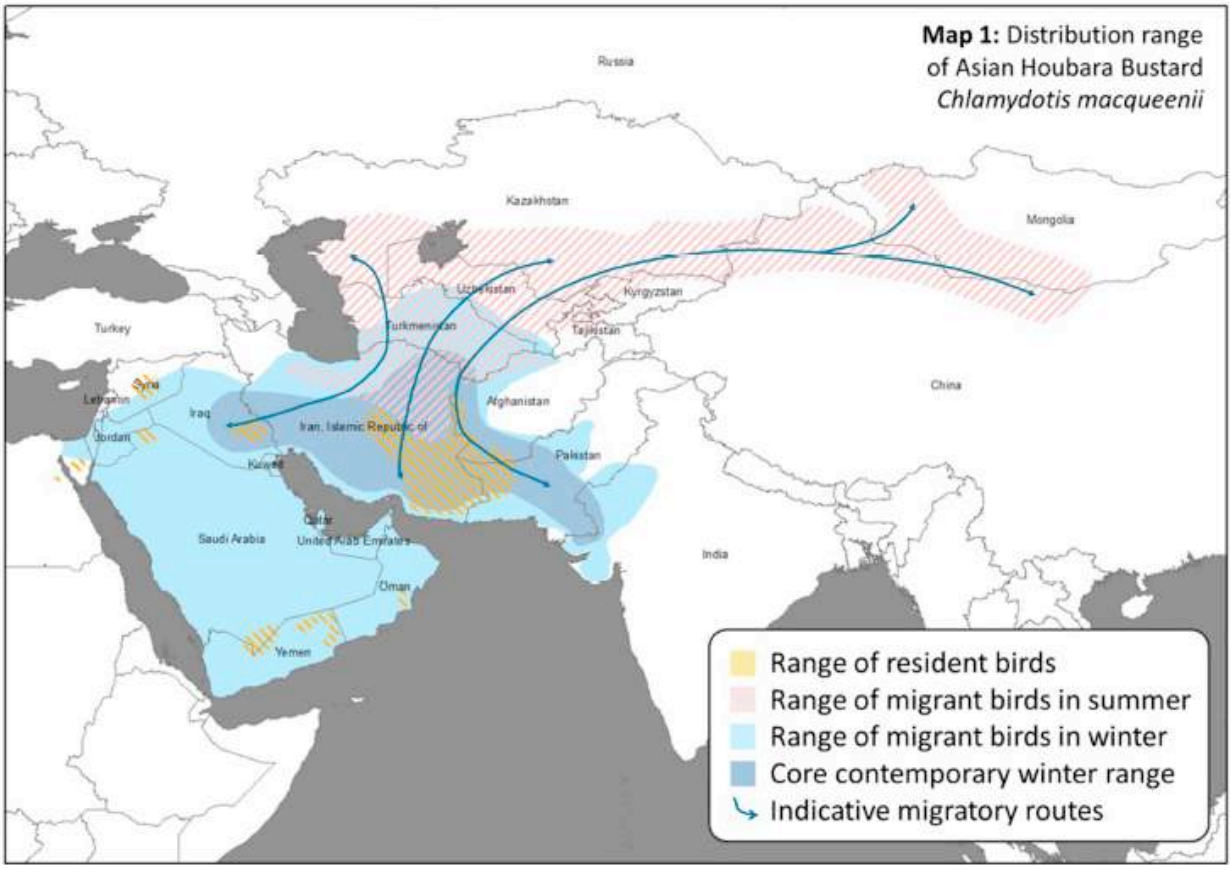


Figure 2: Distribution range of Asian Houbara Bustard.
Houbara is a locally common breeding and passage migrant and an occasional over-winterer in Uzbekistan. A large proportion of the population, numbering tens of thousands, migrates through Uzbekistan biannually, and birds can be encountered in most lowland regions each spring and autumn. Northward migration peaks in the second and third weeks of March, whilst southbound birds mostly pass through in mid-October (O. Combreau in litt. 2014). Birds have been observed across much of the country in the summer months, and Goriup (1997) estimated a breeding population of between 6,000 and 9,000 individuals. Overwintering has been reported in the Uzbek part of the Kyzylkum desert (O. Combreau in litt. 2014).

Male Houbara attract their mates with an extravagant courtship display, which they perform at the same site each year. The display begins with a period of strutting and culminates with the male retracting his head within an ornamental shield of erected neck feathers and then running at speed in either a straight or curved line (Figure 3). The display is often accompanied by a series of low frequency booming calls (Gaucher et al. 1996). In the Bukhara breeding center of rare animals "Jeyran", males began to display behaviour immediately after arrival. Total 7-9 males had display behaviour. Each occupies a certain area, which the other males do not enter. Females appear in these areas about 10 days later, but they do not constantly stay on them, but only visit them (Mukhina, 1990).

Males play no part in rearing the young, and a brood may contain young sired by several different individuals. Females create a shallow scrape in the ground in which they typically lay 3-4 eggs, and occasionally up to six eggs in long-distance migrants (Collar 1996, Combreau et al. 2002).

After tracing the incubation process from beginning to end, S. O. Bakaev (1972) found out that the female incubates the clutch for 21 days. The chicks hatch within one day. According to O. Combreau (BirdLife International 2014), the incubation period is typically 23 days, whilst fledging takes around 30 to 35 days. The growth of chicks was traced by T. S. Ponomareva (1980). According to her, they become mature by 2 months of age, i.e. by the end of July, if the eggs are laid in early April. Most chicks

fledge by the end of June. Then broods break up and every bird stays alone. This is also confirmed by modern telemetry data. Satellite tracking has revealed that females and their young separate after three to four months and that pre-migration groups in autumn comprise birds of all ages and sexes (O. Combreau 2014).



Figure 3: Displaying Houbara male, Kyzylkum desert

Houbara was known as breeding species in surroundings of Sultan Uvais mountains and included in check list of Lower Amudarya Biosphere reserve and in Uzbekistan Red data book (2019)[1].

4. Materials and methods

The methodology implemented for this survey effort consisted of spring season point counts, following a method that has been developed by Houbara researchers in Uzbekistan, and taking advantage of the visual and acoustic observability of males' courtship displays, as Houbara are shy and difficult to see at other times of year. During the peak courtship season in Uzbekistan (March–May) displaying males (and also floating males) are conspicuous and can be apparent from long distances. This provides an opportunity for male population assessment with a relatively high degree of accuracy (Koshkin et al, 2016a).

Houbara point count surveys were conducted within the project area and surroundings, during the optimal period for such counts, **March 23 and April 23-24, 2024**.

The weather conditions during survey period were generally good for counts.

Figure 4 and Table 1 show the five vantage point locations where Houbara spring point count surveys were conducted.

1 Red Data Book of Uzbekistan (2019) Volume II. Animals. Tashkent. "Chinor ENK"- 392p.]

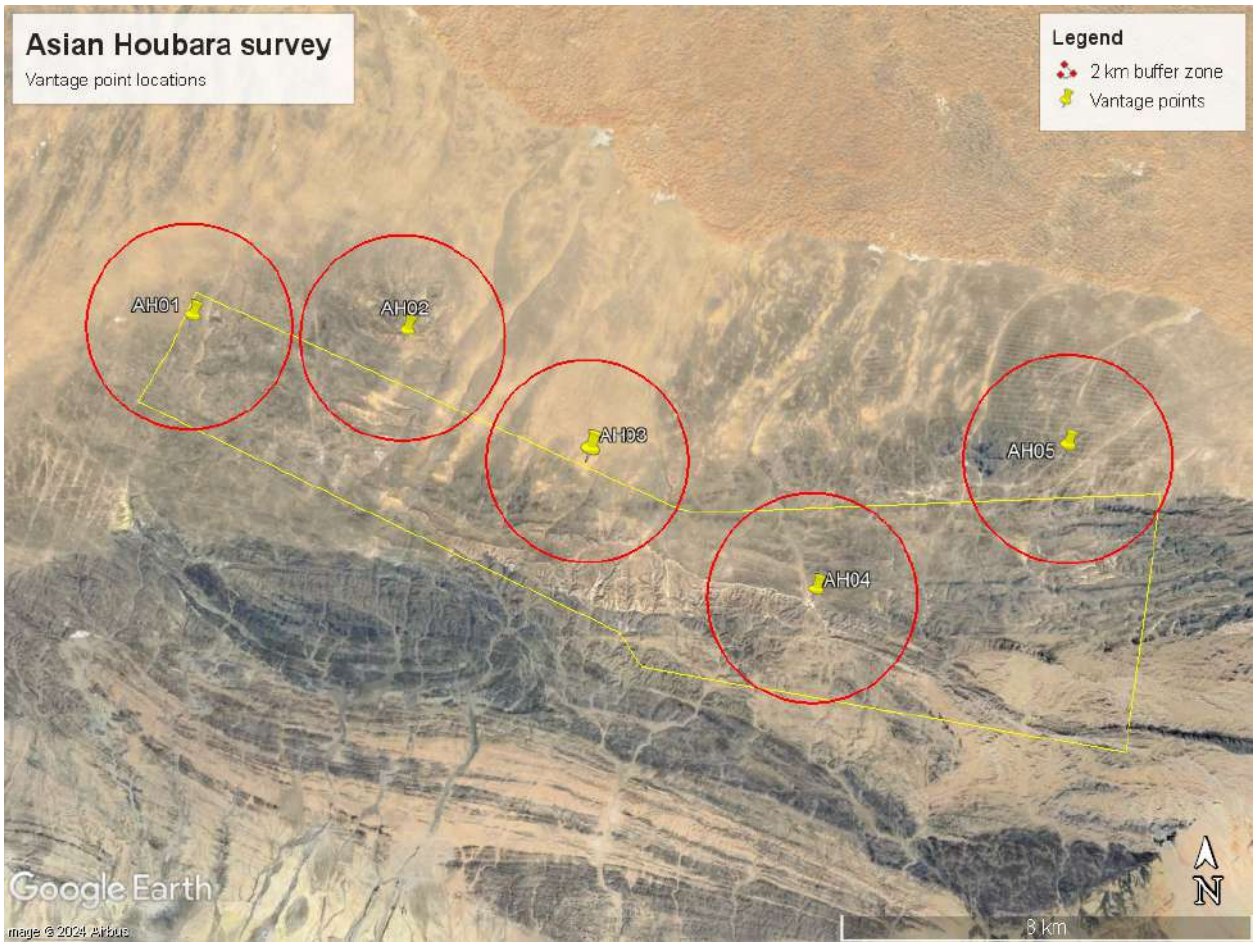


Figure 4: Vantage point locations

Optical instruments – binoculars Nikon x8, telescope x60 Swarowski and laser rangefinder, compass were used. Birds were registered on video and photo with mobile phone using dj-scoping and a Nikon D20 digital camera with a 300mm lens.

Table 1: Asian Houbara Vantage point locations

N	Point	N	E
1	AH01	42.10158	60.59113
2	AH02	42.09904	60.6417
3	AH03	42.077974	60.684626
4	AH04	42.053724	60.737844
5	AH05	42.078949	60.797167



Figure 5: The habitat on vantage points was suitable for Asian Houbara, but no specimens were found (at point AH02 , 23.03.2024)

Data Recording Methods

The following data was recorded on the survey forms:

- The location of the VP used
- Date of survey
- Start and end time of the count
- Weather condition: wind (0-4), wind haze (0-4)
- Surveyor name
- Biotope
- Group size of Houbaras (sex – male, female, unknown)
- Distance (m) for each group
- Bearing (°) for each group
- Behaviour (displaying, flying, standing, et al.)
- Notes

Weather

In general, the weather conditions during the survey period were suitable for Asian Houbara survey.

Time schedule

The surveys were conducted in 2 rounds:

- 1st round - 23 March 2024.

- 2nd round – 23-24 April 2024.

5. Results

This section provides information on the data obtained as a result of the study, focusing on Asian Houbara (Table 2).

Table 2: Asian Houbara survey results 2024.

Point	N	E	Date	Start time	End time	Asian Houbara	Distance	Azimuth
AH01	42.10158	60.59113	23.03.2024	08:00	08:30	0	n/a	n/a
AH02	42.09904	60.6417	23.03.2024	08:50	09:20	0	n/a	n/a
AH03	42.077974	60.684626	23.03.2024	09:23	09:53	0	n/a	n/a
AH04	42.053724	60.737844	23.03.2024	10:00	10:30	0	n/a	n/a
AH05	42.078949	60.797167	23.03.2024	10:40	11:10	0	n/a	n/a
AH01	42.10158	60.59113	23.04.2024	17:15	17:45	0	n/a	n/a
AH02	42.09904	60.6417	23.04.2024	18:00	18:30	0	n/a	n/a
AH03	42.077974	60.684626	24.04.2024	07:40	08:10	0	n/a	n/a
AH04	42.053724	60.737844	24.04.2024	08:24	08:55	0	n/a	n/a
AH05	42.078949	60.797167	24.04.2024	09:10	09:40	0	n/a	n/a

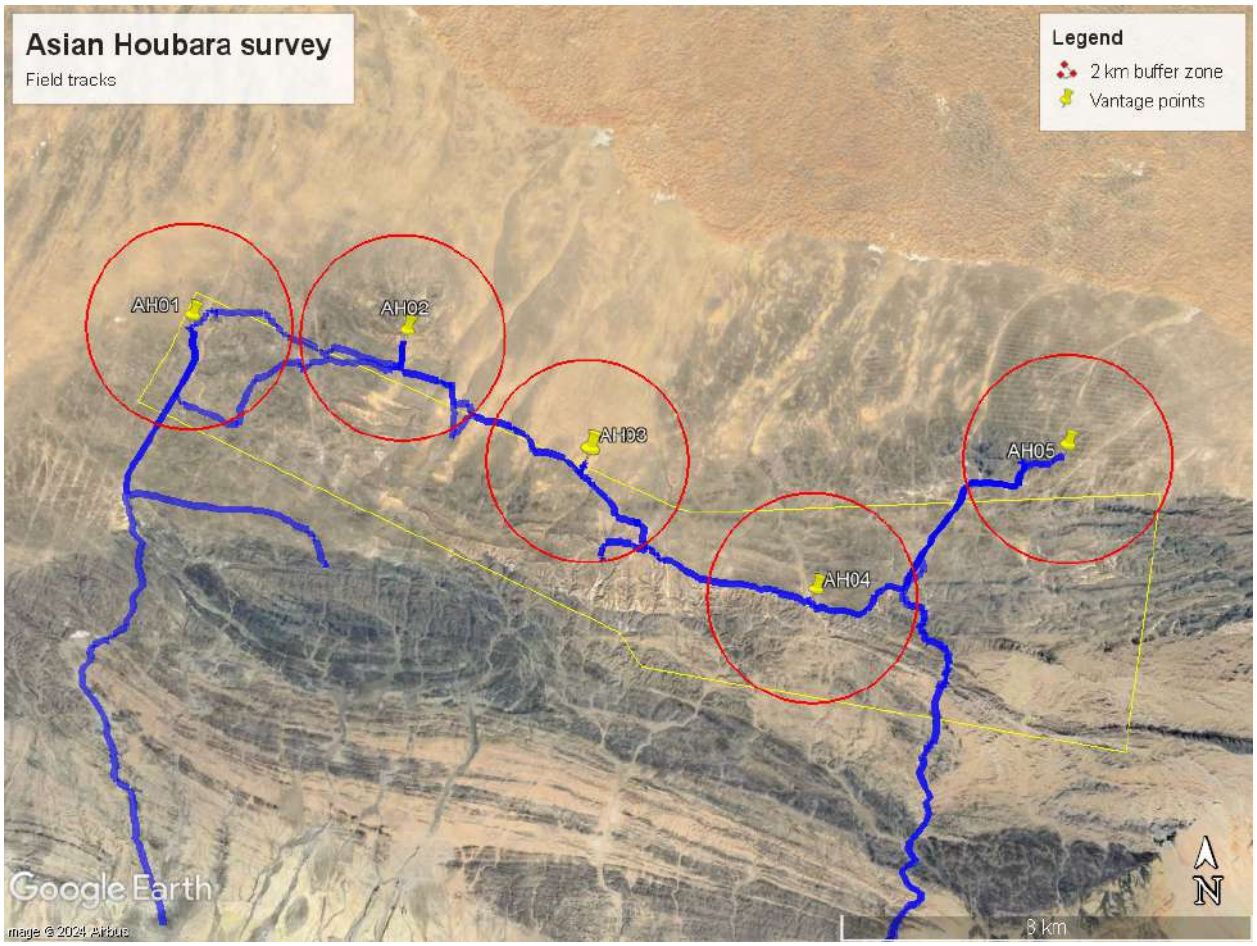


Figure 6: Field transects (March 23, April 23 and 24, 2024)

No individuals of the Asian Houbara species were seen during the surveys.

Summary

1. The survey was conducted under suitable weather and seasonal conditions in March 23 and in April 23-24, 2024.
2. No Asian Houbara were observed.
3. Although the habitats are generally suitable for breeding, the high level of disturbance likely causes the birds to leave the area.

References

- Abduraupov T.V., Mansurkhojaeva M.U., Vashetko E.V., Esipov A.V., Azimov N.A., Bykova E.A. (2021) Kadastre of rare and endangered vertebrate animals of Samarkand region, Uzbekistan (reptiles., birds, mammals). Tashkent: "EFFECT-D", 2021-128 p.
- Uzbekistan Red data book. 2019/ Vol. II. Animals. Tashkent: Chinor ENK, 2019.
- Alekseev, A. F. 1980. Asian Houbara Chlamydotis undulata macqueenii in the North-Western Kyzylkum (Дрофа-красотка (Chlamydotis undulata macqueenii) в Северо- Западных Кызылкумах) / / Zoological magazine. 59, 8, 1980 1263-1266.
- Bakaev S. 1972. On the ecology of Asian Houbara in the lower reaches of the Zeravshan River (Бакаев С. К экологии дрофы-красотки в низовьях р. Зеравшан). // Ornitologiya. 1972. Issue 10. Pp. 324-326.
- Bevanger, K., 1994. Bird interactions with utility structures – collision and electrocution, causes and mitigating measures. Ibis 136, 412–425.
- Bevanger, K., 1998. Biological and conservation aspects of bird mortality caused by electricity power lines: a review. Biological Conservation 86, 67–76.
- BirdLife International. 2014. Review of the global conservation status of the Asian Houbara Bustard Chlamydotis macqueenii. Report to the Convention on Migratory Species Office – Abu Dhabi. Cambridge, UK: BirdLife International.
- BirdLife International. 2019. Chlamydotis macqueenii (amended version of 2017 assessment). The IUCN Red List of Threatened Species 2019: e.T22733562A155425140. https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22733562A155425140.en. Downloaded on 28 May 2021.
- Burnside, R. J., Buchan, C., Salliss, D., Collar, N.J., Dolman, P.M. 2020. Releases of Asian houbara must respect genetic and geographic origin to preserve inherited migration behaviour: evidence from a translocation experiment. Royal Society Open Science, https://doi.org/10.1098/rsos.200250
- Burnside, R.J., Collar, N.J., Dolman, P.M. 2017. Comparative migration strategies of wild and captive-bred Asian Houbara Chlamydotis macqueenii. Ibis 159,374–389. doi: 10.1111/ibi.12462
- Burnside, R.J., Collar, N.J., Koshkin, M.A., Dolman, P.M. 2015. Avian powerline mortalities, including Asian Houbara Chlamydotis macqueenii, on the Central Asian flyway in Uzbekistan. Sandgrouse 37, 161–168.
- Burnside, R. J., Daniel Salliss, Nigel J. Collar, Paul M. Dolman. 2021. Birds use individually consistent temperature cues to time their migration departure. Proceedings of the National Academy of Sciences PNAS July 13, 2021 118 (28) e2026378118; https://doi.org/10.1073/pnas.2026378118
- Collar N. J., H. S. Baral, N. Batbayar, G. S. Bhardwaj, N. Brahma, R. J. Burnside, A. U. Choudhury, O. Combreau, P. M. Dolman, P. F. Donald, S. Dutta, D. Gadhavi, K. Gore, O. A. Goroshko, Hong C., G. A. Jathar, R. R. S. Jha, Y. V. Jhala, M. A. Koshkin, B. P. Lahkar, G. Liu, S. P. Mahood, M. B. Morales, S. S. Narwade, T. Natsagdorj, A. A. Nefedov, J. P. Silva, J. J. Thakuri, M. Wang, Y. Zhang & A. E. Kessler. 2017. Averting the extinction of bustards in Asia. Forktail 33 (2017): 1–26.
- Collar, N. J. 1996. Family Otididae. In: Del Hoyo J, Elliot A, Saragatal J, eds. Handbook of the birds of the World. Barcelona: Lynx Editions. pp 240–273.
- Combreau, O., Launay, F., 1996. Activity rhythms of houbara bustards (Chlamydotis undulata macqueenii) in relation to someabiotic factors. Journal of Arid Environments 33, 463–472.
- Combreau, O., Riou, S., Judas, J., Lawrence, M., Launay, F. 2011. Migratory Pathways and Connectivity in Asian Houbara Bustards: Evidence from 15 Years of Satellite Tracking. PLoS ONE 6(6): e20570. https://doi.org/10.1371/journal.pone.0020570

- Combreau, O., Qiao, J., Lawrence, M., Gao, X. J. Yao, J., Yang, W. and Launay, F. 2002. Breeding success in a Houbara Bustard Chlamydotis [undulata] macqueenii population on the eastern fringe of the Jungar Basin, People's Republic of China. Ibis 144: E45–E56.
- Drewitt, A.L., Langston, R.H.W., 2008. Collision effects of wind-power generators and other obstacles on birds. Year in Ecology and Conservation Biology 1134, 233–266.
- Gaucher, P., Paillat, P., Chappuis, C., Saint Jalme, M., Lotfikhah, F. and Wink, M. 1996. Taxonomy of the Houbara bustard Chlamydotis undulata subspecies considered on the basis of sexual display and genetic divergence. Ibis 138: 273–282.
- Goriup, P. D. 1997. The world status of the Houbara Bustard Chlamydotis undulata. Bird Conservation International 7: 373–397.
- Gubin B.M. 2004. Houbara bustard – Almaty, 2004.
- Janss, G.F.E., 2000. Avian mortality from power lines: a morphologic ap.proach of a species-specific mortality. Biological Conservation 95, 353–359.
- Janss, G.F.E., Ferrer, M., 2000. Common crane and great bustard collision with power lines: collision rate and risk exposure. Wildlife Society Bulletin 28, 675–680.
- Jenkins, A.R., Smallie, J.J., Diamond, M., 2010. South African Perspectives on a Global Search for Ways to Prevent Avian Collisions with Overhead Lines, in press, doi:10.1017/S0959270910000122.
- Koshkin, M., Collar, N.J., Dolman, P.M. 2014. Do sheep affect distribution and habitat of Asian Houbara Chlamydotis macqueenii? Journal of Arid Environments 103, 53-62. Doi: 10.1016/j.jaridenv.2014.01.002
- Koshkin, M.A., Burnside, R.J., Collar, N.J., Guilherme, J.L., Showler, D.A., Dolman, P.M. 2016a. Effects of habitat and land use on breeding season density of male Asian Houbara Chlamydotis macqueenii. Journal of Ornithology 157, 811–823. doi: 10.1007/s10336-015-1320-4
- Koshkin, M.A., Burnside, R.J., Packman, C.E., Collar, N.J., Dolman, P.M. 2016b. Effects of habitat and livestock on nest productivity of the Asian houbara Chlamydotis macqueenii in Bukhara province, Uzbekistan. European Journal of Wildlife Research 62, 447-459. doi: 10.1007/s10344-016-1018-9
- Kreutzberg-Mukhina E. A. 2003. The current state of bustards in Uzbekistan (Современное состояние дрофиных птиц в Узбекистане) / / Bustards of Russia and neighboring countries. - 2003. Issue 2. Pp. 64-75.
- Lakhanov Zh. L. 1977. Some features of adaptation of birds to life in the desert and ecological analysis of their nesting period (Некоторые черты приспособления птиц к жизни в пустыне и экологический анализ их гнездового периода). Samarkand State University, new series, issue 324. Samarkand, 1977. Pp. 33-46.
- Martin, G. R. & Shaw, J. M. 2010. Bird collisions with power lines: failing to see the way ahead? Biol. Conserv. 143: 2695–2702
- Martin, G.R. 2007. Visual fields and their functions in birds. Journal of Ornithology 148 (Suppl. 2), 547–562.
- Martin, T. E., Nivet-Mazerolles, V., Landsmann, C., Guilleman, M., Dubos, J., Valejo, F. & Dombrovski, V. 2014. Bird records from south-central Uzbekistan, 2010–2013. Sandgrouse 36: 34–49.
- Meklenburtsev R.N. 1990. The Bustard family, order Gruiformes (Семейство Дрофиные, отряд Журавлеобразные) / / Birds of Uzbekistan. Tashkent: FAN Publishing House, 1990. Vol. 2. Pp. 7-17.
- Mukhina E. A. 1990. Asian Houbara (Chlamydotis undulata macqueenii) in the Bukhara special nursery, colony structure, population dynamics, ecology (Джек (Chlamydotis undulata macqueenii) в Бухарском спецпитомнике, структура поселения, динамика численности, экология) // Zoological magazine Vol. 69. Issue 7. 1990, pp. 107-116.

- Mukhina E. A.1988. Results and prospects of Asian Houbara's breeding in captivity, in a special nursery in Bukhara. // Ecology, protection and rational use of birds in Uzbekistan. (Итоги и перспективы вольерного содержания джека в Бухарском спецпитомнике. // Экология, охрана и рациональное использование птиц в Узбекистане.) Materials of the II Republican Ornithological Conference. - Tashkent: FAN, 1988. Pp. 44-46.
- Newman, JR & SA Nesbitt. 2010. Potential for collisions and electrocutions associated with the proposed Talimarjan transmission line project, Uzbekistan. http://uz.denemetr.com/tw_files2/urls_2/88/d-87163/7z-docs/1.pdf
- Ponomareva T. S. 1979. Asian Houbara (current state and prospects of conservation) (Пономарева Т.С. Джек (современное состояние и перспективы сохранения)). // Okhota i okhotnichye khozyaystvo, 1979. No. 11. Pp. 26-27.
- Ponomareva T. S.1985. Asian Houbara numbers in Bukhara region, according to bird monitoring data. (Численность джека в Бухарской области по данным авиучета.) // Bulletin of the Moscow Council of the society of naturalists. Department of Biology Vol. 90. Issue 1. 1985. Pp. 25-29.
- Ponomareva T. S. 1983. Breeding behaviour and distribution of Asian Houbara (Chlamydotis undulata macqueenii) in nesting sites. (Репродуктивное поведение и распределение джека (Chlamydotis undulata macqueenii) в местах гнездования.) // Zoological magazine. 1983. Vol. 62. Issue 4. Pp. 592-603.
- Ponomareva, T. 1985. The Houbara Bustard: present status and conservation prospects [in the USSR]. Okhota I okhotnich'e khozyaistvo 11 [1979]: 26–27.
- Red Data Book of Uzbekistan. 2019. Animals. Volume II. Tashkent. "Chinor ENK"- 392p.
- Shaw, J. M., T. A. Reid, B. K. Gibbons, M. Pretorius, A. R. Jenkins, R. Visagie, M. D. Michael, and P. G. Ryan, 2021. A large-scale experiment demonstrates that line marking reduces power line collision mortality for large terrestrial birds, but not bustards, in the Karoo, South Africa. Ornithological Applications 123:1-10
- Silva, J. P., A. T. Marques, J. Bernardino, T. Allinson, Y. Andryuschchenko, S. Dutta, M, Kessler, R. C. Martins, F. Moreira, J. Pallett, M. Pretorius, H. A. Scott, J. M. Shaw, N. J. Collar, 2022. The effects of powerlines on bustards: how best to mitigate, how best to monitor? Bird Conservation International 1-14. https://doi.org/10.1017/S0959270922000314
- Tourenq, C., O. Combreau, M. Lawrence, F. Launayю. 2004. Migration patterns of four Asian Houbara Chlamydotis macqueenii wintering in the Cholistan Desert, Punjab, Pakistan // Bird Conservation International (2004) 14:1–10. BirdLife International 2004 DOI: 10.1017/S0959270904000012 Printed in the United Kingdom
- Zakhidov T. Z., Mecklenburtsev R.N., Bogdanov O. P. 1971. Nature and the animal world of Central Asia (Природа и животный мир Средней Азии). Vol. II. Vertebrates (Позвоночные животные). - Tashkent: Shkituvchi, 1971
- Zarudny, N. A. 1915. Birds of the Kyzylkum desert (Птицы пустыни Кызылкум) / / Materials for the of the fauna and flora of the Russian Empire. Department of Zoology. Moscow, 1915. Issue 14. 149 p.

Contact Us

Phone: +998 78 202 0440

Email: info@juru.org

Website: www.juru.org



Mammal Photo-trapping Survey Report Spring 2024

Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan

Consulting Firm:

Juru Energy Ltd
Suite 1, One George Yard, London,
United Kingdom, EC3V 9DF
www.juruenergy.com

Prepared for:

5 Capitals Environmental and Management Consulting
Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE
www. 5capitals.com.

Document Information

Project Name	Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan
Document Title	Mammal Photo-trapping Survey Report Spring 2024
Juru's Project Reference	UZB-ACWA-Nukus 200 MW ESIA
Client	5 Capitals
Juru's Project Manager	Dinara Rustami
Juru's Project Director	Jushkinbek Ismailov

Document Control

Version	Date	Description	Author	Reviewer	Approver
1	22.06.2024	Mammal Photo-trapping Survey Report Spring 2024	Elizaveta Ignatieva	Lyudmila Slobodkina	Anna Ten

Disclaimer

The Mammal Photo-trapping Survey Report (the "Report") has been prepared by Juru Limited. Whilst the information contained in the Report reflects the current status, Juru makes no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report and accepts no liability for any information that may have been misstated or omitted.

This prepared exclusively for 5 Capitals. 5 Capitals makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. 5 Capitals has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains 5 Capitals property.

Table of Content

1. Introduction 4
2. Materials and methods 4
3. Results 6
4. Conclusion 8
5. Annex 9

Table of Figures

Figure 1. Locations of the photo-traps 4
Figure 2. Lepus tolai 6
Figure 3. Vulpes vulpes karaganka 7
Figure 4. Testudo horsfieldii 7
Figure 5. Trapelus sanguinolentus 7
Figure 6. Oenanthe pleschanka 7
Figure 7. Galerida cristata 8

Table of Tables

Table 1. Locations of the photo-traps 5
Table 2. The list of mammal species recorded on the photo-traps 6
Table 3. Other species recorded on the photo-traps 6
Table 4. Mammal species registered on the photo-traps 9

1. Introduction

This report supplements the main Mammal report for the 200 MW wind farm project in the Beruni district. The study area includes both the wind farm site and the overhead transmission line (OHTL) route.

2. Materials and methods

On April 2 and 3, 2024, eleven camera traps were installed in various habitats within the project area to study mammal activity. The locations for the camera traps were initially determined during the desktop study by theriologist Maria Gritsyna and were slightly adjusted on-site by Juru biodiversity specialist Elizaveta Ignatieva. The camera traps were collected on May 31, with two traps (№6 and №11) found to be missing. Therefore, the total number of days was 58-59 days, and the total number of camera trap days, excluding the lost traps, was 529.

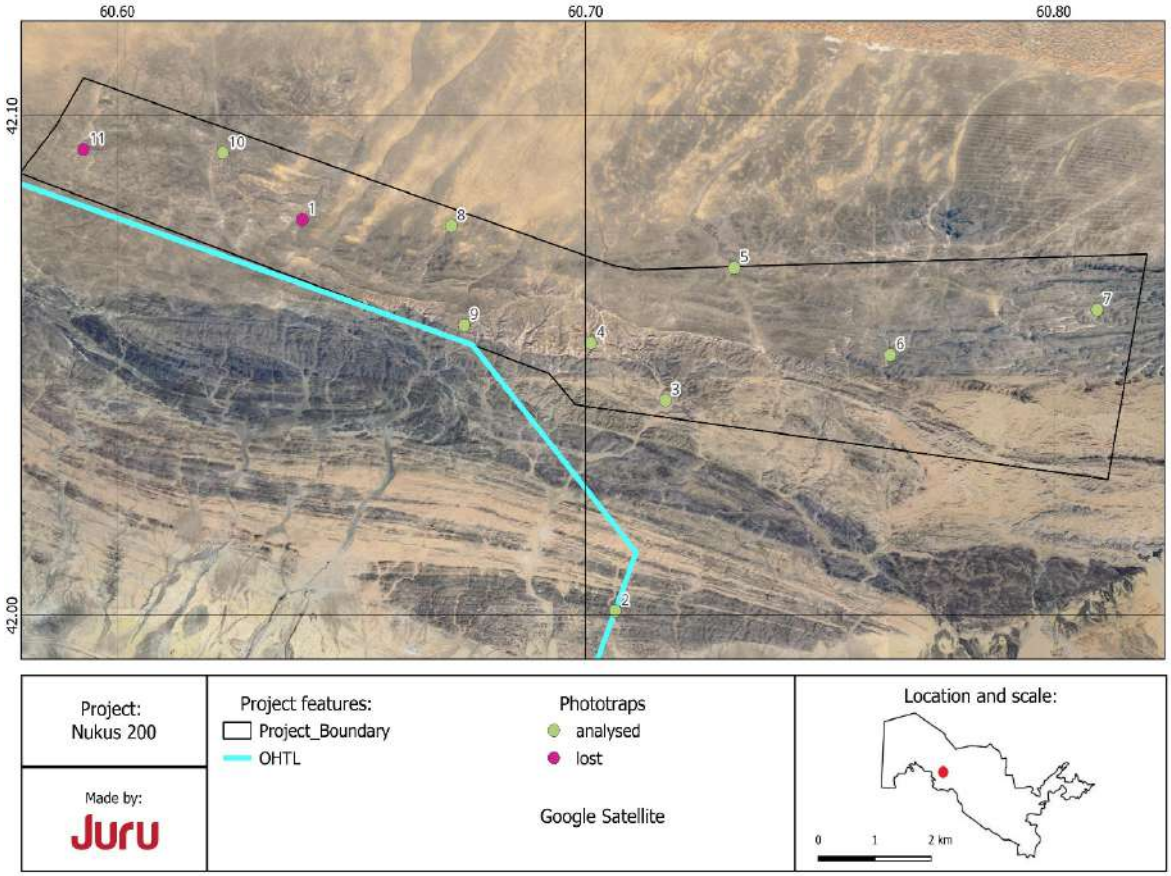


Figure 1. Locations of the photo-traps

Table 1. Locations of the photo-traps

Photo-trap number	Juru's mark	Coordinates, N, E, °	Habitat	Notes
1	CAM08	42.07923, 60.63945	Gently undulating plain on loose sandy loam with fine clastic material and sparse shrub vegetation	
2	CAM09	42.00091, 60.70632	Steep dry stony slopes of relic low mountains with rugged terrain and sparse petrophytic vegetation	
3	CAM13	42.04305, 60.71707	Steep dry stony slopes of relic low mountains with rugged terrain and sparse petrophytic vegetation	
4	CAM1	42.05451, 60.70109	Steep dry stony slopes of relic low mountains with rugged terrain and sparse petrophytic vegetation	
5	CAM11	42.06956, 60.73174	Loamy, gently undulating plain with relatively dense grassy vegetation and shrubs.	
6	CAM16	42.05212, 60.76502	Rocky outcrops with clastic material and blocks with sparse vegetation	lost
7	CAM12	42.06118, 60.80933	Sandy slope with loose sands, sparse shrub vegetation and an abundance of ground squirrel burrows.	
8	CAM06	42.07795, 60.67130	Gently undulating plain with coarse clastic material on fixed sands with sparse shrub vegetation and ferula.	
9	CAM17	42.07795, 60.67130	Thalweig between steep mountain slopes with rocky surface and sparse petrophilic vegetation	
10	CAM15	42.09258, 60.62248	Gently undulating sandy plain with shrubby vegetation	No animals registered
11	CAM19	42.09326, 60.59272	Gently undulating sandy boundary with fine-clastic impact, sparse herbaceous and shrubby vegetation.	lost

3. Results

In total, seven species were recorded in the project area: two species of mammals, two species of birds, and three species of reptiles. Among the recorded animals, one species, the Central Asian tortoise (*Testudo horsfieldii*), is listed in both the Red Data Book of Uzbekistan and the IUCN Red List.

Table 2. The list of mammal species recorded on the photo-traps

Common name	Latin name	IUCN Red list	Uzbekistan Red data book (2019)	Photo-trap location (as per Figure 1)
Red Fox	*Vulpes vulpes karaganka*	LC	-	1, 2, 3, 4, 5, 7, 8, 9
Tolai Hare	*Lepus tolai*	LC	-	2, 5

Table 3. Other species recorded on the photo-traps

Common name	Latin name	IUCN Red list	Uzbekistan Red data book (2019)
Central Asian tortoise	*Testudo horsfieldii*	*VU*	*VU*
Rapid Racerunner	*Eremias velox*	LC	-
Steppe Agama	*Trapelus sanguinolentus*	LC	-
Crested Lark	*Galerida cristata*	LC	-
Pied Wheatear	*Oenanthe pleschanka*	LC	-



Figure 2. Lepus tolai



Figure 3. Vulpes vulpes karaganka



Figure 4. Testudo horsfieldii



Figure 5. Trapelus sanguinolentus



Figure 6. Oenanthe pleschanka



Figure 7. Galerida cristata

4. Conclusion

The camera trap survey documented two mammal species in the project area: the Red Fox and the Tolai Hare. Red Fox (*Vulpes vulpes karaganka*) was the most frequently observed species, captured by eight camera traps. The Tolai Hare (*Lepus tolai*) was recorded less frequently, appearing only in footage from camera traps 2 and 5.

In addition to mammals, the camera traps also captured footage of birds and reptiles. Notably, among the recorded reptiles there was the Central Asian Tortoise (*Testudo horsfieldii*). This species is of particular conservation importance, being listed in both the Red Data Book of Uzbekistan and the IUCN Red List.

While local shepherds had reported the presence of corsac, the study did not confirm these claims.

This photo-trapping survey report has provided valuable data on mammal presence and distribution in the project area, while also highlighting the presence of species of conservation concern.

5. Annex

Table 4. Mammal species registered on the photo-traps

No	ID	Date	Common name	Latin name	Number
1	Pht08	12.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		31.05.2024	Red Fox	*Vulpes vulpes corsac*	1
2	Pht09	04.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		06.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		12.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		15.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		15.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		16.04.2024	Tolai Hare	*Lepus tolai*	1
		21.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		26.04.2024	Red Fox	*Vulpes vulpes corsac*	1
3	Pht13	05.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		06.04.2024	Red Fox	*Vulpes vulpes corsac*	1
4	Pht1	03.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		11.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		12.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		14.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		25.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		04.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		11.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		12.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		15.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		22.05.2024	Red Fox	*Vulpes vulpes corsac*	1
5	Pht11	02.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		09.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		12.04.2024	Tolai Hare	*Lepus tolai*	1
		13.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		17.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		18.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		21.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		22.04.2024	Tolai Hare	*Lepus tolai*	1
		24.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		24.04.2024	Tolai Hare	*Lepus tolai*	1
7	Pht12	09.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		25.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		01.05.2024	Red Fox	*Vulpes vulpes corsac*	1
8	Pht6	09.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		10.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		11.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		12.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		15.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		16.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		18.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		23.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		28.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		30.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		04.05.2024	Red Fox	*Vulpes vulpes corsac*	1

		05.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		09.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		16.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		17.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		19.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		17.05.2024	Red Fox	*Vulpes vulpes corsac*	1
		26.05.2024	Red Fox	*Vulpes vulpes corsac*	1
9	Pht17	04.04.2024	Red Fox	*Vulpes vulpes corsac*	1
		03.05.2024	Red Fox	*Vulpes vulpes corsac*	1

Contact Us

Phone: +998 78 202 0440

Email: info@juru.org

Website: www.juru.org

Mammal Transect Survey Report
Spring 2024

Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan

Consulting Firm:

Juru Energy Ltd

Suite 1, One George Yard, London, United Kingdom, EC3V 9DF

www.juruenergy.com

Prepared for:

5 Capitals Environmental and Management Consulting

Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE

www. 5capitals.com.

Document Information

Project Name	Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan
Document Title	Mammal Transect Survey Report Spring 2024
Jurur's Project Reference	UZB-ACWA-Nukus 200 MW ESIA
Client	5 Capitals
Juru's Project Manager	Dinara Rustami
Juru's Project Director	Jushkinbek Ismailov

Document Control

Version	Date	Description	Author	Reviewer	Approver
1	18.05.2024	Mammal Transect Survey Report Spring 2024	Maksim Mitropolskiy	Anna Ten	Dinara Rustami

Disclaimer

The Mammal Transect Survey Report (the "Report") has been prepared by Juru Limited. Whilst the information contained in the Report reflects the current status, Juru makes no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report and accepts no liability for any information that may have been misstated or omitted.

This prepared exclusively for 5 Capitals. 5 Capitals makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. 5 Capitals has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains 5 Capitals property.

Table of Content

1. Introduction....4
2. Study Area Description....4
3. Materials and methods....5
4. Mammals composition and faunal complexes....9
5. Findings and Results....10
6. Key species descriptions....14
7. Conclusion....14
8. References....15

Figure 1: The project site....4
Figure 2. Wind farm area in Sultanuvays mountain....5
Figure 3. OHTL route in salty valley....5
Figure 4. Survey track....6
Figure 5. Collected pellets of Eagle owl at Wind Farm area....9
Figure 6. Collected pellets of Little owl at OHTL point....9
Figure 7. Brandt's hedgehog skin (MS11)....13
Figure 8. Yellow ground squirrel on the slopes of Sultanuizdag (MS13)....13
Figure 9. Ellobius tancrei Habitat (MS7)....13
Figure 10. Ellobius tancrei Habitat (MS12)....13
Figure 11. Gazella subgutturosa (MS12)....13
Figure 12.Fox (MS10)....13

Table 1: Survey points on OHTL route and Wind Farm area....7
Table 2: List of mammal species potentially inhabiting the project territory....9
Table 3. Mammals survey of the route of OHTL (March-April 2024)....11
Table 4. Mammals survey at Wind Farm area (March-April 2024)....11

1. Introduction

The purpose of this report is to provide an assessment of mammal transect survey, in the project area as an important component of the biodiversity surveys. The project area covers the 200 MW WF site and 220 kV OHTL line route within the Beruni district. The length of the overhead line is 44.3 kilometres. The 220 kV overhead line route starts from the existing Beruni substation to the projected Karatau substation of the NUKUS-II WPP.

As a part of Juru's consulting services to assist 5 Capitals in conducting the national Environmental Impact Assessment (ESIA) for the proposed Nukus II WF site, the survey was conducted between February 27-29, 2024, and April 11-13, 2024. The report presents the methodology, main findings, and results of the mammal's fauna survey.



Figure 1: The project site

2. Study Area Description

The study area covers the OHTL route, and the WF area as shown in Figure 1. There are the following characteristic landscapes along the route: western and central parts of the Sultan-Uvais plateau (Figure 2). The Sultan-Uvais ridge, being the westernmost spur of the mountain systems of Central Asia, primarily the Western Tien Shan, is an isolated mountain system that is part of the so-called "Kyzylkum remnant mountains". Further to the southern slope of the plateau there is a road through the gravel desert with saxaul and parallel gas pipes. The road along the OHTL passed through a saline valley (Figure 2). At the southern end of the OHTL, the agricultural landscape and settlements are visible, including the Beruni substation, existing power lines, residential houses, a country road, and agricultural fields.



Figure 2. Wind farm area in Sultanuvays mountain



Figure 3. OHTL route in salty valley

3. Materials and methods

According to IFC recommendations, to assess the impact of linear objects on biodiversity, studies should be carried out along transects, the length of which along the route of the linear object should be at least 10% and cover all types of landscapes.

Thus, a sufficient number of monitoring sites along the OHTL and in the Wind Farm area were investigated during the field survey, and 13 locations were designated as - MS# (Mammal Survey#). The monitoring locations were selected to cover the various landscapes present in the project area. Non-invasive methodology that did not involve the capture and killing of wildlife was used, including:

A systematic visual survey and counting of rodent colonies and settlements. This approach entailed establishing observation points (MS) and conducting an examination of the surrounding area within a 250-meter radius from the center of each observation point. Identified rodent colonies were labelled and subsequently extrapolated to estimate their density per hectare. This technique is widespread and has been widely used to document rodent settlement patterns and densities in natural plague foci in Central Asia (Kucheruk, 1952, 1963).

The survey transect was 50 m wide on each side of the OHTL. The total length of the transects was 9 km. Visual encounters of animals, their burrows, tracks, droppings and other elements of life activity were recorded during the surveys (Novikov, 1949, Methodological Recommendations of the Ministry of Ecology, 2020).

In addition to rodent colonies, isolated burrows of gopher tortoises, yellow ground squirrel and predatory mammal species were taken into account during the survey. Visual encounters with mammals were carefully recorded whenever they occurred within the study area. Table 1 and Figure 5 summarise the coordinates of these points, as well as their landscape characteristics and distribution across the OHTL and wind farm area. The survey path is shown in Figure 4.

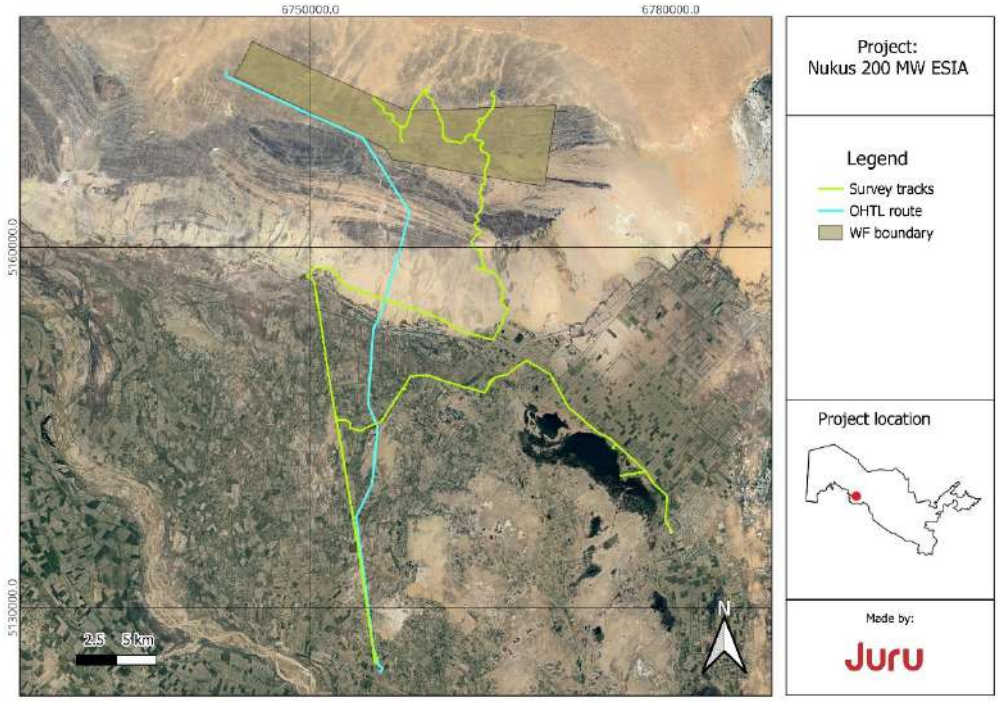


Figure 4. Survey track

Table 1: Survey points on OHTL route and Wind Farm area

No	Name of point	Coordinate N, E (dd format)	Length, km	Biotope
OHTL route				
1	MS-1	42.088993° 60.573279°	1.5	Proluvial plain of the southern foothills of the Sultanuizdag ridge
2	MS-2	42.053923° 60.675578°	1.5	Southern slopes of the Sultanuizdag Ridge, rocky outcrops of bedrock formations
3	MS-3	42.012522° 60.710852°	1.5	Proluvial plain of the southern foothills of the Sultanuizdag ridge
4	MS-4	41.875805° 60.683452°	1.5	The strip of tugai landscape combined with agro-landscape
5	MS-5	41.807568° 60.676976°	1.5	Open field areas, heavy salinisation, irrigation canal
6	MS-6	41.765182° 60.685634°	1.5	Agro-landscape, open storage of crops
Wind Farm Area				
7	MS-7	42.086731° 60.597355°	1.0	Alluvial plain of the upper plateau of the Sultanuizdag ridge, sandy loam soils, ravine channel
8	MS-8	42.094576° 60.620704°	1.0	Isolated wind-blown sands on the upper plain of the northern slopes of the Sultanuizdag ridge
9	MS-9	42.077489° 60.678956°	1.0	Rugged southern slopes of the Sultanuizdag ridge. Soil is gravel and sandy loam
10	MS-10	42.058819° 60.657733°	1.0	Isolated wind-blown sands on the upper plain of the northern slopes of the Sultanuizdag ridge
11	MS-11	42.056109° 60.719376°	1.0	The largest section of the wind-blown sand mass on the upper plateau of the project area
12	MS-12	42.050733° 60.767456°	1.0	Gentle sandy loam slopes of the inner valley of the Sultanizdag ridge
13	MS-13	42.041493° 60.769526°	1.0	Dry mountain gorge with ephemeral shrubs. Outcrops of bedrock and limestone create numerous niches and grottos

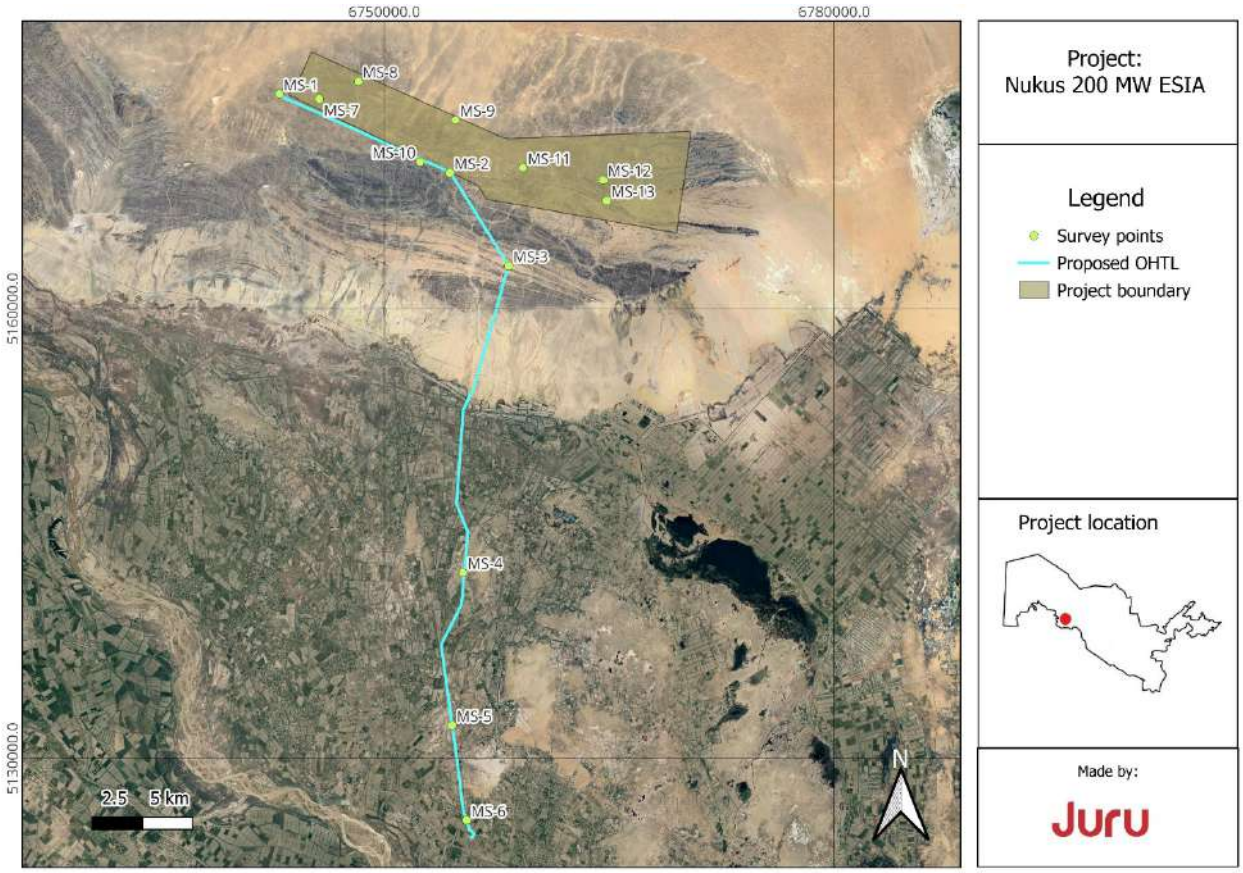


Figure 5: Survey points

A separate study was conducted on the analysis of species and composition of pellets of the Eurasian Eagle-Owl (Figure 6) and the Little Owl (Figure 7). Owl pellets can be a more efficient alternative for assessing the composition of small mammal communities over large geographic areas due to the relative simplicity and cost-effectiveness of collection in field conditions (Heisler, 2016). This method is widely used by us in studying the fauna of small mammals in arid conditions of Uzbekistan (Mitropolskiy et al., 2014, 2022).



Figure 6. Collected pellets of Eagle owl at Wind Farm area



Figure 7. Collected pellets of Little Owl at OHTL point

4. Mammals' composition and faunal complexes

The mammal fauna recorded at project area is 26 species (Table 2), which is 24.1% of the total mammalian fauna of Uzbekistan, according to the literature data and archival materials. The mammal fauna of the study area is represented by typical species of the steppe biocenosis of the Turan province (Kostin, 1961).

Among terrestrial vertebrates, priority for protection is globally threatened species and subspecies subject to significant anthropogenic impacts, as well as species for which Uzbekistan has signed international Agreements and Memorandums. Such species in the project area include: 4 species listed in the Red Book of the Republic of Uzbekistan (2019); 2 species included in the Red List of the International Union for Conservation of Nature, 2 species - in the Annexes of the Convention on International Trade in Species of Fauna and Flora, 1 species - in the Convention on the Conservation of Migratory Species of Wild Animals.

Table 2: List of mammal species potentially inhabiting the project territory

No.	Scientific name	IUCN status	Uzbekistan status	Status in Conventions
1	*Hemiechinus auritus*			
2	*Hemiechinus hypomelas*	LC	3 (NT)	
3	*Crocidura suaveolens*			
4	*Diplomesodon pulchellum*			
5	*Myotis mystacinus*			
6	*Pipistrellus pipistrellus*			
7	*Eptesicus serotinus*			
8	*Lepus tolai*			
9	*Spermophilus fulvus*			
10	*Allactaga elater*			
11	*Allactaga severtzovi*			
12	*Dipus sagitta*			

13	*Cricetulus migratorius*			
14	*Ellobius tancrei*			
15	*Microtus bucharensis*			
16	*Meriones tamariscinus*			
17	*Meriones libycus*			
18	*Meriones meridianus*			
19	*Rhombomys opimus*			
20	*Mus musculus*			
21	*Canis aureus*			
22	*Vulpes vulpes*			
23	*Vulpes corsac*	LC	2 (VU:D)	
24	*Vormela peregusna*	VU	2 (VU:D)	
25	*Felis lybica*			Cities II
26	*Gazella subgutturosa*	VU	2 (VU:D)	Cites II, CMS II

Note: **UzRDB** - the species/subspecies is listed in the Red Data Book of the Republic of Uzbekistan (2019); **IUCN** - species included in the Red List of Threatened Species of the International Union for Conservation of Nature **; CITES I, II** – a species included in Appendix (I , II) of the Convention on International Trade in Endangered Species of Fauna and Flora ; **CMS I, II** – species included in Appendix (I , II) of the Bonn Convention.

5. Findings and Results

OHTL route

The habitats traversed by the OHTL route were found to be in a satisfactory condition. However, the ongoing transformation of the area for agricultural and industrial purposes reduces its uniqueness. This observation is further corroborated by the absence of any rare or threatened species within the surveyed areas.

Of the 22 species recorded during the surveys, 16 species (%) were documented within the vicinity of the OHTL line. This relatively high proportion of species occurrences suggests that the area has undergone significant transformation due to the cumulative impacts of agricultural practices and anthropogenic activities. Notably, none of the recorded species were classified as rare, endemic, or commercially valuable. Even sightings of species such as the Tolai Hare (*Lepus tolai*) or the Muskrat (*Ondatra zibethica*), were sporadic (Table 3).

Nevertheless, the habitats remain in a satisfactory condition. It is important to highlight that the construction of the OHTL will not impact the mammal fauna in the saline valley of the project area.

Table 3. Mammals survey of the route of OHTL (March-April 2024)

No.	Scientific name	MS1	MS2	MS3	MS4	MS5	MS6
1	*Hemiechinus hypomelas*		+	+			
2	*Crocidura suaveolens*					+	+
3	*Pipistrellus pipistrellus*					+	+
4	*Lepus tolai*					+	
5	*Spermophilus fulvus*	+					+
6	*Ondatra zibetica*					+	
7	*Cricetulus migratorius*					+	+
8	*Ellobius tancrei*		1-2		1-2	2-3	1-2
9	*Nesokia indica*					+	
10	*Meriones tamariscinus*				+	+	+
11	*Meriones libycus*					1-2	
12	*Meriones meridianus*	2-3					1-2
13	*Mus musculus*					+	+
14	*Canis aureus*				+	+	
15	*Vulpes vulpes*	+	+	+	+	+	
16	*Felis lybica*					+	

Wind Farm Site

The habitats within the proposed wind farm site were found to be in a good to near-natural condition. Only the lack of open water sources in the area significantly constrains the abundance of background species and limits the occurrence of rare or threatened species. Concurrently, the presence of open, bouncy sands is the habitat of the Marbled polecat, and the gentle inner slopes of the Sultanuizdag Ridge are the habitat of the Gazelle. Consequently, the territory can be considered part of the priority habitats within the region.

Of the 22 species recorded during the surveys, 16 species (%) were documented within the boundaries of the wind farm site. This relatively high proportion of species occurrences is indicative of the arid nature of the area and the moderate levels of anthropogenic pressure exerted on the natural ecosystems. Notably, three rare species were observed, one of which is strictly confined to sandy habitats (Table 4).

Table 4. Mammals survey at Wind Farm area (March-April 2024)

No.	Scientific name	MS7	MS8	MS9	MS10	MS11	MS12	MS13
1	*Hemiechinus auritus*	+	+	+	+	+	+	+
2	*Hemiechinus hypomelas*					+	+	+
3	*Diplomesodon pulchellum*	+			+			
4	*Lepus tolai*	+			+		+	
5	*Spermophilus fulvus*	+	+			+	+	
6	*Allactaga elater*	+						
7	*Dipus sagitta*	+			+			
8	*Cricetulus migratorius*			+		+		
9	*Ellobius tancrei*			1-2		1-2		
10	*Meriones libycus*			1-2		1-2		

11	*Meriones meridianus*	2-3	1-2		1-2			
12	*Vulpes vulpes*	+	+	+	+	+	+	+
13	*Vulpes corsac*	+		+			+	
14	*Vormela peregusna*	+			+			
15	*Felis lybica*	+			+		+	
16	*Gazella subgutturosa*	+	+				7	

It is worth noting that the construction of the wind farm will have an impact on fragmenting the ranges of rare species, among which the most significant ones are described in the following chapter.



Figure 8. Brandt's hedgehog skin (MS11)



Figure 9. Yellow ground squirrel on the slopes of Sultanuizdag (MS13)



Figure 10. Ellobius tancrei Habitat (MS7)



Figure 11. Ellobius tancrei Habitat (MS12)



Figure 12. Gazella subgutturosa (MS12)



Figure 13. Fox (MS10)

6. Key species descriptions

Brandt's Hedgehog *(Hemiechinus hypomelas)* sporadically inhabits species, including in the latest edition of the Red Book (Kashkarov, 2019). The species were recorded at the project area. There are no direct threats to the species (Zaytsev et al., 2014), but during construction work, the development of a network of dirt roads and lighting of the territory used by animals to catch food can lead to the death of animals under the wheels of vehicles.

Marbled Polecat sporadically inhabits sandy massifs with a high number of rodents (ground squirrel and gerbils), which it actively feeds on (Palvoniyazov, 1974; Vashetko et al., 2000; Kashkarov, 2019). Currently, there is no modern data on the distribution and abundance of the species in the region, just some spots with foot prints or holes. Special protection measures are required for the species is save sandy habitat on the project site.

Goitered Gazelle widely inhabits the desert zone of the Southern Kyzyl-Kum. Encounters are quite regular, but most often on slings and droppings, because due to pressure from poachers, the species leads a very reserved and hidden lifestyle (Marmazinskaya, 2019). Numerous members of this species were found in the project area. It would be good to organise open-air drinking places in the project area.

7. Conclusion

During the field survey, 22 species of mammals were noted, which is 84.6% of the total list of species. Among them were 4 species from the Red Book of Uzbekistan, 2 species fron IUCN List and 2 species from the lists of the CITES Convention.

The survey findings along the OHTL route revealed that out of the 22 mammal species recorded, 16 species (%) were documented within this area. This high proportion of species occurrences is indicative of the substantial transformation that the region has undergone due to the combined impacts of agricultural activities and anthropogenic factors. Notably, none of the species recorded along the OHTL road were classified as rare, endemic, or commercially valuable.

Within the boundaries of the proposed wind farm site, 16 out of the 22 recorded species (%) were observed. This species composition reflects the arid nature of the area while also suggesting a moderate level of anthropogenic pressure on the natural ecosystems. Significantly, three rare species were documented at the wind farm site, one of which is strictly confined to sandy habitats for the specified area.

8. References

1. Vashetko E.V., Mukhina-Kreitsberg E.A., Mirzaev U.T., Bykova E.A., Khodzhaev A.F. Vertebrate fauna of the Kyzylkum Reserve // Preservation of biodiversity in specially protected areas of Uzbekistan. - Tashkent: " Chinor ENK", 2000. S. 48–56.
2. Zaytsev M.V., Voyta L.L., Sheftel B.I. Mammals of the fauna of Russia and adjacent territories. Insectivores. St. Petersburg, 2014. 391 p.
3. Red Book of the Republic of Uzbekistan. Volume II: animals. Tashkent, 2019. 323 p.
4. Kashkarov R.D. Marble polecat // Red Data Book of the Republic of Uzbekistan. "Tasvir", 2019. C.312-313.
5. Marmazinskaya N.V., Gritsina M.A. 2017. Current distribution of the Gazella subgutturosa Güldenstädt, 1780 in the Kyzylkum Desert (Uzbekistan) // Spatial and temporal dynamics of biota and ecosystems of the Aral-Caspian Basin. Orenburg, 2017. - C. 261-267.
6. Methodological guidelines for maintaining state records and monitoring of vertebrate animals of the Republic of Uzbekistan. State Committee for Ecology of the Republic of Uzbekistan, 2020, 30 p.
7. Novikov G.A. Field studies of the ecology of terrestrial vertebrates. Publishing house "Soviet Science", 1949. 346 p.
8. Palvoniyazov M. Predatory animals of Central Asian desert. "Karakalpakistan". - Nukus, 1974. - 320 c.
9. www.iucnredlist.org

Contact Us

Phone: +998 78 202 0440

Email: info@juru.org

Website: www.juru.org

Raptor Nesting Survey Report
Spring 2024

Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan

Consulting Firm:

Juru Energy Ltd

Suite 1, One George Yard, London, United Kingdom, EC3V 9DF

www.juruenergy.com

Prepared for:

5 Capitals Environmental and Management Consulting

Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE

www. 5capitals.com.

Document Information

Project Name	Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan
Document Title	Raptor Nesting Survey Report Spring 2024
Jurur's Project Reference	UZB-ACWA-Nukus 200 MW ESIA
Client	5 Capitals
Juru's Project Manager	Dinara Rustami
Juru's Project Director	Jushkinbek Ismailov

Document Control

Version	Date	Description	Author	Reviewer	Approver
1	17.05.2024	Raptor Nesting Survey Report Spring 2024	Maksim Mitropolskiy	Anna Ten	Dinara Rustami

Disclaimer

The Raptor Nesting Survey Report (the "Report") has been prepared by Juru Limited. Whilst the information contained in the Report reflects the current status, Juru makes no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report and accepts no liability for any information that may have been misstated or omitted.

This Report has been prepared exclusively for 5 Capitals. 5 Capitals makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. 5 Capitals has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains 5 Capitals property.

Table of Content

1. Introduction....4
2. Study Area Description....4
3. Materials and methods....5
4. Findings and Results....6
5. Conclusion....9

Figure 1 Project site....4
Figure 2 Survey track....6
Figure 3. Vantage points coordinates....**Error! Bookmark not defined.**
Figure 4 Species photo....**Error! Bookmark not defined.**

Table 1. Results of the bird monitoring....**Error! Bookmark not defined.**
Table 2. Nest observation on Nukus 200 area....7

1. Introduction

The purpose of this report is to provide an assessment of raptor nesting results in the project area as an important component of the biodiversity surveys for the proposed Nukus II wind farm. The study area covers the WF site and 220 kV OHTL line route within the Beruni district. The length of the overhead line is 44.3 kilometres. The 220 kV overhead line route starts from the existing Beruni substation to the projected Karatau substation of the NUKUS-II WPP. Using extensive field surveys conducted by Juru's team of experts, this report documents the methodology used, including the results of a raptor nesting survey (nest search) conducted in Spring 2024.

2. Study Area Description

The project area is located in the middle part of the Sultanuvays mountain and its adjusment (Figure 1). There are few identified points along the OHTL route and windfarm territory with the western and central parts of the Sultan Uvais plateau, featuring gently undulating hills and sparse sagebrush vegetation; moving forward to the southern slope of the plateau, a road through a gravel desert with saxaul and parallel gas pipes; an agricultural landscape with a canal and magistral gas pipe, showcasing diverse vegetation; and settlements on the southern part of the OHTL, where the Beruni substation, power lines, residential buildings, country road, and agricultural fields are visible.

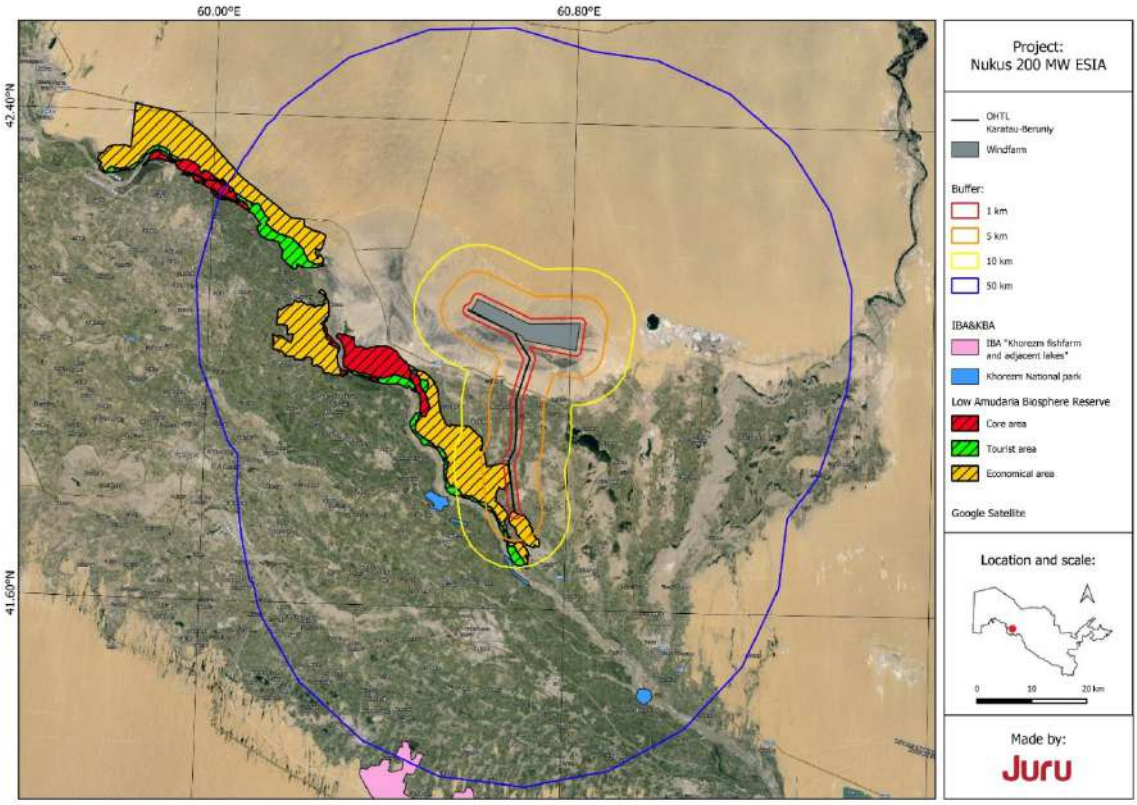


Figure 1 Protected areas within 50 km

3. Materials and methods

The raptor nesting survey was conducted in accordance with the raptor/vulture nesting (RVN) methodology, which was developed based on Good International Industry Practice. This methodology is oriented toward the objective of characterizing the potential for the Projects to adversely impact the nesting/breeding activity of target species. The RVN protocol does not focus on collecting a certain number of hours of survey data at a certain number of points. Instead, it is more flexible and strategic, focusing on the final objective of discovering and documenting the locations of all active nests of potentially sensitive species within a certain proximity to the wind farms.

The survey took place on March 5-7 and April 9-11, 2024, covering the WF site and the OHTL route (Figure 2). The total area of the wind turbines of the Project and the 5 km buffer area from the wind turbine footprint was considered the “core” area for the raptor nesting survey effort. Within the core area, we conducted repeated, strategically timed observations. Observation methods included a combination of foot surveys, vehicle stopovers, and observations of suitable nesting sites. The survey area was carefully inspected for suitable nesting habitats such as cliffs, rocky outcrops, trees, and man-made structures like powerline poles, which are preferred nesting sites for many raptor species, including the Golden Eagle and other raptors known to occur in the region. Whenever territorial birds were detected, observation was conducted for an extended period of 0.5 hours. Locations of tagged pairs were mapped using GPS coordinates and labeled with the code NN-# (Nukus Nest #) (Table 1).

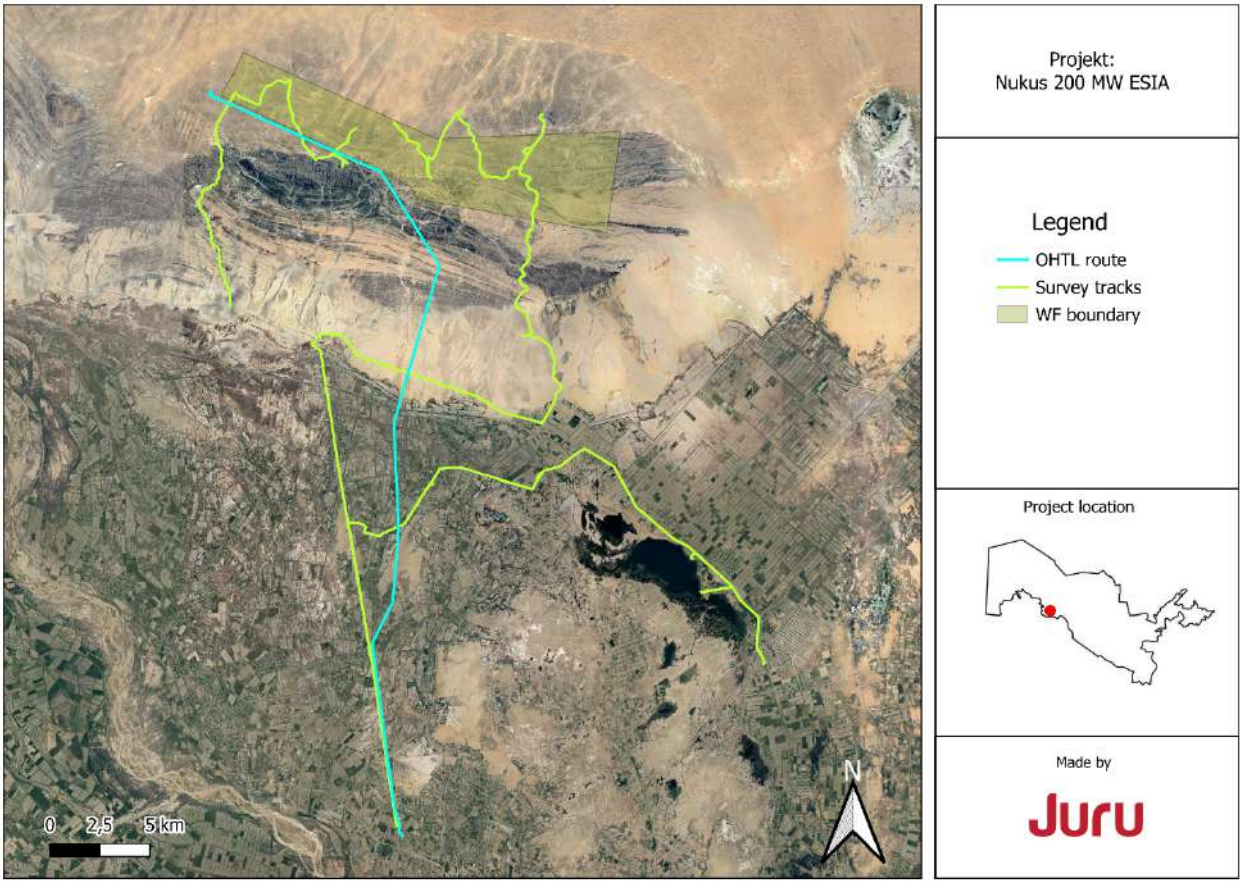


Figure 2 Survey track.

4. Findings and Results

The prolonged dry conditions experienced in the area over the preceding years have severely impacted rodent populations, leading to a scarcity of this vital food source for many bird of prey species. Compounding this issue is the inherent aridity of the region, which further exacerbates the challenges faced by these avian predators. Consequently, these two key factors have significantly diminished the species diversity and abundance of nesting raptors within the study area.

During the two visits conducted in the Spring of 2024, the field surveys yielded limited observations of nesting birds of prey. Among the few nesting pairs encountered were the Saker Falcon (*Falco cherrug*) and the Golden Eagle (*Aquila chrysaetos*).

In addition to these two species, a solitary pair of Little Owls (*Athene noctua*) was documented along the OHTL corridor, as detailed in Table 1 and Figure 3. Location of the species Figure 3.

Table 1. Results of nest observation on the Project site

Date	Time	Coordinates	Species	Breeding status	Notes	Nest number
6/03/2024 10/04/2024	10:00 08:00	42.061714 60.638857	Golden Eagle *Aquila chrysaetos*	Probably active	In March and April, male and female birds flew around the nesting area	NN-1-2024
6/03/2024 10/04/2024	09:00 11:00	42.058947 60.653087	Saker Falcon *Falco cherrug*	Active	In March and April, male and female birds flew around the nesting area	NN-2-2024
6/03/2024 10/04/2024	14:00 16:00	41.765182 60.685634	Little Owls *Athene noctua*	Active	In March and April, male and female birds flew around the nesting area	NN-3-2024

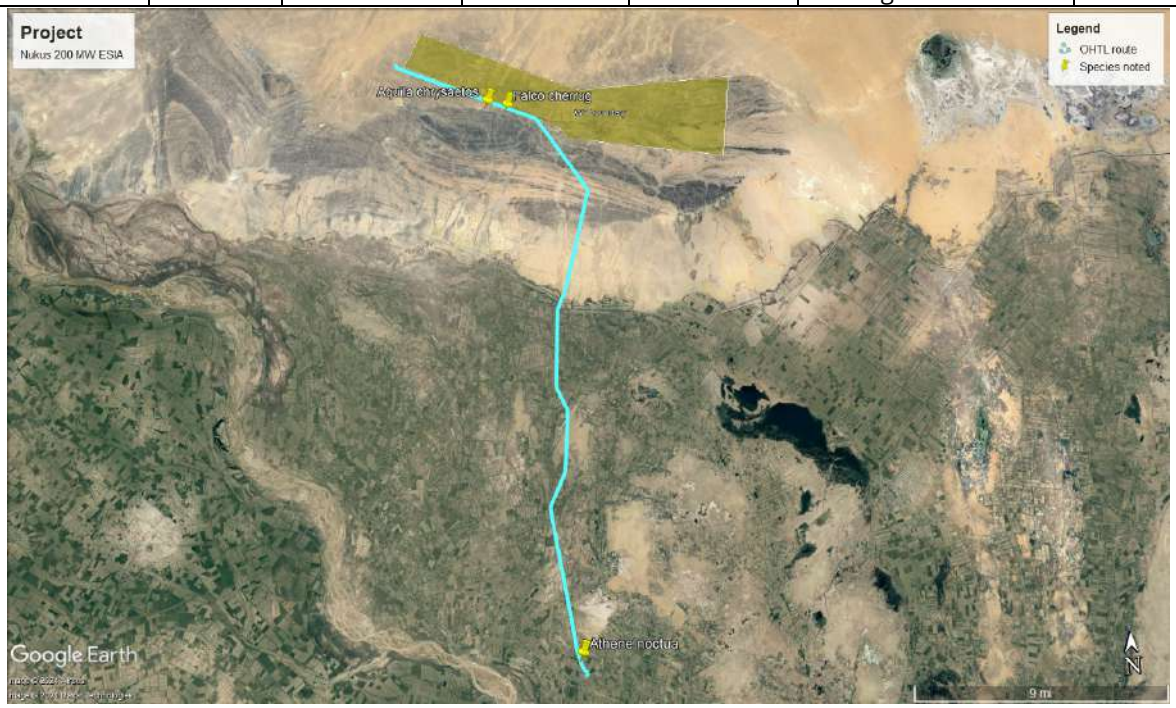


Figure 3. Location of the species found.



Figure 4. Golden Eagle near the breeding place in March



Figure 5. Golden Eagle near the breeding place in April



Figure 6. Potential place for nest of Golden Eagle



Figure 7. Saker Falcon near the breeding place in March



Figure 8. Potential place for nest of Saker Falcon



Figure 9. Little owl near the breeding place in March



Figure 10. Little owl near the breeding place in April

5. Conclusion

One of the primary factors contributing to the low diversity and abundance of nesting raptors in the area is the arid conditions and limited rodent populations. Among the species observed, the Saker Falcon were noted, as they initiate nesting activities very early and preying on a wide range of food sources, from small birds and lizards to medium-sized gophers, young hares and corvidae with alectoris chukar. The Golden Eagle, on the other hand, commences its nesting cycle when the tortoise emerges, suggesting a timing aligned with the availability of this food source. Additionally, Little owl in the region may supplement their diets with insects. The presence and nesting activities of other falcon species are closely tied to the abundance of rodents, while the breeding cycles of certain avian species are associated with the calving of small livestock, which has been impacted by the drought conditions experienced in recent years, leading to reduced grazing opportunities.

Contact Us

Phone: +998 78 202 0440

Email: info@juru.org

Website: www.juru.org

VP Bird Monitoring Report
Spring 2024

Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan

Consulting Firm:

Juru Energy Ltd

Suite 1, One George Yard, London, United Kingdom, EC3V 9DF

www.juruenergy.com

Prepared for:

5 Capitals Environmental and Management Consulting

Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE

www. 5capitals.com.

Document Information

Project Name	Environmental and Social Impact Assessment (ESIA) for Nukus II Wind Farm in Beruni District, Uzbekistan
Document Title	VP Bird Monitoring Report Spring 2024
Jurur's Project Reference	UZB-ACWA-Nukus 200 MW ESIA
Client	5 Capitals
Juru's Project Manager	Dinara Rustami
Juru's Project Director	Jushkinbek Ismailov

Document Control

Version	Date	Description	Author	Reviewer	Approver
2	24.06.2024	VP Bird Monitoring Report Spring 2024	Maksim Mitropolskiy	Anna Ten	Dinara Rustami

Disclaimer

The VP Bird Monitoring Report (the "Report") has been prepared by Juru Limited. Whilst the information contained in the Report reflects the current status, Juru makes no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report and accepts no liability for any information that may have been misstated or omitted.

This Report has been prepared exclusively for 5 Capitals. 5 Capitals makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. 5 Capitals has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains 5 Capitals property.

Table of Content

1. Introduction....4
2. Study Area Description....4
3. Materials and methods....4
4. Target and other Species....6
5. Findings and Results....7
6. Conclusion....11
Annex. Photo materials on species....13

Figure 1: Project site....4
Figure 2. Vantage Point (yellow pin) locations, proposed OHTL (blue line), wind farm area (green polygon), protected area (Lower Amudarya Biosphere Reserve – blue polygon)....5
Figure 3. Golden eagle at VP-1 (01.03.2024)....13
Figure 4. Golden eagle at VP-3 (02.03.2024)....13
Figure 5. Imperial eagle at VP-4 (01.03.2024)....13
Figure 6. Steppe eagle at VP-4 (01.03.2024)....13
Figure 7. Steppe eagle at VP-3 (08.04.2024)....13
Figure 8. Long-legged buzzard at VP-6 (05.04.2024)....13
Figure 9. Sparrowhowk at VP-3 (06.04.2024)....14
Figure 10. Common kestrel at VP-4 (07.04.2024)....14
Figure 11. Chukar at VP-3 (01.03.2024)....14
Figure 12. Chukar at VP-1 (06.04.2024)....14
Figure 13. Little owl at VP-6 (02.03.2024)....14
Figure 14. Little owl at VP-6 (05.04.2024)....14

Table 1. Vantage point coordinates....6
Table 2: Target and other species....6
Table 3. Results of bird observations in March....8

1. Introduction

In the framework of the Nukus II Wind Farm in Beruni District, bird monitoring along the OHTL was conducted in Spring 2024. The purpose of ornithological monitoring was to conduct systematic field studies at specific vantage points to assess bird species composition that occur within the project's area of influence, its abundance and territorial distribution, the nature of the stay, and daily activity of birds during spring migration and the beginning of nesting and also to identify birds that are of conservation interest under IUCN and Uzbekistan Redlist. It is important to note that the present study, focused only on the Project's associated OHTL, is intended to complement the ornithological baseline study of the wind farm area, which was completed previously.

This report presents the primary materials of field surveys in this territory in March and April, 2024.

2. Study Area Description

The project area is located in the middle part of the Sultanuvays mountain and its adjusment (Figure 1). There are few identified points along the OHTL route and wind farm territory with the western and central parts of the Sultan Uvais plateau, featuring gently undulating hills and sparse sagebrush vegetation; moving forward to the southern slope of the plateau, a road through a gravel desert with saxaul and parallel gas pipes; an agricultural landscape with a canal and magistral gas pipe, showcasing diverse vegetation; and settlements on the southern part of the OHTL, where the Beruni substation, power lines, residential buildings, country road, and agricultural fields are visible.



Figure 1: Project site. The wind farm area is the yellow shaded polygon, and the Project's associated OHTL is the mint green line extending to the south.

3. Materials and methods

OHTL can cause fatal collisions of birds, especially bustards, cranes, and large bodied waterbirds. OHTL can also cause bird electrocutions, primarily affecting raptors, vultures, and other large birds

that tend to perch and/or nest on towers, particularly if pylons are constructed with hazardous designs and sited in high-risk areas.

Throughout the spring survey period, which extended from March 1 to April 5, 2024, four rounds of 3-hour VP surveys were conducted at each of the 6 vantage points. On an average day, three to four VP surveys were completed, resulting in a total of 12 survey hours per VP location, or 72 total hours of VP survey over the course of the season.

The VP survey methods followed the guidelines outlined by Scottish Natural Heritage (SNH) in 2017[1]. for bird assessments, except for elements specifically related to collision risk modelling for wind farms. While industry-standard collision risk modelling methods using VP survey data as inputs have only been developed for modelling collisions of birds with wind turbines, VP surveys are, nonetheless, the standard, and most suitable survey methodology for characterising the use of airspace by key bird groups that can be impacted by powerlines, including raptors, vultures, migrating waterbirds, and others. These surveys aimed to monitor sensitive bird species within the survey area, gathering valuable data on their presence, behavior, and abundance.

The observations were carried out at 6 Vantage points (Table 1). The points were located so as to cover the OHTL as completely as possible (Figure 2).

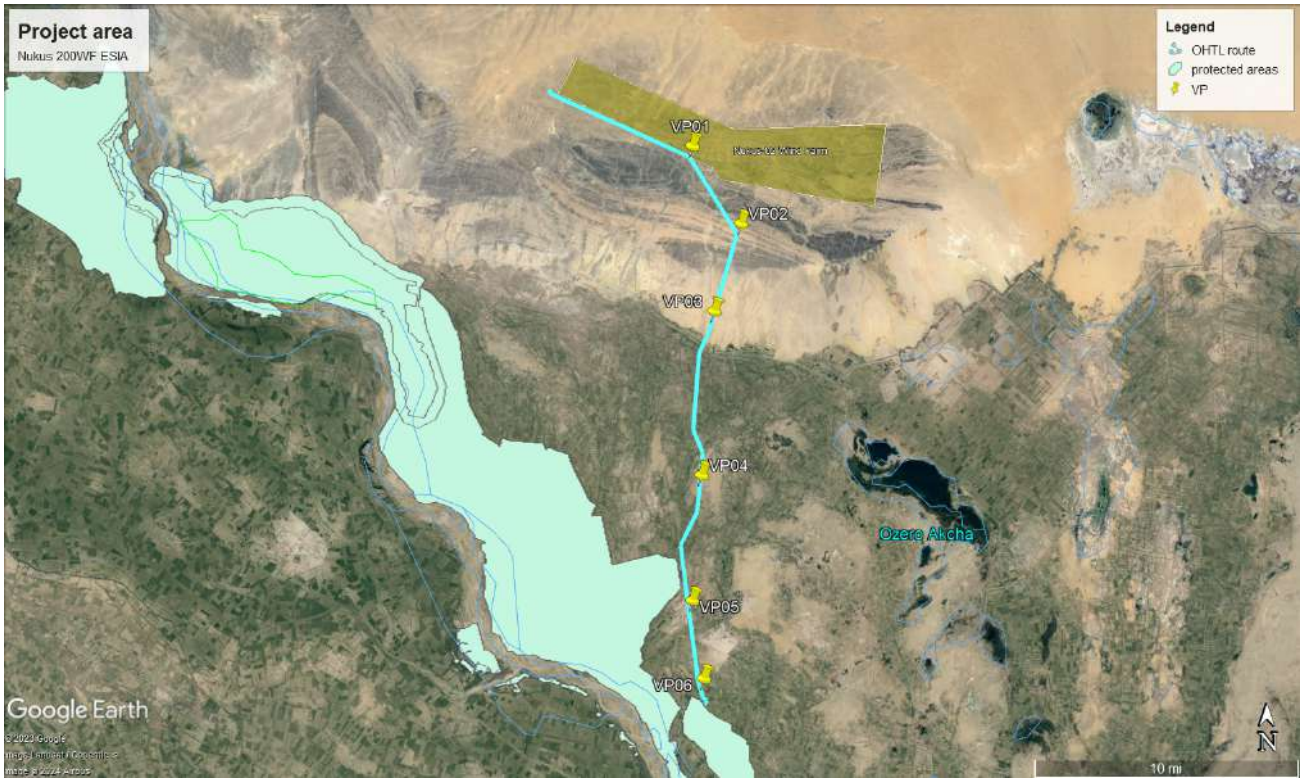


Figure 2. Vantage Point (yellow pin) locations, proposed OHTL (blue line), wind farm area (green polygon), protected area (Lower Amudarya Biosphere Reserve – blue polygon)

[1] Scottish Natural Heritage (SNH) 2017, Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017 version 2, Scotland, UK.

Table 1. Vantage point coordinates

Survey Points	Coordinates (dd)	
	N	E
VP01	42.053981°	60.675770°
VP02	42.012313°	60.711466°
VP03	41.964764°	60.692198°
VP04	41.875805°	60.683452°
VP05	41.807568°	60.676976°
VP06	41.765182°	60.685634°

During the observations, photographing and short video shooting of birds were carried out, which is used to confirm the correct determination of species and obtain additional data on the number of individuals.
Following equipment was used:

- binoculars (Viking) with 10x zoom;
- cameras (Nikon D7100) with length 50-500 mm;
- field telescope (Viking) with x20-60.

4. Target and other Species

Defining a project-specific subset of sensitive, or "target" species provides a basis for designing a project-specific set of biological monitoring and mitigation programs that is optimally suited for the key wildlife risk issues associated with a wind project.

This is generally because they are classified as highly protected species by national and/or international authorities, because they are known or suspected to be highly susceptible to wind farm impacts (especially collision with rotors), or both.

Table 2: Target and other species

Latin name	Common name	IUCN status	Uzbek status	Notes on Likely Occurrence/Risk
Tier 1 Target Species (top priority)				
Neophron percnopterus	Egyptian Vulture	EN	2 (VU:D)	Regular nesting species in cliffs of Sultanuizdag
Aegypius monachus	Cinereous Vulture	NT	3 (NT)	Resident in region
Gyps fulvus	Eurasian Griffon	NT	2 (VU:D)	Resident in region
Circaetus gallicus	Short-toed Snake-Eagle	LC	2 (VU:D)	Rare nesting bird in region
Aquila nipalensis	Steppe Eagle	EN	2 (VU:D)	Common migrant
Aquila heliaca	Imperial Eagle	VU	2 (VU:D)	Common migrant
Aquila chrysaetos	Golden Eagle	LC	2 (VU:R)	Common resident and nests in project area

Haliaeetus albicilla	White-tailed Sea-eagle	LC	2 (VU:R)	Common migrant and wintering
Falco cherrug	Saker Falcon	EN	EN	Common nesting species in cliffs of Sultanuizdag
Tier 2 Target Species (second priority)				
Anthropoides virgo	Demoiselle Crane	LC	not listed	Uncommon in region
Grus grus	Common Crane	LC	not listed	Rare migrant
Circus aeruginosus	Eurasian Marsh-Harrier	LC	not listed	Fairly common in region
Circus cyaneus	Hen Harrier	LC	not listed	Fairly common in region
Circus macrourus	Pallid Harrier	NT	3 (NT)	Fairly common in region
Circus pygargus	Montagu's Harrier	LC	not listed	Uncommon in region
Accipiter badius	Shikra	LC	not listed	Uncommon in region
Accipiter nisus	Eurasian Sparrowhawk	LC	not listed	Common migrant and wintering
Milvus migrans	Black Kite	LC	not listed	Uncommon in region
Buteo buteo	Common Buzzard	LC	not listed	Fairly common in region
Buteo rufinus	Long-legged Buzzard	LC	not listed	Common resident and nests in project area
Falco naumanni	Lesser Kestrel	LC	NT	Observed at site
Falco tinnunculus	Common Kestrel	LC	not listed	Common resident and nests in project area

5. Findings and Results

Among the birds registered during the survey at the beginning of March 2024, there were 30 species. Harsh winter conditions resulted in very low bird activity, even in the tsugai landscape (riparian forests, which normally concentrate birds and other wildlife due to an oasis effect). The low number of rodents and the lack of migratory species affected isolated encounters with migratory birds of prey. The following priority 1 target bird species were found in March (Table 3): Golden Eagle (*Aquila chrysaetos*), Steppe Eagle (*Aquila nipalensis*), and Imperial Eagle (*Aquila heliaca*). Among the priority 2 target species, the following were found in the project area: Eurasian Marsh Harrier (*Circus aeruginosus*), Common Buzzard (*Buteo buteo*), Long-legged Buzzard (*Buteo rufinus*), Common Kestrel (*Falco tinnunculus*), Merlin (*Falco columbarius*) and Little Owl (*Athene noctua*).

There were 35 species of birds among those registered in the beginning of April 2024 during the bird survey. A month later, the migration of large birds of prey decreased, while at the same time, the intensity of migration of minor species of birds of prey increased. The first migratory and nesting species appeared.

The following priority 1 target bird species were found in April (Table 3): Steppe Eagle (*Aquila nipalensis*). Among the priority 2 target species, the following bird species were found in the project area: Eurasian Sparrowhawk (*Accipiter nisus*), Eurasian Marsh Harrier (*Circus aeruginosus*), Hen Harrier (*Circus cyaneus*), Long-legged Buzzard (*Buteo rufinus*), Common Kestrel (*Falco tinnunculus*), Eagle Owl (*Bubo bubo*), Pallid Scops Owl (*Otus brucei*), and Little Owl (*Athene noctua*).

Table 3. Results of bird observations in March

VP	Date	Species	Number	Activity	Height	Direction	Distance	Azimuth
Priority 1 target species								
4	04.03.2024	*Aquila nipalensis*	1	flight	65	NE	140	25
3	08.04.2024	*Aquila nipalensis*	1	flight	90	NE	140	70
4	02.03.2024	*Aquila heliaca*	1	flight	50	NE	140	55
1	01.03.2024	*Aquila chrysaetos*	1	flight	90	NE	50	50
3	03.03.2024	*Aquila chrysaetos*	1	flight	110	NE	70	15
Priority 2 target species								
3	06.04.2024	*Pterocles orientalis*	3	flight	35	W	50	260
5	02.03.2024	*Circus aeruginosus*	1	flight	70	N	40	5
6	04.03.2024	*Circus aeruginosus*	1	flight	35	N	60	25
4	05.04.2024	*Circus aeruginosus*	1	flight	50	NE	90	20
5	05.04.2024	*Circus aeruginosus*	1	flight	20	NE	80	20
5	07.04.2024	*Circus aeruginosus*	1	flight	25	N	55	15
5	07.04.2024	*Circus cyaneus*	1	flight	40	NE	75	20
2	08.04.2024	*Circus cyaneus*	1	flight	10	N	35	5
3	06.04.2024	*Accipiter nisus*	1	flight	90	NE	70	25
3	08.04.2024	*Accipiter nisus*	1	flight	30	N	60	15
2	03.03.2024	*Buteo rufinus*	1	flight	70	N	60	20
6	05.04.2024	*Buteo rufinus*	1	flight	120	NE	70	5
1	08.04.2024	*Buteo rufinus*	1	flight	90	NE	40	35
4	05.04.2024	*Otus brucei*	1	calling			25	
1	03.03.2024	*Buteo buteo*	1	flight	50	NE	30	55
1	06.04.2024	*Bubo bubo*	1	calling			150	
6	02.03.2024	*Athene noctua*	2	on the tree			2	
6	04.03.2024	*Athene noctua*	2	on the tree			5	
6	05.04.2024	*Athene noctua*	2	in the nest			2	
2	06.04.2024	*Athene noctua*	1	on the bush			70	
2	01.03.2024	*Falco tinnunculus*	1	flight	10	NE	90	40
5	02.03.2024	*Falco tinnunculus*	1	flight	40	N	70	5
2	06.04.2024	*Falco tinnunculus*	1	flight	60	NE	30	15
4	07.04.2024	*Falco tinnunculus*	1	flight	15	N	45	10
4	02.03.2024	*Falco columbarius*	1	flight	20	N	90	10
Others species								
6	02.03.2024	*Egretta alba*	1	flight			90	
5	04.03.2024	*Phasianus colchicus*	2	calling			90	
3	01.03.2024	*Alectorius kakelik*	5	on the ground			20	
5	02.03.2024	*Columba livia*	32	flight			15	
6	02.03.2024	*Columba livia*	13	flight			15	
6	04.03.2024	*Columba livia*	9	flight			15	
5	04.03.2024	*Columba livia*	11	flight			15	

5	*04.03.2024*	*Streptopelia decaocto*	*4*	flight			*15*	
5	*02.03.2024*	*Streptopelia decaocto*	*11*	flight			*15*	
6	*02.03.2024*	*Streptopelia decaocto*	*2*	flight			*15*	
5	*02.03.2024*	*Dendrocopus leucopterus*	*1*	on the tree			*35*	
5	*04.03.2024*	*Dendrocopus leucopterus*	*2*	on the tree			*10*	
1	*01.03.2024*	*Galerida cristata*	*2*	on the ground			*5*	
1	*03.03.2024*	*Galerida cristata*	*6*	on the ground			*5*	
2	*01.03.2024*	*Galerida cristata*	*2*	on the ground			*5*	
2	*03.03.2024*	*Galerida cristata*	*2*	on the ground			*10*	
3	*03.03.2024*	*Galerida cristata*	*2*	on the ground			*10*	
4	*02.03.2024*	*Galerida cristata*	*2*	on the ground			*5*	
4	04.03.2024	*Galerida cristata*	2	on the ground			10	
5	02.03.2024	*Galerida cristata*	2	on the ground			5	
4	02.03.2024	*Calandrella brachidactyla*	13	flight			15	
1	01.03.2024	*Oenanthe isabellina*	2	on the ground			10	
2	03.03.2024	*Oenanthe isabellina*	1	on the ground			20	
4	04.03.2024	*Oenanthe isabellina*	1	on the ground			15	
2	01.03.2024	*Oenanthe pleschanka*	1	on the ground			5	
3	01.03.2024	*Oenanthe pleschanka*	1	on the ground			15	
3	03.03.2024	*Oenanthe pleschanka*	1	on the ground			15	
5	02.03.2024	*Turdus atrogularis*	22	on the tree			10	
5	02.03.2024	*Turdus viscivorus*	2	on the ground			10	
5	02.03.2024	*Parus bokharensis*	4	feeding in the bushes			10	
5	04.03.2024	*Parus bokharensis*	2	on the tree			15	
4	04.03.2024	*Acridotheres tristis*	2	flight			20	
5	02.03.2024	*Acridotheres tristis*	14	on the ground			5	
5	04.03.2024	*Acridotheres tristis*	14	on the ground			5	
6	02.03.2024	*Acridotheres tristis*	8	on the ground			20	
6	04.03.2024	*Acridotheres tristis*	6	flight			5	
5	02.03.2024	*Sturnus vulgaris*	250	flight			110	
6	02.03.2024	*Sturnus vulgaris*	11	on the field			25	
5	02.03.2024	*Corvus frugilegus*	34	flight			70	
5	04.03.2024	*Corvus frugilegus*	55	flight			40	

5	02.03.2024	*Corvus corone*	2	flight			30	
6	02.03.2024	*Corvus corone*	2	on the tree			5	
5	02.03.2024	*Corvus cornix*	6	flight			70	
5	04.03.2024	*Corvus cornix*	4	flight			40	
5	02.03.2024	*Pica pica*	2	on the tree			15	
5	04.03.2024	*Pica pica*	2	on the tree			35	
6	02.03.2024	*Pica pica*	2	on the tree			5	
3	01.03.2024	*Bucanetos mongolicus*	7	on the ground			5	

Steppe Eagle *(Aquila nipalensis)*

There are two subspecies in Uzbekistan:

1. *Aquila nipalensis* Temminck, 1828. ssp. nipalensis Hodgson, 1833
2. *Aquila nipalensis* Temminck, 1828. ssp. orientalis Cabanis, 1854.

Near Threatened 2 (VU-D 2, migratory European (2) and Eastern (1) subspecies. It is distributed across the Ustyurt Plateau (1 - nesting, migration, roaming); plainlands and low mountain regions (1 - roaming, 2 - migration). Single individuals and groups were recorded during migration. Some birds are wintering in Uzbekistan. Included in the IUCN Red List (EN) and Appendix II of CITES.
Steppe Eagle is regularly found on spring migratory flights. It inhabits plains and low mountains. Spring migration takes place in March-April, Autumn migration – in October-November, Wintering from December to February. While migrating, it is typically observed singly or in groups of 2-3 individuals: sometimes up to several dozen per day. Young eagles start flying in July. Steppe Eagle feeds on rodents, in the conditions of Uzbekistan mainly large and red-tailed gerbils. It also feeds on carrion. The world population of Steppe Eagle is rapidly declining. The main factors are economic development of the land, deaths on power lines, direct human persecution. The susceptibility to wind turbines collisions for this species could be high, especially during the spring and autumn migration periods, when the area is heavily overflown. A final interpretation of wind farm risk for this species will be presented in the collision risk modelling report, performed by the international wind-wildlife expert, based on VP survey data gathered separately within the wind farm area.

During the present VP survey effort along the OHTL, a total of two observations of Steppe Eagle was recorded during the spring season, with single individuals observed at VP-3 and VP-4. This indicates that risk of the OHTL impacting this species during the spring season is generally low, especially if raptor-safe designs are used for the OHTL towers, thus minimizing electrocution risk.

Golden Eagle *(Aquila chrysaetos)*

There are two subspecies in Uzbekistan:

1. *Aquila chrysaetos* Linnaeus, 1758 ssp. *daphanea* Severtzov, 1888
2. *Aquila chrysaetos* Linnaeus, 1758 ssp. *fulva* Linnaeus, 1758

Vulnerable, naturally rare 2 (VU:R), resident, locally distributed South-European (1) and Central Asian (2) subspecies. It is distributed across the Plateau Ustyurt, in the southern Aral region, the desert Kyzylkum (1); in mountain regions (2). It inhabits sandy areas and low mountains in the deserts, loess precipices of foothills, rocks of the mid- and high belts of the mountains. The number was always low. In 1970-80s, 80-100 nesting pairs were recorded. During the last years, nests on power lines and loess cliffs of major channels of the Kyzylkum desert. Currently, approximately 200 pairs are nesting.

[2] Red book of Uzbekistan, 2019

Limiting factors: deforestation; long-term changes in food resources associated with the reduction of wildlife population and an increase in the number of grazing livestock; destruction of nests; direct persecution by human. Included in the IUCN Red List (LC) and Appendix II of CITES[3].

The population of Golden Eagle has always been small in Uzbekistan. But during flights and migrations, it can be found in different habitats – in mountains, steppes, and plains.

During the present VP survey effort along the OHTL, a total of two observations of Golden Eagle was recorded during the spring season, with single individuals observed at VP-3 and VP-1. This indicates that risk of the OHTL impacting this species during the spring season is generally low, especially if raptor-safe designs are used for the OHTL towers, thus minimizing electrocution risk.

Imperial Eagle *(Aquila heliaca)*

There is one subspecies in Uzbekistan:

1. *Aquila heliaca* Savigny, 1809 ssp. heliaca Savigny, 1809

Vulnerable, declining 2 (VU:D), nesting and migrating nominal subspecies. It is distributed across the Plateau Ustyurt and in the northern Kyzylkum desert (nesting), plainland regions (migration, roaming), Central and Southern Uzbekistan (irregular wintering). The number was always low. In 1970–80s, the density of settlements in the low mountains of the Bukantau and the northern Kyzylkum reached 0.4 to 0.8 pairs per 100 sq. km. Single birds and small groups up to 15 individuals are recorded during migration. At present, number has sharply dropped. Limiting factors: human development of virgin lands in desert and semi–desert zones, mortality due to power lines, destruction of nests, disturbance during nesting. Included in the IUCN Red List (VU) and Appendix I of CITES.

The population of Imperial Eagle has always been small in Uzbekistan. But during flights and migrations, it can be found in different habitats – in mountains, steppes, and plains. Nesting population not more then 5-10 pairs.

During the present VP survey effort along the OHTL, a single observation of Imperial Eagle was recorded during the spring season, at VP-4. This indicates that risk of the OHTL impacting this species during the spring season is generally low, especially if raptor-safe designs are used for the OHTL towers, thus minimizing electrocution risk.

6. Conclusion

The bird surveys conducted in March and April 2024 recorded a diversity of bird species, despite harsh winter conditions that resulted in reduced bird activity.

In March, 30 species were recorded, including target species such as Golden Eagle (*Aquila chrysaetos*), Steppe Eagle (*Aquila nipalensis*), and Imperial Eagle (*Aquila heliaca*). The scarcity of rodents and the absence of migratory species significantly impacted the sightings and encounters with migratory birds of prey during the survey in March. Additionally, secondary species such as the Eurasian Marsh Harrier (*Circus aeruginosus*), Common Buzzard (*Buteo buteo*), Long-legged Buzzard (*Buteo rufinus*), Common Kestrel (*Falco tinnunculus*), Merlin (*Falco columbarius*), and Little Owl (*Athene noctua*) were observed within the project area during the March surveys.

In April, the number of recorded species increased to 35, with the appearance of the first migratory and breeding species, as well as increased activity of small birds of prey. In April only Steppe Eagle (*Aquila nipalensis*) belonging to the priority target species was detected. Among the secondary species, the following bird species were found in the project area: Eurasian Sparrowhawk (*Accipiter nisus*),

[3] Red book of Uzbekistan, 2019

Eurasian Marsh Harrier (*Circus aeruginosus*), Hen Harrier (*Circus cyaneus*), Long-legged Buzzard (*Buteo rufinus*), Common Kestrel (*Falco tinnunculus*), Eagle Owl (*Bubo bubo*), Pallid Scops Owl (*Otus brucei*), and Little Owl (*Athene noctua*).

It is important to note that the priority 1 target species of eagle were recorded at observation points: VP1, VP3 and VP4, suggesting that migrating eagles can occur either in the dry hilly habitat near the wind farm, or in the agricultural lowlands of the Amu Darya floodplain.

A notable result of the spring VP surveys along the OHTL was the scarcity of migratory cranes, waterfowl, or other large bodied water birds. This group of birds has generally high susceptibility to OHTL collisions, includes some redlisted species, and many species in this category are known or thought to use the Amu Darya as a migratory corridor, thus it was considered to be a top biodiversity risk concern for the Project, and was a focus of the baseline study design. During the spring season VP effort, zero observations of cranes, waterfowl, pelicans, cormorants, ibis, coots, rails, or grebes were recorded during 72 hours of VP surveys conducted during the peak spring migratory period for most species in this category. The only observations of any water birds were two single observations of Great Egret (*Ardea alba*). This provides a strong indication that avian collision risk on the Project's OHTL is low during the spring period. We note that it is still possible that a higher concentration of large-bodied water birds may fly through the area during the autumn season, on the birds' southbound migration.

Moving forward, it will be essential to integrate these findings into a comprehensive environmental management plan. Proactive measures, such as minimizing habitat disturbance, implementing appropriate mitigation strategies, and promoting sustainable land-use practices, will be important in mitigating the potential impacts of the proposed development on these ecologically significant species.

Annex. Photo materials on species



Figure 3. Golden eagle at VP-1 (01.03.2024)



Figure 4. Golden eagle at VP-3 (02.03.2024)



Figure 5. Imperial eagle at VP-4 (01.03.2024)



Figure 6. Steppe eagle at VP-4 (01.03.2024)



Figure 7. Steppe eagle at VP-3 (08.04.2024)



Figure 8. Long-legged buzzard at VP-6 (05.04.2024)



Figure 9. Sparrowhawk at VP-3 (06.04.2024)



Figure 10. Common kestrel at VP-4 (07.04.2024)



Figure 11. Chukar at VP-3 (01.03.2024)



Figure 12. Chukar at VP-1 (06.04.2024)



Figure 13. Little owl at VP-6 (02.03.2024)



Figure 14. Little owl at VP-6 (05.04.2024)

Contact Us

Phone: +998 78 202 0440

Email: info@juru.org

Website: www.juru.org

APPENDIX E – CRITICAL HABITAT ASSESSMENT

Xenops Environmental, LLC
720 N. Plumer Avenue
Tucson, Arizona, USA 85719
caleb@xenops-env.com
713-670-6007

Date: June 23, 2024 (updated September 19, 2024, and October 20, 2024)). Final minor updates made by 5 Capitals on 27th February 2025

From: Caleb Gordon, Xenops Environmental, LLC

To: Tarek Tabaja, Five Capitals Consultancy

Re: Critical Habitat, Natural Habitat, KBA/LPA proximity, and PBF Assessment for the Nukus 2 Wind Farm, Uzbekistan

Dear Tarek,

This memorandum contains the results of my Critical Habitat, Natural Habitat, KBA/LPA proximity, and Priority Biodiversity Feature (PBF) Assessment for the Nukus 2 Wind Farm Project (N2WF or the "Project") being developed by ACWA Energy. This report is submitted as a deliverable under Xenops' subcontract to Five Capitals Consultancy (5C), who is supporting ACWA with an ESIA and biodiversity baseline studies for the Project. This is a follow-up to the initial screening report, dated 11 March 2024, which was prepared using desk-based resources, including an IBAT report, the pre-bid bird and bat risk assessment and scoping reports that were provided to ACWA to support the preparation of the ESIA, and publicly available literature and data. The current report presents a final Critical Habitat Assessment (CHA), based on a synthesis of the previously reviewed information, and site-specific field data gathered by 5C over the course of baseline biodiversity studies conducted in spring, 2024. Note that the October 2024 revision also incorporates several rounds of feedback received by lenders and their technical experts on the June 23 draft. Per our agreement with ACWA, this analysis conforms to the guidance for CHA for both IFC (following PS6) and EBRD (following PR6). As such, it includes an assessment of not only CH features, but also PBFs, conforming to EBRD guidance, and on the IFC side, it includes an assessment of Natural Habitat (NH) in addition to CH. Per these policies, CH determinations trigger a mitigation requirement of "net positive gain" for both IFC and EBRD, while the mitigation requirement of "no net loss" is triggered by the presence of NH[1] according to IFC PS6, and by PBF according to EBRD PR6.

In summary, the present analysis identified a total of 36 Priority Biodiversity Features, and two Critical Habitat triggers (Bukhara Red Deer, Common Crane) for the Project.

The present analysis is intended as a contribution to 5C's preparation of an ESIA for the Project, and 5C may utilize the content of this report in any way you see fit toward the preparation of the ESIA. Please let me know if you have any questions or want discussion.

Sincerely,

Caleb Gordon, Ph. D.
Ornithologist, Xenops Environmental, LLC
caleb@xenops-env.com

[1] and note that IFC considers aerial wildlife to be Natural Habitat features, subject to the NNL mitigation standard, with regard to impacts from aerial infrastructure such as wind turbines and OHTL

713-670-6007

Baseline Survey Methods and Effort Summary

In order to perform the final CHA, including assessment of PBF as well as CH triggering features, the results of biodiversity baseline field studies were used as the primary source of site-specific data on species' occurrence and abundance within the Project's EAAA. The baseline biodiversity surveys conducted for the Project included a set of baseline studies conducted between March 2021 and August 2022 that were limited to birds and bats, limited to the wind farm area, and included within the pre-bid package of materials provided to ACWA upon winning the right to develop the Project. Although baseline surveys conducted on the N2WF were given precedence, results of baseline biodiversity surveys from the Nukus 1 wind project area, directly adjacent the N2WF area to the west, conducted between April 2020 and April 2021, were also incorporated into the CHA. An additional set of biodiversity baseline studies were then conducted by ACWA in spring, 2024, covering a wider set of taxa, and in some cases including the Project-associated OHTL as well as the wind farm area. The complete set of biodiversity baseline surveys conducted for the N2WF and integrated within this CHA is shown in Table 1, along with a summary of the key methodological and effort parameters of each survey element.

Table 1. Summary of biodiversity baseline surveys conducted for the Nukus 2 Wind Energy Project

Target taxon	Survey Methods	Date Range of surveys	Spatial coverage	Surveyors	Company	Sampling Effort
Birds	Vantage Point	March 2021-March 2022	Wind Farm + 1 km buffer	Y. Ametov, A. Tureyev	Juru	5 VP locations, each surveyed for minimum 36 hours in each of four seasons (spring, summer, autumn, winter)
Birds	Vantage Point	March 1-April 25, 2024	OHTL	M. Mitropolskiy	Juru	6 VP locations, each surveyed for 12 hours in spring
Raptors	Nest Search	April 4 – August 22, 2021	Wind Farm + 5 km buffer	Y. Ametov, A. Tureyev	Juru	37 days of total field effort, driving transects with opportunistic and focused searching on potential nesting substrates (bluffs)
Raptors	Nest Search	March 5-April 11, 2024	Wind Farm and OHTL + 5 km buffer	M. Mitropolskiy	Juru	6 days of total field effort, driving transects with opportunistic and focused searching on potential nesting substrates (bluffs)
Houbara Bustard	Courtship Point Counts	April 13-15, 2021	Wind Farm + 2 km buffer	Y. Ametov, A. Tureyev	Juru	30-minute specialized Houbara Bustard survey point counts conducted once at each of 10 points
Houbara Bustard	Courtship Point Counts and transects	March 23 – April 24, 2024	Wind Farm and north portion OHTL + 2 km buffer	V. Soldatov, A. Ten	Juru	30-minute specialized Houbara Bustard survey point counts conducted twise at each of 5 points (once in March, once in April), plus driving transect surveys within potentially suitable habitat
Bats	Passive Acoustics (Wildlife Acoustics detectors, Kaleidoscope + manual acoustic analysis)	May – June, 2021; September – October, 2021; July – August, 2022	Wind Farm	D. Vasenkov (acoustic analysis)	Juru	54 total detector x nights of acoustic data collected at 4 locations. Analyzed with a combination of automated (Kaleidoscope software) and manual review by regional bat acoustics expert

Target taxon	Survey Methods	Date Range of surveys	Spatial coverage	Surveyors	Company	Sampling Effort
Bats	Active acoustic transect surveys + manual acoustic analysis	May 6 – October 26, 2021	Wind farm	D. Vasenkov (acoustic analysis)	Juru	16 total surveys, each lasting ca 2 hours, split between two transects of ca 10 km each, each surveyed monthly during specified period
Mammals (non-flying)	Transects	February 27 – April 13, 2024	Wind Farm and OHTL	M. Mitropolskiy	Juru	Thirteen transects of 1-1.5km length surveyed on each of two 3-day visits. Visual surveys for live mammals, tracks, scat, burrows or other traces of mammals, plus examination of mammal bones/fur in owl pellets
Reptiles	Transects	April 27-28, 2024	Wind Farm	R. Nazarov, E. Ignateva	Juru	Two days of survey, including 10 x 1km transects sampled with structured design for density estimation, plus additional opportunistic survey
Plants/ Habitat	Floristic Quadrats	April 13, 2024	Wind Farm and OHTL	N. Beshko	Juru	Thirty-eight 100 x 100m plots surveyed, including one at each of 29 turbine locations, one at the BESS location, one at the substation, and 7 along the OHTL

Natural Habitat Analysis

The concept of Natural Habitat (NH), as a specific biodiversity feature triggering a certain mitigation standard is only applicable to IFC PS6, as well as the ADB's Safeguard Policy Statement (SPS). There is no parallel concept in EBRD PR6. IFC PS6 defines NH as "areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition."[2] In practice, IFC applies the concept of NH fairly broadly, including habitats that are utilized by humans for various activities, including domestic livestock grazing, as long as the fundamental vegetation structure and basic ecosystem functions resemble the "natural" condition in the area, and as long as the species composition is largely composed of native species.

The NH assessment was based primarily on the floristic survey results and habitat characterizations and descriptions of regional botanist, Natalya Beshko, described in the spring 2024 botanical baseline survey report. In summary, the entire wind farm area, plus the northern ca. 21.5 km of the OHTL are comprised of NH, per the IFC PS6 definition, representing a mosaic of four distinct natural vegetation associations, all within the larger Kyzylkum desert biome. As the Project's OHTL heads southeast out of the wind farm area and then southward out of the mountains, after roughly 21.5 km it crosses an abrupt ecological transition as it enters the irrigated agricultural landscape of the Amu Darya floodplain, where it continues for another ca. 21.9 km southward through a mix of four different types of Modified Habitats (MH), per the IFC PS6 definition, terminating at the Beruni substation. The eight different habitat types (4 NH, 4 MH) are described in detail, and illustrated with photographs in the spring 2024 botanical baseline survey report, which is appended to the ESIA.

KBA and LPA proximity

Although a project's overlap with, or proximity to an internationally recognized Key Biodiversity Area (KBA) or Legally Protected Area (LPA) do not automatically result in a CH determination, there is generally a strong correlation with KBA overlap, as the international KBA standard promulgated by the IUCN[3], is the same standard that has been incorporated into the CH criteria in IFC PS6[4][5] and EBRD PR6[6][7]. Beyond the possible triggering of CH, overlap with, or close proximity to KBA and/or LPA is an important factor in ecological risk assessment for a project, as it generally connotes a measure of ecological sensitivity, as well as priority status of certain species, habitats, or other biodiversity features among international or regional biodiversity science/conservation stakeholders. For the present analysis, the

[2] International Finance Corporation (IFC), 2012. Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. January 1, 2012, World Bank Group, Washington, DC.
[3] https://portals.iucn.org/library/node/49979
[4] International Finance Corporation (IFC), 2012. Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. January 1, 2012, World Bank Group, Washington, DC
[5] International Finance Corporation (IFC), 2019. Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. June 27, 2019, World Bank Group, Washington, DC
[6] European Bank of Reconstruction and Development (EBRD), 2019. Environmental and Social Policy. April 2019.
[7] European Bank of Reconstruction and Development (EBRD), 2022. EBRD Performance Requirement 6: Biodiversity Conservation and the Sustainable Management of Living Natural Resources. Guidance Note. September, 2022.

results of the proximity analyses from the IBAT[8] report are presented, in the form of map figures showing the location of the Project area in relation to KBA and LPA. The IBAT report was generated from a hand drawn polygon that included the entire wind farm, plus the entirety of the project-associated OHTL interconnection segment.

Figures 1 and 2 show the proximity of the Project to internationally recognized Key Biodiversity Areas (KBA) and legally protected areas (LPA), respectively, according to the IBAT database. Note that the information in these figures is derived from the IBAT database, which is not always 100% accurate and current, hence this information should be verified with regional stakeholders.

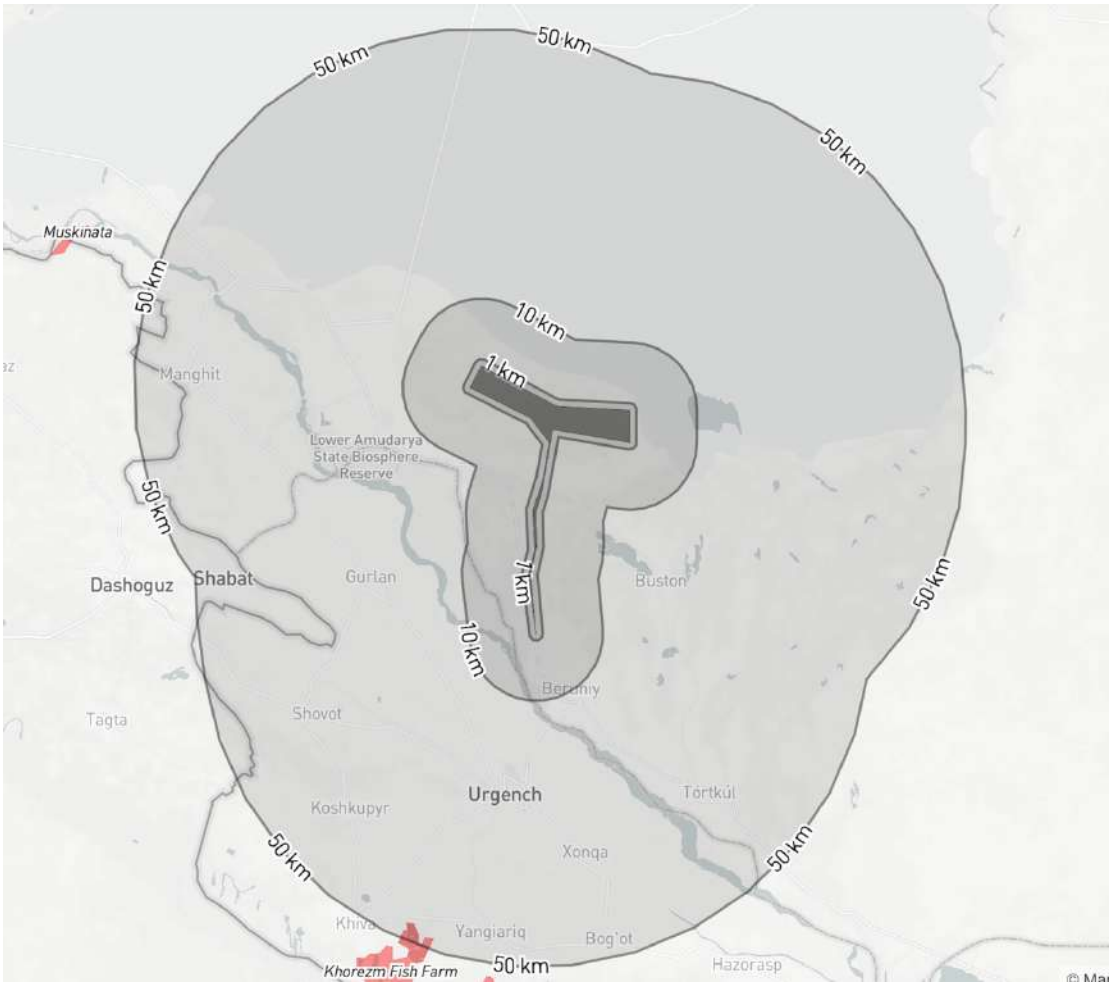


Figure 1. Location of the Nukus 2 wind project area plus OHTL interconnection segment (dark gray polygon) in relation to internationally recognized Key Biodiversity Areas (KBA, pink areas), according to the IBAT database (from IBAT report dated 7 March, 2024). Buffers of 1, 10, and 50km around the Project area are also shown in the figure, illustrating the conclusion that the Project is located a minimum of roughly 45 km from any KBA.

[8] IBAT PS6 & ESS6 Report. Generated under license 630-58078 from the Integrated Biodiversity Assessment Tool on 07 March, 2024. www.ibat-alliance.org

With regard to KBA, the wind farm is located no closer than ca 45 km to any, indicating that the Project has negligible potential to impact any KBA.

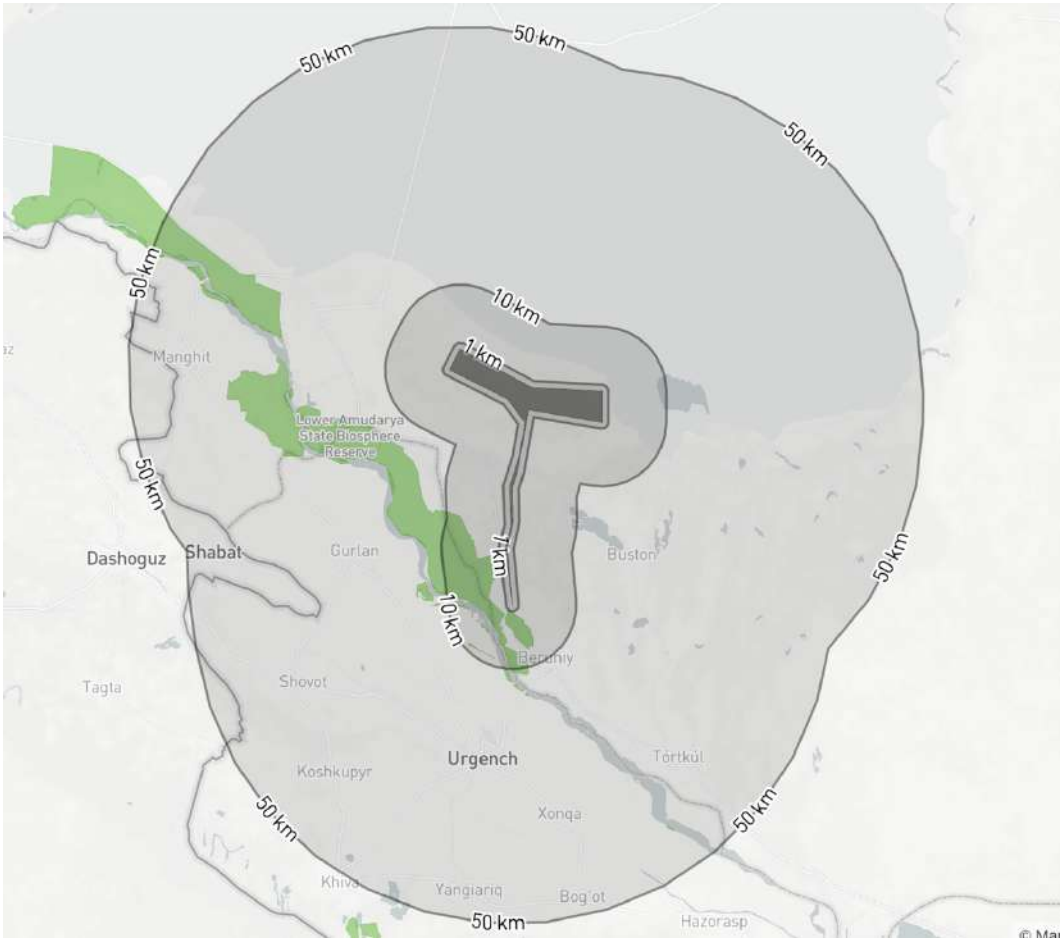


Figure 2. Location of the Nukus 2 wind project area plus OHTL interconnection segment (dark gray polygon) in relation to Legally Protected Areas (LPA, green areas), according to the IBAT database (from IBAT report dated 7 March, 2024). Buffers of 1, 10, and 50km around the Project area are also shown in the figure, illustrating the conclusion that while the wind farm area is located a minimum of 10 km from the nearest LPA, the southern part of the OHTL segment comes within very close proximity, and actually has a slight overlap with one: the Lower Amu Darya State Biosphere Reserve (see text).

With regard to LPA, Figure 2 shows that while the wind turbine area comes no closer than 10 km from any, the southern portion of the Project's OHTL interconnection segment comes in what appears to be very close proximity to one. This LPA is the Lower Amu Darya State Biosphere Reserve, and the Project's pre-bid E&S report indicates that the Beruni substation, which is the southern terminus of the Project's OHTL, is actually located inside of this reserve. More specifically, it is located inside of what is termed the Reserve's "transition" zone, which is defined as a buffer around the Reserve's "core" zone. The buffer zone includes anthropogenic development and activity (including the Beruni substation), but it serves the purpose of providing a buffer to the Reserve's core biodiversity values, which are associated with the riparian "Tsugai" forest that line portions of the Amu Darya. As indicated in the pre-bid E&S report, as long as the Project does not impact any of the Tsugai forest habitat, the Project is not expected to generate significant adverse impacts to this LPA or its associated biodiversity values (but see

section below on Bukhara Red Deer). Spring 2024 botanical baseline surveys confirmed that the OHTL does not cross any patches of Tsugai forest.

Critical Habitat and Priority Biodiversity Feature Screening

Preliminary screening for any triggers of a CH or PBF determination was conducted following the most recent guidance for such issued by IFC[9] and EBRD[10]. The Project area does not have any highly unique or threatened ecosystem types or distinctive evolutionary processes that could result in a CH determination under IFC CH criteria 4 or 5 (roughly equivalent to EBRD CH criteria 1 and 5, respectively), hence the CH/PBF screening was then accordingly limited to species, and multi-species groupings of biological taxa. A master list of potential CH/PBF trigger species was first compiled by reviewing the IBAT report[11], the IUCN red list of threatened species[12], the eBird database[13], and the national redlist for animals[14]. From this master list, species falling into the following categories were considered to have negligible likelihood of being affected by the Project, and were eliminated: species that are extinct from the country/region; species that occur in the Project region only as extreme rarities (i.e. vagrants or accidentals); species with no geographic and/or ecological overlap with the Project area (including river-dwelling fish, as the Project does not cross, or come within 2km of any rivers). Following typical practice, and the CH and PBF criteria articulated in IFC PS6 and EBRD PR6, redlisted species were only considered potential CH CR/EN species triggers (IFC CH criterion 1, EBRD CH criterion 2) or potential PBF "threatened species" triggers if they had status of VU or higher on the IUCN global redlist of threatened species, or they had national redlist status of CR or EN. This produced a list of species that were considered possible CH/PBF triggers, and subjected to additional screening against the IFC and EBRD CH/PBF criteria.

For the final CHA, the list of potential CH/PBF trigger species was revised and updated, based on the results of baseline biodiversity surveys and additional research (Table 2). Then, a set of distinct EAAA were developed for different potential CH/PBF trigger species, based on their ecology, movement patterns, and use of space, per IFC guidance[15] . These EAAA are described in Table 3, and Table 2 includes a column indicating which EAAA were used for which taxa.

[9] International Finance Corporation (IFC), 2019. Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. June 27, 2019, World Bank Group, Washington, DC.

[10] European Bank of Reconstruction and Development (EBRD), 2022. EBRD Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources: Guidance Note. September, 2022.

[11] IBAT PS6 & ESS6 Report. Generated under licence 630-58078 from the Integrated Biodiversity Assessment Tool on 07 March 2024. www.ibat-alliance.org

[12] https://www.iucnredlist.org/ accessed 11 March, 2024

[13] https://ebird.org/home accessed 11 March, 2024

[14] Republic of Uzbekistan, 2019. Republic Uzbekistan Red Data Book.

[15] International Finance Corporation (IFC), 2019. Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. June 27, 2019, World Bank Group, Washington, DC.

With EAAA defined, all of the pertinent data from baseline surveys and desk-based materials was reviewed against the specific CH and PBF definitions and criteria in IFC PS6[16] and EBRD PR6[17], including the most recent Guidance Notes[1819], to make final determinations of which species or other biodiversity features triggered a CH or PBF determination under IFC or EBRD biodiversity policies. The results of this assessment are presented in Table 2, and further detail/justification to support these conclusions is provided in the text sections that follow.

[16] International Finance Corporation (IFC), 2012. Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. January 1, 2012, World Bank Group, Washington, DC

[17] European Bank of Reconstruction and Development (EBRD), 2019. Environmental and Social Policy. April 2019.

[18] International Finance Corporation (IFC), 2019. Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. June 27, 2019, World Bank Group, Washington, DC

[19] European Bank of Reconstruction and Development (EBRD), 2022. EBRD Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources: Guidance Note. September, 2022.

Table 2. Results of Critical Habitat and Priority Biodiversity Feature Assessment for the Nukus 2 Wind Farm Project. Red list categories for the IUCN and national redlists are abbreviated as follows: LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered, CR = Critically Endangered, DD = Data Deficient.

Feature [20]	Higher taxon	IUCN global status [21]	Uzbekistan status[22]	Applicable CH/PBF criterion[23]			EAAA (see Table 3)	Total # observations in baseline studies	IUCN minimum global population estimate[24]	Determination[25]	Rationale
				Threatened/ Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species					
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii					
Lesser White-fronted Goose *(Anser erythropus)*	Bird	VU	VU	X		X	1		16,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle. Project not likely to result in the species' uplisting to globally EN/CR
Red-breasted Goose *(Branta ruficollis)*	Bird	VU	VU	X		X	1		56,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle. Project not likely to result in the species' uplisting to globally EN/CR
Common Pochard (*Aythya ferina*)	Bird	VU	Not listed	X		X	1		760,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle. Project not likely to result in the species' uplisting to globally EN/CR

20 The ecosystems and habitats potentially affected by the Project did not meet any of the criteria for "priority ecosystems," including "threatened ecosystems," "highly threatened or unique ecosystems" (IFC CH criterion 4 = EBRD CH criterion i), "areas associated with key evolutionary processes" (IFC/EBRD CH criterion 5), or "threatened habitats" (PBF criterion i) as defined in EBRD PR6 and the associated Guidance Note 6. Neither were the criteria met for any "significant biodiversity features identified by a broad set of stakeholders or governments" (PBF criterion iii), or "ecological structure and functions needed to maintain the viability of priority biodiversity features" (PBF criterion iv), hence the only biodiversity features included in this table are species (and their habitats) that met one or more of the species-specific CH or PBF criteria/thresholds, as described in the table.

21 https://www.iucnredlist.org/ accessed 23 June, 2024

22 Republic of Uzbekistan, 2019. Republic Uzbekistan Red Data Book

23 Uzbekistan is neither a member of the EU, nor a Bern Convention signatory, hence the specific CH/PBF criteria relating to habitats and species that receive special protection under EU nature legislation are not considered applicable, per EBRD GN6. CH criterion numbers in the column headers refer to them as numbered in EBRD PR6. The corresponding CH criteria and thresholds according to IFC PS6 are the same, but have different numbers, as follows (EBRD CH criterion ii = IFC CH criterion 1; EBRD CH criterion iii = IFC CH criterion 2; EBRD CH criterion iv= IFC CH criterion 3). An X in this column is only checked if the species is a possible CH trigger

24 https://www.iucnredlist.org/ accessed 23 June, 2024

25 PBF = Priority Biodiversity Feature, per EBRD PR6

Feature [20]	Higher taxon	IUCN global status [21]	Uzbekistan status[22]	Applicable CH/PBF criterion[23]			EAAA (see Table 3)	Total # observations in baseline studies	IUCN minimum global population estimate[24]	Determination[25]	Rationale
				Threatened/ Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species					
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii					
White-headed Duck (*Oxyura leucocephala*)	Bird	EN	EN	X		X	1		5,300	PBF	EAAA not likely to contain ≥ 0.5% of the global population and 5 pairs, nor to contain a nationally important concentration of the species
European Turtle Dove (*Streptopelia turtur*)	Bird	VU	VU	X		X	2	6	12,800,000	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA not likely to contain at least 1% of the global population.
Yellow-eyed Pigeon (*Columba eversmanni)*	Bird	VU	VU	X		X	2		10,000	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA not likely to contain at least 1% of the global population.
Great Bustard (*Otis tarda*)	Bird	EN	CR	X		X	1		29,600	PBF	EAAA not likely to contain ≥ 0.5% of the global population and 5 pairs, nor to contain a nationally important concentration of the species
MacQueen's Bustard (*Chlamydotis macqueenii*)	Bird	VU	VU	X		X	2		33,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle. Project not likely to result in the species' uplisting to globally EN/CR
Little Bustard (*Tetrax tetrax*)	Bird	NT	VU			X	1		260,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Common Crane (*Grus grus*)	Bird	LC	unlisted			X	1	1806 + 2850 observations at Nukus 1 WF	491,000	CH	EAAA may contain ≥ 1% of the global population at any point in species' life cycle (autumn migration)
Sociable Lapwing (*Vanellus gregarius*)	Bird	CR	VU	X		X	1		11,200	PBF	EAAA not likely to contain 0.5% of global population and ≥ 5 pairs, and is not likely to contain ≥ 1% of the global population at any point in species' life cycle

Feature [20]	Higher taxon	IUCN global status [21]	Uzbekistan status[22]	Applicable CH/PBF criterion[23]			EAAA (see Table 3)	Total # observations in baseline studies	IUCN minimum global population estimate[24]	Determination[25]	Rationale
				Threatened/ Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species					
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii					
Dalmatian Pelican (*Pelecanus crispus*)	Bird	NT	EN	X		X	1		11,400	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle, nor a nationally important concentration
Egyptian Vulture *(Neophron percnopterus)*	Bird	EN	VU	X		X	3		12,400	PBF	EAAA not likely to contain 0.5% of global population and ≥ 5 pairs, and is not likely to contain ≥ 1% of the global population at any point in species' life cycle
Cinereous Vulture *(Aegypius monachus)*	Bird	NT	NT			X	1		16,800	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Eurasian Griffon *(Gyps fulvus)*	Bird	LC	VU			X	1		80,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Short-toed Snake-eagle *(Circaetus gallicus)*	Bird	LC	VU			X	1	1	50,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Greater Spotted Eagle *(Clanga clanga)*	Bird	VU	VU	X		X	1		3,900	PBF	Project not likely to result in species' up-listing to globally CR/EN. EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Booted Eagle (*Hieraaetus pennatus*)	Bird	LC	VU			X	1		150,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Steppe Eagle *(Aquila nipalensis)*	Bird	EN	VU	X		X	1	25	50,000	PBF	EAAA not likely to contain 0.5% of global population and ≥ 5 pairs, and is not likely to contain ≥ 1% of the global population at any point in species' life cycle
Imperial Eagle *(Aquila heliacal)*	Bird	VU	VU	X		X	1	1	2,500	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Golden Eagle	Bird	LC	VU			X	3	20 + likely	85,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle

Feature [20]	Higher taxon	IUCN global status [21]	Uzbekistan status[22]	Applicable CH/PBF criterion[23]			EAAA (see Table 3)	Total # observations in baseline studies	IUCN minimum global population estimate[24]	Determination[25]	Rationale
				Threatened/ Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species					
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii					
(Aquila chrysaetos)								active nest			
Pallas's Fish-Eagle (*Haliaeetus leucoryphus*)	Bird	EN	EN	X		X	1		1,000	PBF	EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 pairs, nor to contain ≥ 1% of the global population at any point in species' life cycle, or a nationally important concentration
White-tailed Eagle (*Haliaeetus albicilla*)	Bird	LC	VU			X	1	2	20,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Red-footed Falcon (*Falco vespertinus*)	Bird	VU	Not listed	X		X	1	2	287,500	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle
Saker Falcon *(Falco cherrug)*	Bird	EN	NT	X		X	3	4 + active nest	12,200	PBF	EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 pairs, nor to contain ≥ 1% of the global population at any point in species' life cycle.
Peregrine Falcon (*Falco peregrinus*)	Bird	LC	VU	X		X	1		100,000	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle.
Other migratory waterbird species	Bird	variable	variable			X	1	1 species observed, 2 observations	≥100,000 (per species)	PBF	No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle.
Other upland bird species	Bird	variable	variable			X	1	72 species, many observations	≥100,000 (per species)	PBF	No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle.
European Free-tailed	Bat	LC	VU			X	4		Unknown	PBF	EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle

Feature [20]	Higher taxon	IUCN global status [21]	Uzbekistan status[22]	Applicable CH/PBF criterion[23]			EAAA (see Table 3)	Total # observations in baseline studies	IUCN minimum global population estimate[24]	Determination[25]	Rationale
				Threatened/ Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species					
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii					
Bat (*Tadarida teniotis*)											
Other bats	Bat	NT or lower	variable			X	3	2 spp, 1272 calls recorded	Population sizes for most species poorly known	PBF	No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle.
Marbled Polecat *(Vormela peregusna)*	Mammal	VU	VU	X			2	2	unknown	PBF	Project not likely to result in species' up-listing to globally CR/EN
Bukhara Red Deer (*Cervus elaphus bactrianus*)	Mammal	LC	EN	X			5		800	CH	EAAA includes a nationally important population
Goitered Gazelle (*Gazella subgutturosa*)	Mammal	VU	VU	X		X	4	9	42,000	PBF	Project not likely to result in species' up-listing to globally CR/EN, and EAAA does not contain ≥ 1% of global population
Salpingotus heptneri	Mammal	DD	VU		X		1		Unknown	PBF	EAAA not likely to contain ≥ 10% of global population
Central Asian Tortoise *(Testudo horsfieldii)*	Turtle	VU	VU	X			2	40	unknown	PBF	Project not likely to result in species' up-listing to globally CR/EN
Uzbekistan Toadhead Agama *(Phrynocephalus rossikowi)*	Lizard	EN	EN	X	X		1		unknown	PBF	EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 reproductive units
Szczerbak's Even-fingered Gecko	Lizard	VU	EN	X	X		1		unknown	PBF	Project not likely to result in species' up-listing to globally CR/EN and EAAA not likely to contain a nationally important concentration

Feature [20]	Higher taxon	IUCN global status [21]	Uzbekistan status[22]	Applicable CH/PBF criterion[23]			EAAA (see Table 3)	Total # observations in baseline studies	IUCN minimum global population estimate[24]	Determination[25]	Rationale
				Threatened/ Vulnerable Species	Range-restricted Species	Migratory/Congregatory Species					
				CH criterion ii, PBF criterion ii	CH criterion iii, PBF criterion ii	CH criterion iv, PBF criterion ii					
(Alsophylax szczerbaki)											
Lepidium subcordatum	Plant	Threatened [26]	EN (cat 2)	X			1	6 localities, 37 individuals	Unknown	PBF	EAAA not likely to contain a nationally important population

Table 3. Description and justification of the different Ecologically Appropriate Areas of Analysis applied to the different potential CH and PBF triggers in the CH/PBF assessment.

EAAA #	Applicable species	Description	Rationale
1	Lesser White-fronted Goose, Red-breasted Goose, Common Pochard, White-headed Duck, Great Bustard, Little Bustard, Common Crane, Sociable Lapwing, Dalmatian Pelican, Cinereous Vulture, Eurasian Griffon, Short-toed Snake-Eagle, Greater Spotted Eagle, Booted Eagle, Steppe Eagle, Imperial Eagle, Pallas's Fish-Eagle, White-tailed Eagle, Red-footed Falcon, Peregrine Falcon, other migratory waterbird species, other upland bird species, *Salpingotus heptneri*, Uzbekistan Toadhead Agama, Szczerbak's Even-fingered Gecko, *Lepidium subcordatum*	Windfarm + OHTL buffered by 1km (Figures 1, 2)	Used for all long-distance migrant bird species expected to occur in the Project area only during migration (e.g many water birds, bustards, raptors, vultures, and others), for which the EAAA is defined as a project-specific local area, rather than encompassing their entire migratory routes or year-round ranges, following typical practice for CHA. Among bird species that may inhabit the Project area for longer periods during breeding season, wintering season, or both, this EAAA is also used for species with relatively small-scale home ranges or limited dispersal (e.g. most songbirds and similar birds). This EAAA is used for terrestrial vertebrates with limited home range size, including lizards and small mammals. Finally, this EAAA is also used for sessile species, in this case a single species of herbaceous plant.

[26] Lepidium subcordatum is not listed on the IUCN global redlist, but it is classified as "threatened" in the Kew Gardens Plants of the World database https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:978255-1/general-information#source-AERP accessed 22 June, 2024

EAAA #	Applicable species	Description	Rationale
2	MacQueen's Bustard, European Turtle-Dove, Yellow-eyed Pigeon, Central Asian Tortoise, Marbled Polecat	Wind farm + OHTL buffered by 5 km	The 5 km buffer was selected for MacQueen's Bustard and two pigeon/dove species on the basis of their general patterns of dispersal and movements while on their breeding grounds in Uzbekistan. This EAAA was also used for Central Asian Tortoise and Marbled Polecat, as the upland habitat association and 5km buffer are also suited to these species' ecology and dispersiveness
3	Golden Eagle, Saker Falcon, other bats	Wind farm + OHTL buffered by 10 km (Figures 1, 2)	This EAAA reflects the home range size of raptor species that are expected to breed and/or overwinter in the vicinity of the Project area. It is also used for bat species other than *Tadarida teniotis*, reflecting the smaller scale of local dispersal and foraging movements of the other bat species that potentially occur in the area.
4	European Free-tailed Bat, Caracal, Goitered Gazelle	Wind Farm + OHTL buffered by 50 km (Figures 1, 2)	This EAAA reflects the highly dispersive nature of Free-tailed Bats in the genus *Tadarida*, who may regularly travel on the order of 50km from their colonies to feed, as well as the large scale of movements expected for larger, wide-ranging terrestrial mammal species (Caracal, Goitered Gazelle).
5	Bukhara Red Deer	Tsugai forest protected within the Lower Amu Darya State Biosphere Reserve, plus known spring foraging area in adjacent desert mountain slopes	In the Project region, Bukhara Red Deer are highly associated with, and for most of the year remain almost entirely confined within, the Tsugai riparian forests of the Lower Amu Darya State Biosphere Reserve. However, they are also known to emerge from the riparian area to forage on green spring herbaceous growth in the adjacent desert piedmont area that lies directly to the south of the wind farm area. This EAAA is equivalent to the combination of the green polygon in Figure 2 plus the white polygon in Figure 3.

Potential for Project Impacts on PBF

Although the determination and assessment of CH and PBF under IFC PS6 and EBRD PR6 does not take into account the level of impact, the potential for a Project to impact biodiversity receptors is factored into the delineation of EAAA for the CH/PBF assessment, and furthermore, it is also pertinent to the assessment of risk to each of the potentially affected biodiversity receptors for the purpose of ESIA preparation. In order to serve the dual purposes of 1) explaining the basis for the CH/PBF determinations, and 2) informing the risk assessment of the ESIA, the sub-sections below contain information relating to both of these considerations, for each of the potentially affected PBFs. Information in the subsections below regarding the abundance, distribution, and seasonality of birds in Uzbekistan derives from the eBird database[27] and the national red book of Uzbekistan[28].

As a general rule, the biodiversity features identified as PBF for the Project and described below may potentially be affected by one or more of the following impacts:

1) Habitat loss or permanent displacement. These impacts could affect any species that currently occupies the Project's footprint, and would be a permanent impact, starting with Project construction.

2) Disturbance or temporary displacement. These impacts could extend beyond the Project's immediate footprint depending on the behavioral sensitivity of the species, and would primarily include temporary impacts generated by intense levels of human activity, vehicular traffic, and operation of heavy machinery during the Project's construction and decommissioning phases. During the Project's operational phase, some continuing disturbance to more sensitive species is possible, though it would be limited by the limited extent of operations and maintenance activity of personnel and vehicles, compared with construction or decommissioning.

3) Direct fatality. Direct fatality impacts generated by the Project can be divided into three distinct categories, each affecting different sets of species, as follows:

    a. Fatality caused by soil/vegetation disturbance and/or vehicular activity. This type of fatality impact would be limited primarily to sessile organisms (e.g. plants), or highly sedentary animals, especially those that are partly or wholly fossorial (burrowing or subterranean, e.g. Central Asian Tortoise), though some fatality of more mobile animals could also occur during any Project phase, especially construction and decommissioning, as a result of vehicular traffic.

    b. Fatality as a result of collision with a wind turbine. This type of impact is limited to flying wildlife, most notably birds and bats. It can start occurring as soon as wind turbines are erected, and is likely to persist throughout the Project's operational life. This is possibly the most widely appreciated, and is often the most sensitive type of biodiversity impact associated with wind energy facilities, worldwide. Susceptibility to

[27] https://ebird.org/barchart?byr=1900&eyr=2024&bmo=1&emo=12&r=UZ accessed 22 June, 2024

[28] Republic of Uzbekistan, 2019. Republic Uzbekistan Red Data Book

collisions with wind turbines varies widely among different bird and bat taxa. Sensitivities of particular species or groups to this type of impact is discussed in the taxonomically-organized subsections that follow.

c. Fatality as a result of birds' interactions with aerial powerline infrastructure. This type of impact can be further subdivided into electrocutions, which primarily affect raptors and other large-bodied birds with a behavioral tendency to perch on powerline infrastructure, and collisions, which primarily affect heavy, large-bodied birds with high wing-loading and/or poor vision, both of which can reduce a flying bird's ability to see and/or maneuver away from collisions with overhead powerlines. Among these two distinct types of avian-powerline fatality impacts, collisions are a higher concern for this Project, as the cables of the Project's mid-voltage power collection system will be subterranean, and as electrocution impacts on the Project's OHTL interconnection segment will be mitigated by the implementation of "raptor-friendly" designs. Avian-powerline fatality impacts for the Project are also highly variable among taxa, and further detail is provided in the taxonomically-organized subsections below.

Lesser White-fronted Goose (IUCN VU; Uzbekistan VU) Geese, like other large-bodied waterbirds, are potentially a collision risk concern for both wind turbines and the OHTL, though studies at wind farms and powerlines, to date, indicate that while large-bodied waterbirds may have high susceptibility to collisions with OHTL, their susceptibility to collisions with wind turbines is generally low. The Lesser White-fronted Goose is a very rare migrant in Uzbekistan. This species could occur as a rare migrant, especially along the OHTL segment, as this part of the project region is located within the Amu Darya riparian corridor, a known concentration zone for migrating waterbirds of many species, and contains agricultural fields, which this species may use as migratory stopover habitat. The absence of observations of this species during the Project's baseline studies supports the conclusion that CH is not triggered under either of the applicable criteria (IFC CH criteria 1b, 3). This rarity also indicates a low potential for the Project to impact this species, and the potential for this species to experience powerline collision impacts from the Project is further mitigated by the installation of Bird Flight Diverters (BFD) along the entire line of the Project's OHTL interconnection .

Red-breasted Goose (IUCN LC; Uzbekistan VU) Collision susceptibility, seasonal/regional distribution, and potential/distribution of Project-related impact is similar to the previous species, and it was also not recorded during any of the Project's baseline surveys. Therefore, the Project does not trigger a CH determination under either of the applicable criteria (IFC CH criteria 1b, 3). This species' rarity in the region also indicates a low potential for the Project to impact this species, and the potential for this species to experience powerline collision impacts from the Project is further mitigated by the installation of Bird Flight Diverters (BFD) along the entire line of the Project's OHTL interconnection .

Common Pochard (IUCN VU; Uzbekistan unlisted). Collision susceptibility presumably as with other large-bodied waterbirds (higher on OHTL than on wind turbines). This species in an uncommon migrant in the region. As with the previous two species, risk is concentrated along the OHTL interconnection, especially the portion closest to the Amu Darya, which this species may use as a migration corridor. Also as with the previous two species, this species was not observed during the Project's baseline surveys.

Therefore, the Project does not trigger a CH determination under either of the applicable criteria (IFC CH criteria 1b, 3), and there is low potential for the Project to impact this species, further mitigated by the installation of Bird Flight Diverters (BFD) along the entire line of the Project's OHTL interconnection .

White-headed Duck (IUCN EN; Uzbekistan EN) Collision susceptibility presumably as with other large-bodied waterbirds (higher on OHTL than on wind turbines). This species in a rare breeder on small ponds/lakes in the region, and may also winter regionally on large waterbodies. As with the previous species, risk is concentrated along the OHTL interconnection, especially the portion closest to the Amu Darya, which this species may use as a migration corridor. This species was also not observed during the Project's baseline surveys. Therefore, the Project does not trigger a CH determination under any of the applicable criteria (IFC CH criteria 1a, 1c, 3), and there is low potential for the Project to impact this species, further mitigated by the installation of Bird Flight Diverters (BFD) along the entire line of the Project's OHTL interconnection .

European Turtle Dove (IUCN VU, Uzbekistan VU). A few (6) observations of this species in the pre-bid baseline bird surveys confirm its presence as an uncommon species in the wind farm area. It was hypothesized to be more common along the southern end of the OHTL segment, as it is known to breeding in riparian Tsugai forests of the Amu Darya. However, it was not observed during the spring 2024 VP surveys along the OHTL route. As a general rule, the susceptibility of pigeons and doves to collisions with wind turbines is moderate, and likely somewhat lower for powerlines. The widespread distribution and very large global population of this species effectively preclude a CH determination for this species, as this would require either a high likelihood of this species' uplisting to globally EN/CR (under IFC CH criterion 1b) or 128,000 individuals to be present within the EAAA (under IFC CH criterion 3).

Yellow-eyed Pigeon (IUCN VU, Uzbekistan VU). This forest-associated species is unlikely to occur regularly in the treeless wind farm area, but could be uncommon along the southern end of the OHTL segment, as it is known to breeding in riparian Tsugai forests of the Amu Darya. It was not observed during any of the Project's baseline surveys. As a general rule, the susceptibility of pigeons and doves to collisions with wind turbines is moderate, and likely somewhat lower for powerlines. A CH determination would require either a strong likelihood that the Project could cause its uplisting to globally EN/CR (IFC CH criterion 1b) or at least 100 individuals of this species to be present within the Project's EAAA (IFC CH criterion 3), both of which are considered extremely unlikely.

Great Bustard (IUCN EN, Uzbekistan CR). The Great Bustard is known to be extremely sensitive to collisions with powerlines[29]. Susceptibility to wind turbine collisions is not well-known, but is likely much less. Displacement impacts from wind farms and OHTL have also been hypothesized for bustard species, due to their general preference for open habitats that lack tall structures. This species neither breeds nor overwinters in the Project region. It could pass through as a rare migrant, but was not

[29] Silva, J. P., A. T. Marques, J. Bernardino, T. Allinson, Y. Andryushchenko, S. Dutta, M. Kessler, R. C. Martins, F. Moreira, J. Pallett, M. D. Pretorius, H. A. Scott, J. M. Shaw, N. J. Collar, 2022. The effects of powerlines on bustards: how best to mitigate, how best to monitor? Bird Conservation International 1-14 https://doi.org/10.1017/S0959270922000314.

observed during the baseline surveys. The Project's EAAA is not likely to contain a minimum of 148 individuals of this species, required to trigger a CH determination under IFC CH criterion 1a, nor does it contain a nationally important concentration of this species (IFC CH criterion 1c). Therefore, we conclude that this species does not trigger CH for the Project.

MacQueen's Bustard (IUCN VU, Uzbekistan VU). Collision susceptibility and hypothesized sensitivity to displacement effect similar to Great Bustard. In Uzbekistan[30] and the Canary Islands[31], powerline collisions of this species are confirmed, and considered to be among the most significant anthropogenic threats. This species could be a rare breeder in the Project area in natural desert habitats of the wind farm and the northern portion of the OHTL, and it could also pass through as a rare migrant. It was not observed during the baseline surveys for the Project, in spite of two years of conducting specialized surveys designed to detect this species during its spring courtship period. Therefore, we conclude that the Project does not trigger a CH determination under either of the applicable criteria (IFC CH criteria 1b, 3).

Little Bustard (IUCN NT, Uzbekistan VU). Collision susceptibility likely follows the general pattern for bustards (see previous two species). This species is a rare but regular migrant in the Project region. CH determination is precluded, as it would require at least 2,600 individuals to be present in the Project's EAAA (IFC CH criterion 3), and none were observed at the wind farm site during any of the Project's baseline surveys.

Common Crane (IUCN LC, Uzbekistan NT). Collision susceptibility as with the previous species (well-known on powerlines, less-so on wind turbines). Large migratory flocks of this species were reported flying over the wind farm site during Autumn migration in 2021, amounting to a total of 1,800 total observations of this species during that season, all of which could have been different individuals. This species was not observed during the spring, 2024 VP surveys conducted along the Project's OHTL route. Furthermore, a total of 2800 individuals, all observed during the autumn 2020 migration season, were observed during VP surveys conducted in for the Nukus 1 wind farm, adjacent the N2WF to the west. Th e minimum estimated global population of this species is 491,000, thus requiring at least 4,910 individuals to be present within the Project's EAAA to trigger a CH determination under IFC CH criterion 3 . The repeated observations of thousands of individuals migrating in large flocks through the Project area in successive autumn migration seasons suggests that the area is located within a concentrated autumn migration route for this species. Observations of up to 2800 individuals in a single autumn migration season suggest that the CH threshold of 4910 individuals was likely exceeded, when extrapolating to account for additional migratory flocks that may have passed through the area at times during the autumn migration when observers were not present on-site conducting VP surveys. Therefore, although the excedence of the threshold is not certain and relies on extrapolation, we precautionarily conclude that this species triggers a CH determination under IFC CH criterion #3. Regarding the potential for the Project to impact this species due to collisions either with wind turbines or with the Project's OHTL segment, such impacts are assessed as moderate. Such impacts are almost

[30] Burnside, R. J., N. J. Collar, M. A. Koshkin, P. M. Dolman, 2015. Avian powerline mortalities, including Asian Houbaras Chlamydotis macqueenii, on the Central Asian flyway in Uzbekistan. Sandgrouse 37:161-168.

[31] Alonso, J. C., I. Abril-Colón, A. Ucero, C. Palacín, 2024. Anthropogenic mortality threatens the survival of Canarian houbara bustards. Nature-Scientific Reports 14:2056 https://doi.org/10.1038/s41598-024-52641-z.

entirely limited to the autumn migration period, and we note that while large flocks of cranes may fly over the wind farm area, the only portion of the Project area that contains potentially suitable migratory stopover habitat for this species is the 21.9 km southern portion of the Project's OHTL interconnection segment, which passes through irrigated crop agricultural fields lining the Amu Darya floodplain. Powerline collision risk for Common Crane will be minimized by the installation of Bird Flight Diverters (BFD) along the entire length of the Project's associated OHTL. Additional mitigation measures intended to achieve the "net positive gain" mitigation standard required under lender policies for CH triggering species will be developed in consultation with regional stakeholders and implementation partners and described in the Project's Biodiversity Action Plan (BAP).

Sociable Lapwing (IUCN CR; Uzbekistan VU). The Sociable Lapwing is a medium-sized shorebird (wader) that breeds in grassland/steppe habitats in Eurasia, from central Uzbekistan and northward. In the Project region, it could occur as a very rare migrant, when it could be exposed to risk of collision with wind turbines and/or OHTL. If as many as 56 individuals passed through the Project's EAAA, it would trigger a CH determination under IFC CH criterion 1a. Based on this species' absence from any of the baseline surveys, and the presence of only very few records of small numbers of this species in the region, we conclude that CH is not triggered for this species. This species' rarity in the region also indicates a low potential for the Project to impact this species, and the potential for this species to experience powerline collision impacts from the Project is further mitigated by the installation of Bird Flight Diverters (BFD) along the entire line of the Project's OHTL interconnection .

Dalmatian Pelican (IUCN NT, Uzbekistan EN) As a general rule, pelicans are highly susceptible to collisions both with wind turbines and with OHTL, likely due to their large size and bulk, as well as their soaring flight style. The Dalmatian Pelican is present in the Project region only as a migrant, when flocks may use the Amu Darya as a migratory corridor. This species was not observed during any of the baseline surveys for the Project, hence we conclude that it does not trigger a CH determination, which would require the presence of at least 1,140 individuals under IFC CH criterion 3. Because of the possible passage of migratory flocks of this species through the Project area, the potential for the Project to impact this species due to collisions either with wind turbines or with the Project's OHTL segment are assessed as moderate, but the potential for OHTL collisions is mitigated by the installation of Bird Flight Diverters (BFD) along the entire line of the Project's OHTL interconnection .

Egyptian Vulture (IUCN EN, Uzbekistan VU) This is a smaller vulture, still quite a large bird, with known wind turbine collision susceptibility. It has a wider dietary range than many other vultures, often feeding at rubbish dumps as well as on drier carrion, and often relying to a significant degree on live prey, including tortoises. It is present in Uzbekistan only during the warmer months, when it nests on bluffs and cliffs in low-lying desert mountains. It could potentially breed in the mountains near, or within the wind farm area, but the absence of observations of this species during the baseline surveys indicates that if this species is present, it is rare or irregular at this site. For this reason, it is considered not to trigger CH, as that would require at least 62 individuals in the Project's EAAA (under IFC CH criterion 1a). Nonetheless, this species is considered of the primary biodiversity risk concerns for this Project, based on its combination of conservation sensitivity, wind turbine collision susceptibility, and likely presence within the wind farm region. Minor electrocution impacts on the Project's OHTL are also

possible, though the potential for this impact to this species, as well as other vultures and raptors, will be limited due to the implementation of "raptor-friendly" design on the OHTL.

Cinereous Vulture (IUCN NT, Uzbekistan NT) This is a very large vulture with very high wind turbine collision susceptibility and moderate conservation sensitivity. This species is potentially present in the region year-round, though breeding is generally limited to higher mountain ranges, thus is not likely in the Project region. This species' widespread global distribution and large global population, combined with the absence of observations of this species during the baseline surveys support the conclusion that it does not trigger a CH determination for the Project (global population 16,800, thus requiring >168 individuals in the Project's EAAA to trigger CH under criterion 3). Nonetheless, its wide-ranging behavior, conservation sensitivity, and susceptibility to collisions with wind turbines indicate that minor wind turbine collision fatality impacts on this species are possible. Minor electrocution impacts on the Project's OHTL are also possible.

Eurasian Griffon (IUCN LC, Uzbekistan VU) Similar in most respects to the previous species. The conservation sensitivity is one tick lower than Cinereous Vulture at the international level, but one tick higher at the national level. This species was also not observed during any of the Project's baseline surveys. Therefore, CH is not triggered, as this would require the presence of at least 800 individuals within the Project's EAAA (under IFC CH criterion 3). Nonetheless, this species is known to be susceptible to wind turbine collisions, and could occasionally fly through the wind farm area. Therefore, some wind turbine collision impacts are possible, as are minor powerline electrocution impacts, though the potential for such impacts to this species are limited due to its rarity in the region, and the lack of nearby breeding habitat.

Short-toed Snake-Eagle (IUCN LC, Uzbekistan VU) This is a small eagle with known wind turbine collision susceptibility. It is an uncommon migrant in the region, with a single observation recorded at the wind farm site during the baseline surveys. Its rarity at the site effectively precludes a CH determination, as this would require at least 500 individuals to be present within the EAAA (under IFC CH criterion 3), but minor wind turbine collision and/or OHTL electrocution fatality impacts are possible.

Greater Spotted Eagle (IUCN LC, Uzbekistan VU) This is a wetland-associated eagle that occurs in Project region only as an uncommon migrant. It was not recorded at the wind farm site during the Project's baseline surveys. For these reasons, it is not considered to trigger a CH determination under any of the applicable criteria (IFC CH criteria 1b, 3). Its wind turbine collision susceptibility is presumably high, similar to other eagles, though it is not well known for this species, and the same applies to its expected sensitivity to electrocutions on OHTL with hazardous designs. Due to the upland nature of the wind farm, and the mitigation of powerline electrocution risks with "raptor-friendly" designs, the Project is predicted to generate only minor impacts to this species.

Booted Eagle (IUCN LC, Uzbekistan VU) This small eagle species is an uncommon migrant in the region, and was not observed at the wind farm site during the baseline studies. Wind turbine collision susceptibility and OHTL electrocution susceptibility are presumably similar to other eagle species. CH determination is effectively precluded by this species' global population size, as it would require at least

1,500 individuals to be present within the Project's EAAA (under IFC CH criterion 3). Minor wind turbine collision impacts and/or OHTL electrocution impacts are possible.

Steppe Eagle (IUCN EN, Uzbekistan VU) This large eagle has presumably high susceptibility to wind turbine collisions and electrocutions on aerial powerlines with hazardous designs, similar to other *Aquila* eagles. A total of 25 observations of this species was collected during the baseline surveys, reflecting individual observations of small numbers of individuals scattered among all four seasons of the year. In spite of this seasonal pattern of observations, this species is not likely to breed at the site, and only overwinters in small numbers in the region, primarily using the Project region for migratory passage in spring and fall. The combination of high conservation sensitivity, high presumed wind turbine collision susceptibility, and regularity of flights of this species through the Project area make this species one of the top risk concerns for the Project, and low-moderate wind turbine collision fatality and/or OHTL electrocution fatality impacts are predicted. With minimum global population estimated by IUCN at 50,000, in principle, CH could be triggered by the passage of at least 250 individuals through the Project's EAAA (under IFC CH criterion 1a). This is considered highly unlikely on the basis of the baseline survey results.

Imperial Eagle (IUCN VU, Uzbekistan VU) A congener of the previous species, this large eagle has a similar risk profile for the Project in most respects, including the likelihood that it will occur in the Project area exclusively during migration seasons, especially autumn, though the documentation of only a single observation of this species during the baseline surveys suggests that it is rarer in the region. Because of its lower global conservation status, it is even less likely to trigger a CH determination (i.e. IFC CH Criterion 1a is inapplicable), but it has a considerably lower minimum global population size, according to the IUCN (2500), hence, in principle, IFC CH criterion 3 could be triggered if the Project's EAAA contained over 25 individuals at any point during their life cycle, which is considered unlikely in this case. The Project is predicted to generate minor impacts to this species from collisions with wind turbines and/or electrocutions on the OHTL.

Golden Eagle (IUCN LC, Uzbekistan VU) A congener of the previous two species, this is the most globally widespread of the three, with the largest global population size (85,000) and the lowest conservation sensitivity. Therefore, it is almost impossible for this species to trigger a CH determination (only IFC CH criterion 3 is potentially applicable, requiring the presence of at least 800 individuals within the EAAA). However, the high susceptibility of this species to wind turbine collisions and to electrocutions on hazardously-designed aerial powerlines are well-known, globally. Furthermore, it is a year-round resident within the Project region, and 20 total observations of this species were accumulated over the course of the Project's baseline survey, including the discovery of a likely active nest of this species during spring, 2024 on a bluff face located immediately adjacent to the wind turbine area on the south. Therefore, minor-moderate impacts including wind turbine collision fatality, displacement from a nesting site near the wind farm, and electrocution on the Project's OHTL are possible, and this species is considered a top-tier biodiversity risk species for the Project.

Pallas's Fish-Eagle (IUCN EN; Uzbekistan EN). This is a large eagle species that primarily feeds on fish, and is thus primarily associated with coastal habitats and large waterbodies. For this reason, it is not likely to be attracted to the upland habitats of the Project site. Furthermore, the Project area is located

at the western extreme of this species' global distribution. It is likely to occur at the Project site only as a very rare migrant or vagrant, when an occasional individual could pass through, especially along the Amu Darya floodplain. This species was not observed during the Project's baseline studies. Based on this information, this species is not considered to trigger a CH determination under IFC criterion 1a (which would require a minimum of 5 individuals to be present). Its high conservation sensitivity and presumed high susceptibility to wind turbine collisions and electrocutions on hazardously-designed aerial powerlines make it a priority species for the Project.

White-tailed Eagle (IUCN LC, Uzbekistan VU). This eagle is a congener of the previous species, and has known high susceptibility to wind turbine collisions in Europe (especially the Smøla wind farm in Norway), as well as presumed high susceptibility to electrocution on hazardously-designed aerial powerlines. It occurs in the Project region only during winter, when it is a scarce visitor, especially at larger lakes and reservoirs. Two observations of this species were documented at the wind farm site during the baseline surveys. Though this evidence does not warrant a CH determination, which would require at least 200 individuals to be present in the EAAA (under IFC CH criterion 3), this species' conservation sensitivity and known susceptibility to collisions with wind turbines suggest that the Project is likely to generate minor wind turbine collision and/or powerline electrocution impacts to this species, and make it a top tier priority species for the Project.

Red-footed Falcon (IUCN VU, Uzbekistan not listed) This is a medium-sized, relatively slow-flying falcon species that only occurs in the Project region as a very rare migrant, with two observations documented at the wind farm area during the baseline surveys, both during spring migration. Its wind turbine collision susceptibility is not well-known, but is presumed similar to that of other falcons, which is generally moderate-high, and it is also susceptible to electrocution impacts on aerial powerlines with hazardous designs. Risk for the Project is limited by this species' rarity in the region, but migrants do occasionally pass through the Project area when they are exposed to risk of wind turbine collision and powerline electrocution. This Project does not trigger CH for this species, as this would require at least 2,875 individuals to be present within the Project's EAAA (under IFC CH criterion 3) or a strong likelihood of the species' uplisting to globally EN/CR, which is not the case.

Saker Falcon (IUCN EN, Uzbekistan NT) This species has the highest conservation sensitivity of any falcon potentially occurring in the Project area, and it may occur in the region year-round. Its rarity in the Project region effectively precludes a CH determination, which would require a minimum of 61 individuals and at least 5 breeding pairs to be present within the EAAA, per IFC CH criterion 1a. Sakers, like other falcons, are known to be susceptible to wind turbine collisions. They are also known to be susceptible to electrocution impacts on powerlines, though there is less risk of this with high voltage lines, such as the Project's OHTL interconnection segment, compared with lower voltage distribution lines. This risk is further reduced by the Project's incorporation of "raptor safe" design of the OHTL as a construction requirement. An active nest documented in the bluffs adjacent the wind turbine area on the south was the only observation of this species during the Baseline studies, suggesting that this species could also be subject to a displacement impact, if the Project causes this species to abandon this nest site.

Peregrine Falcon (IUCN LC, Uzbekistan VU) This is a cosmopolitan species with a large global population, but it is quite rare in the Project region, and was not observed during the baseline surveys conducted at the wind farm site. Breeding is likely to be restricted to higher mountains to the north and south of the wind farm, but it could pass through as a rare migrant, when it would be exposed to turbine collision risk and powerline electrocution risk. CH determination would require at least 1,000 individuals to be present within the Project's EAAA (under IFC CH criterion 3), which is considered impossible, based on this species' rarity in the region, thus it does not trigger a CH determination.

Other migratory waterbirds. In addition to the migratory waterbird species individually considered PBF for the Project and listed above, a wide variety of additional species could potentially occur within the Project area, and are collectively considered a PBF under EBRD PBF criterion iii, as substantial collision fatality levels would be of concern to a broad set of scientific and conservation stakeholders, were they to occur. Included in this multispecies category are many species of "waders" (British) or "shorebirds" (American), in the order Charadriiformes, as well as numerous ducks, geese and swans (order Anseriformes), gulls and terns (order Charadriiformes), grebes (order Podicipediformes), rails and allies (order Gruiformes), flamingos (order Phoenicopteriformes), and cormorants, storks, herons, ibis and allies (order Pelecaniformes). Such species generally have low susceptibility to wind turbine collisions, but some collisions are possible, and many species in this category are known to have high susceptibility to collisions with high voltage power transmission lines, such as the Project's OHTL interconnection segment. Most species in this category are restricted to, or highly associated with coastal habitats or wetlands and waterbodies, thus limiting exposure of this group to risk from the upland and inland habitats of the Project area, but many species' migratory flights can occur anywhere over land or water, and many waterbirds are known or predicted to use the Amu Darya floodplain as a migratory corridor, thus exposing them to collision risk on the southern half of the Project's OHTL interconnection segment, though this risk will be mitigated by the installation of Bird Flight Diverters (BFD) along the entire line of the Project's OHTL interconnection, including the stretch that passes through the Amu Darya floodplain. The species in this category that have both high conservation sensitivity, and likely regular occurrence in the vicinity of the Project area have been identified individually as PBF for the Project, but additional species, including some species with elevated conservation status (e.g. Great White Pelican, Eurasian Spoonbill, Glossy Ibis, others) could occur as well. Bird vantage point surveys conducted both year-round within the wind farm area and during the spring migration season along the OHTL route resulted in only two observations of any bird species in this category, both of single individual Great Egrets flying in the vicinity of the southern half of the Project's OHTL segment.

Other upland birds In addition to the upland bird species individually considered PBF for the Project and listed above, a wide variety of additional upland bird species could potentially occur within the Project area, and are collectively considered a PBF under EBRD PBF criterion iii, as substantial collision fatality levels would be of concern to a broad set of scientific and conservation stakeholders, were they to occur. Included in this multispecies category are many species of songbirds (order Passeriformes), as well as numerous raptors with low conservation sensitivity (orders Accipitriformes, Falconiformes), owls (order Strigiformes), nightjars (order Caprimulgiformes), swifts (order Apodiformes), woodpeckers and allies (order Piciformes), kingfishers and allies (order Coraciiformes), cuckoos (order Cuculiformes), upland fowl (order Galliformes) and others. Most species in this category are migratory, and they generally have low susceptibility to wind turbine collisions, particularly for species that tend to remain

on, or near the ground as a function of their behavior/ecology, but some collisions are possible, even among ground-loving birds, who may occasionally collide with the bases of turbine towers, even if such birds rarely or never fly within rotor swept altitudes. Raptors generally have higher susceptibility to both wind turbine collisions and powerline electrocutions than do most upland bird species, and all raptor species with elevated conservation status that could potentially occur within the Project area have been individually identified as PBF for the Project, but some widespread and abundant species with low conservation sensitivity are included within this multispecies category, including some species with known susceptibility to wind turbine collisions (e.g. Common Buzzard, Eurasian Kestrel). The bird species in this category exhibit a wide range of habitat affinities, and many species are highly associated with forests, or other habitats that are not represented within the Project area. However, migratory species' migratory flights can occur anywhere, and for many species in this category, such flights are nocturnal (e.g. most migratory songbirds), hence there is some collision risk broadly spread among the many species in this group, and such risk may not be well-characterized by the results of diurnal baseline bird field surveys. 72 bird species in this category were documented in the Project area (wind farm + OHTL) during the baseline surveys.

European Free-tailed Bat (IUCN LC, Uzbekistan VU) This migratory bat species may be rare in Uzbekistan, but both the IUCN range map and national red book of Uzbekistan indicate that there is a population of this species in the Bukhara region, and the highly dispersive and wide-ranging nature of this species suggest that it could occur within the Project region. This species is classified as a PBF for the Project because of its elevated national conservation status, combined with the known high sensitivity of this species to collisions with wind turbines[32]. This susceptibility is likely related to this species' tendency toward high altitude flights, as they forage for insects above treetop level. This species roosts in caves or under bridges. Although it was not detected at the Project site during acoustic ultrasound monitoring studies conducted as part of the baseline studies, it is possible that it went undetected, as microphones were located near ground level during the baseline study, and this species has a tendency to fly at high altitudes. Based on its wide geographic distribution, we presume that its global population is large enough to preclude a CH determination under IFC CH criterion 3. We assess the potential for the Project to impact this species as low-moderate, reflecting a balance between this species' apparent absence from, or scarcity within the region, and its known propensity to collide with wind turbines.

Other bats In addition to the European Free-tailed Bat, a number of additional bat species could potentially occur within the Project area, and are collectively considered a PBF under EBRD PBF criterion iii, as substantial collision fatality levels would be of concern to a broad set of scientific and conservation stakeholders, were they to occur. Included within this multispecies category are the bats that were detected at the site during the baseline studies (*Pipistrellus pipstrellus*, *Eptesicus* spp.), as well as additional species with high likelihood of occurring within the Project area, but low conservation sensitivity (e.g. *Vespertilio*, *Hypsugo* spp.). The species in this category range from low (e.g. *Myotis, Rhinolophus* spp.) to high (e.g. *Tadarida*, *Vespertilio*, *Pipistrellus* spp.) in terms of known susceptibility to

[32] Rodrigues, L., L. Bach, M. -J. Dubourg-Savage, B. Karapandža, D. Kovac, T. Kervyn, J. Dekker, A. Kepel, P. Bach, J. Collins, C. Harbusch, K. Park, B. Micevski, J. Minderman, 2015. Guidelines for consideration of bats in wind farm projects – Revision 2014. EUROBATS Publication Series No. 6 (English Version). UNEP/EUROBATS Secretariat, Bonn, Germany, 133 pp.

wind turbine collisions[33]. It should be noted that the geographic distributions of many bat species are poorly known in Uzbekistan, as elsewhere in the world, particularly for species that do not roost in caves and are not easy to capture. This is the primary reason that acoustic surveys, capable of detecting such species, are typically recommended as the most important element of bat baseline surveys for wind farms[34], and why even in spite of robust baseline surveys, "surprises" may occur once operations-phase bird/bat fatality monitoring programs are initiated, particularly in countries, such as Uzbekistan, where the development of the wind energy industry is still in an early stage. Monthly bat call rates recorded during the baseline studies ranged from 2.8 to 70.8 calls per detector-night (average 20.9 for the entire warm season), indicative of low-moderate levels of bat activity at the site, peaking in August. This suggests a low-moderate potential for the Project to generate wind turbine collisions in bats, with a seasonal pattern limited to the warmer months (April-October), and peaking in August, following that of the acoustic activity levels, though bat fatality rates at wind farms are notoriously difficult to predict on the basis of acoustic activity levels, alone[35].

Marbled Polecat (IUCN VU, Uzbekistan VU) This member of the weasel family is widely distributed across south temperate latitudes of eastern Europe and central Asia, from Romania to Mongolia. While its global population size is not well known, the very large size of its global range precludes the possibility that this Project could cause the species to be globally uplisted to CR/EN, thus precluding a CH determination under IFC criterion 1b. Nonetheless, it is considered a PBF on the basis of its global VU status, and based on observations of this species at two of the mammal transect survey locations within the wind farm area during the baseline surveys. Marbled Polecat is a terrestrial species frequenting burrows and tunnels in which it hunts small mammal prey, it could be impacted through direct mortality, habitat loss, and/or displacement within the Project's soil/vegetation disturbance footprint, especially during construction.

Bukhara Red Deer (IUCN LC, Uzbekistan EN) Although the species (*Cervus elaphus*) is widespread and abundant at the global level, hence its global LC status, the Bukhara subspecies (*C. e. bactrianus*) is extremely rare and nationally listed as Endangered, occurring only in riparian gallery forests along major rivers, including the Amu Darya. While Bukhara Red Deer is only assessed nationally as an Endangered subspecies, it is the only representative of this species in the country. As such, it is clear the species would also be considered nationally Endangered if assessed. To trigger a CH determination under IFC criterion 1c[36] would require the presence of an "important concentration" within the Project's EAAA. The Lower Amu Darya State Biosphere Reserve (LADSBR) is known to hold the largest remaining

[33] Rodrigues, L., L. Bach, M. -J. Dubourg-Savage, B. Karapandža, D. Kovac, T. Kervyn, J. Dekker, A. Kepel, P. Bach, J. Collins, C. Harbusch, K. Park, B. Micevski, J. Minderman, 2015. Guidelines for consideration of bats in wind farm projects – Revision 2014. EUROBATS Publication Series No. 6 (English Version). UNEP/EUROBATS Secretariat, Bonn, Germany, 133 pp.

[34] Sowler, S., K. MacEwan, J. Aronson, C. Lötter, 2020. South African best practice guidelines for pre-construction monitoring of bats at wind energy facilities: Edition 5. South African Bat Assessment Association.

[35] Hein, C. D., J. Gruver, and E. B. Arnett. 2013. Relating pre-construction bat activity and post-construction bat fatality to predict risk at wind energy facilities: a synthesis. A report submitted to the National Renewable Energy Laboratory. Bat Conservation International, Austin, TX, USA.

[36] Note that IFC CH criterion 1c refers only to "species," and, therefore, is not necessarily applicable to nationally EN/CR subspecies, such as the Bukhara Red Deer. In this case, CH criterion 1c is considered applicable because this C. e. bactrianus is the only subspecies of Red Deer that occurs in Uzbekistan.

concentration of this endangered subspecies. Although the Project's infrastructure overlaps this reserve only peripherally, and will not impact any of the riparian "Tsugai" forest that comprises its primary habitat for most of the year, it is concluded that the Project does trigger a CH determination under IFC criterion 1c for this sub-species because while Bukhara Red Deer normally remain inside of the Tsugai forests for most of the year, they are also known to range into adjacent desert and piedmont habitats during spring, when they forage on spring herbaceous growth. A map of specific areas used by the population of the LADSBR provided by regional experts indicates that the Project's OHTL passes directly through the spring foraging area of this population (Figure 3), though this sub-species was not documented in the area during the spring, 2024 mammal baseline surveys in this area. Furthermore during a site visit conducted in August, 2024, LADSBR personnel indicated to N2WF personnel that Bukhara Red Deer had not been observed within these upland desert areas in many years. Nonetheless, because the most nationally important population of this sub-species is known to occur within the Project's EAAA, **a CH determination is triggered for this species under IFC criterion 1c**. We note that the occurrence of this species within the Project's EAAA is sporadic, ephemeral, and limited, as the EAAA does not include this species' primary habitat (Tsugai riparian forest). Therefore the potential for the Project to impact this species is also highly limited, and will be further mitigated by restricting OHTL construction activities to outside of the spring season (April-May) when Bukhara Red Deer may occur on the desert piedmont slopes along the northern portion of the Project's OHTL route. Additional mitigation measures intended to achieve the "net positive gain" mitigation standard required under lender policies for CH triggering species will be developed in consultation with regional stakeholders and implementation partners and described in the Project's Biodiversity Action Plan (BAP).



Figure 3. Location of the Nukus 2 wind project area (orange shaded polygon with red thumbtacks) plus northern portion of the OHTL interconnection segment (thick green line) in relation to the known spring foraging area of the

population of Bukhara Red Deer that inhabit the Lower Amu Darya State Biosphere Reserve during the remainder of the year.

Goitered Gazelle (IUCN VU, Uzbekistan VU) This migratory ungulate is widely distributed across steppe and desert habitats within south temperate latitudes of central Asia. With a minimum estimated global population size of 42,000, the Project's EAAA would need to contain at least 420 individuals to trigger a CH determination under IFC criterion 3. Goitered Gazelles were documented on three of the mammal survey transect areas within the wind farm area during the baseline survey, including one observation of seven individuals in a small herd. Even though the EAAA for this wide-ranging species is quite large, it is concluded that the EAAA does not contain at least 420 individuals, based on the low density of this species in the region. Nonetheless, it is considered a PBF on the basis of its global VU status. The predicted level of impact to this species from the Project is minor, with impacts primarily limited to temporary disturbance/displacement impacts during Project construction. Minor poaching/harassment impacts are also possible, especially during Project construction, when numerous construction personnel will be present on and around the site. This impact will be mitigated by a hunting prohibition accompanied by penalties for violations, and reinforced by signage and training provided to construction workers.

Salpingotus heptneri (IUCN DD, Uzbekistan VU) This species of desert-dwelling rodent, closely related to the congeneric Thick-tailed Pygmy Jerboa, has an extremely limited global distribution, hence could potentially trigger a CH determination under IFC criterion 2 if the Project's EAAA contained at least 10% of the global population. The distribution, population size, and ecology of this species are not well-known, but the IUCN range map indicates that its distribution overlaps the Project area. For this reason, its occurrence at the site was hypothesized to be possible. The regional mammal expert who conducted the mammalogy baseline survey and conducted a literature review in support of the ESIA, Maksim Mitropolskiy, did not include this species on his list of species that could potentially occur within the Project area, and it was not observed during the baseline surveys. Therefore, we conclude that the Project does not trigger CH for this species, and that the potential for the Project to impact this species is negligible.

Central Asian Tortoise (IUCN VU, Uzbekistan VU) This tortoise is widely distributed across steppe and desert habitats within south temperate latitudes of central Asia. While its global population size is not well known, the very large size of its global range precludes the possibility that this Project could cause the species to be globally uplisted to CR/EN, thus precluding a CH determination under IFC criterion 1b. Nonetheless, it is considered a PBF on the basis of its global VU status, and it is quite abundant at the site, with 40 individuals documented in the wind farm area during the baseline surveys. As a terrestrial species that digs burrows in which it roosts, it could be impacted through direct mortality, habitat loss, and/or displacement within the Project's soil/vegetation disturbance footprint, especially during construction. The potential for these impacts will be mitigated through a variety of measures including pre-construction survey, pre-construction rescue and relocation, daily checks of ditches, excavations, and heavy machinery during construction for the presence of tortoises, accompanied by rescue/relocation, establishment of temporary fenced enclosures in which to keep tortoises rescued during pre-construction and construction rescue/relocation efforts.

Uzbekistan Toadhead Agama (IUCN EN, Uzbekistan EN) This desert-dwelling lizard could potentially trigger a CH determination under either IFC criterion 1 (CR/EN species) or 2 (restricted range species), as its global range is listed as 33,915 km^2 (thus under the threshold of 50,000 km^2 to qualify as a restricted range species under IFC PS6 and EBRD PR6). This species was not observed at the site during the reptile baseline survey. During the pre-bid scoping survey conducted by a herpetologist a non-redlisted congener (*Phrynocephalus interscapularis*, Tajikistan or Rose-shouldered Toadhead Agama, IUCN and nationally LC) was observed to be abundant at the site. Therefore it is considered unlikely that the EN Uzbekistan Toadhead Agama occurs in the Project area, though it is not impossible. Because of this likely absence from the Project's EAAA, this species does not trigger CH for the Project, and the potential for the Project to impact this species is assessed as negligible.

Szczerbak's Even-fingered Gecko (IUCN VU, Uzbekistan EN) This lizard, also classified as a restricted range species is an obligate synanthropic species, meaning that it only occurs in association with humans, and in the case of this species, more specifically it is restricted to earthen ruins around ancient oases, within clay-saline shrub desert vegetation (T. Abduraupov, pers. comm.). This very specialized microhabitat type does not occur within the Project area, hence the Project does not trigger CH for this species, and the potential for the Project to impact it is considered negligible.

Lepidium subcordatum (IUCN unlisted, Uzbekistan EN). This is a small, herbaceous perennial plant species that is known only from Uzbekistan. It is a rare species restricted to stony slopes, sandy piedmonts, and outcrops of variegated beds within the Kyzylkum Desert and Ustyurt Plateau regions. 37 total individuals of this species were documented within six of the 38 botanical survey plots sampled during the botanical baseline study, spanning the wind farm area and the northern portion of the OHTL route, where it passes through natural desert upland habitats (Figure 4). In spite of this species' limited geographic distribution, it is a fairly widespread spring ephemeral species in suitable habitats within broad portions of the Kyzylkum Desert and Ustyurt Plateau regions (N. Beshko, pers. comm.). Therefore, it is not considered to trigger CH under IFC CH criterion 1c, but it is considered a PBF for the Project, under EBRD PR6. The potential for the Project to impact this species is limited to the Project's temporary and permanent soil disturbance footprint. This impact will be mitigated through a pre-construction survey and rescue/relocation program.



Figure 4. *Lepidium subcordatum*, a nationally red-listed plant species documented at six locations within the Nukus 2 Project area. This individual was photographed in the botanical survey plot located near planned turbine location T-20, on 13 April, 2024 (Photo: Natalia Beshko)

APPENDIX F – COLLISION RISK MODELLING

Xenops Environmental, LLC
720 N. Plumer Avenue
Tucson, Arizona, USA 85719
713-670-6007
caleb@xenops-env.com

7 June, 2024

Tarek Tabaja
5 Capitals Consultancy

Dear Mr. Tabaja,

This memorandum contains Xenops Environmental, LLC (Xenops)' results for the bird collision risk modeling (CRM), covering a full year (four seasons) of bird Vantage Point survey for the Nukus II Wind Energy Project (N2WEP), per the contract between Xenops and 5 Capitals Consultancy (5C). The N2WEP is a 200 MW proposed wind energy facility to be located roughly 20 km E of the city of Nukus in the Republic of Karakalpakstan, Republic of Uzbekistan. This analysis was performed using the Band (2012) model, following Scottish Natural Heritage (SNH) Guidance recommendations, with collision avoidance rate parameters derived from an original review of technical literature, supported by expert judgment, where specific information on certain species of interest was not available in previously published studies. Bird input data for the modeling effort were provided by local ornithologist, Yakub Ametov, based on a total of 720 hours of Vantage Point (VP) survey data collected by him and his associates from March 28, 2021 through March 13, 2022 at five vantage points that cover the site.

In summary, for "target species," a category that includes all bird species with elevated national and/or international conservation/protected status that potentially occur at the site, only four species were recorded inside of the maximum reliable observation radius during the VP survey effort, and the CRM analysis indicated very low predicted collision frequencies for all of them (one fatality per 13 years [Red-footed Falcon] or rarer). For "secondary" or "tier 2" target species, a category that includes all other raptors and selected additional large bird species that could potentially be sensitive issues for the Project, if impacted, only eight species were detected during the VP survey effort, and the CRM analysis indicated a moderate level of collision risk for two common and widespread species, the Eurasian Kestrel (*Falco tinnunculus*), and Common Crane (*Grus grus*), and low-moderate collision risk for the rest. At the collision levels predicted, no serious or outstanding bird collision risk issues were identified for the Project in the CRM analysis. It should be noted that the results of CRM analysis contain significant inherent uncertainty, particularly owing to the lack of empirically-derived collision avoidance behavioral information for most species. A detailed description of the methods and results of this analysis, including separate analyses and results for each of the four seasons included in this final, one-year analysis, is included below.

Please do not hesitate to contact me if you have any questions or comments regarding the analysis or results.

Sincerely,

Caleb Gordon, Ph. D.
Xenops Environmental, LLC
caleb@xenops-env.com 713-670-6007

Bird Collision Risk Modeling Analysis for the NUKUS II Wind Energy Project

Caleb Gordon and Phoebe Gordon, Xenops Environmental, LLC

Introduction

Collision Risk Modeling (CRM) using the model developed and refined by William Band, has become a standard method in international industry practice for obtaining quantitative predictions of estimated fatality rates of birds at wind farms, where suitable field observation data from Vantage Point (VP) surveys have been collected, conforming to the data input assumptions of the Band (2012) model, and following the guidance for such surveys and subsequent CRM promulgated by NatureScot (formerly "Scottish Natural Heritage") (SNH 2017). The Band CRM predicts the expected collision rates of particular bird species or species groups at a given wind farm based on the specific dimensions and physical characteristics of the turbines, the birds, the wind farm, and the density of bird flights recorded in the wind farm area. The latter parameter is termed "bird density" and is derived from the VP survey data, further differentiated with regard to the altitude of the birds' flights relative to the rotor swept altitudes of the rotors. While the basic mechanism of the Band model does not incorporate the ability or tendency of birds to alter their flight paths in response to the presence of wind turbines (avoidance), such behavior is believed to be a very important dynamic influencing actual bird collision rates at wind farms (Cook et. al. 2012), hence a "collision avoidance rate" parameter is typically applied for each bird species or species group when conducting CRM for wind farms using the Band model (Whitfield and Madders 2006a, 2006b, Garvin et al. 2011, Band 2012, SNH 2014, Whitfield and Urquhart 2015 SNH 2018).

We conducted CRM using the Band (2012) model for the purpose of obtaining quantitative predictions of collision risk during a full, continuous year, differentiated into four distinct seasons (winter, spring, summer, autumn) for target bird species, as well as selected additional species, based on their observed patterns of seasonal abundance and use of airspace at the site, as described by observations gathered during VP surveys. We performed this analysis separately for each of the four seasons, based on VP survey data gathered at the Nukus II Wind Energy Project (N2WEP) site during the corresponding season, between March 28, 2021 and March 13, 2022. Seasons were defined based on general timing of migratory and breeding periods for target bird species within the region as follows:

Spring (migration): March 16-May 17

Summer (breeding): May 18-August 31

Autumn (migration): September 1-November 15

Winter: November 16-March 15

The VP survey protocol was developed with guidance from Xenops, and intended to conform with SNH (2017) recommendations, in order to provide input data suitable for performing CRM with the Band (2012) model. In addition to guidance in the form of an initial set of recommendations, Xenops also reviewed and commented on geospatial information regarding the selection and placement of a suitable number of VP survey locations, and quarterly VP survey summary reports. Furthermore, Xenops also

provided templates for the VP field survey data sheet and a data compilation spreadsheet, and instructions for quarterly VP survey reporting for use by Juru, Ltd. with their contracted local ornithologists, Y. Ametov and A. Tureyev who conducted the VP surveys and prepared the quarterly reports. Xenops also communicated requests for additional species-specific data inputs necessary for the CRM through Juru Ltd., based on field observations and expert judgment of the ornithologists who conducted the VP surveys. While this communication provides some assurance that the input data used for this CRM effort conforms to NatureScot guidance and the model's input assumptions, the reliability of the results of this CRM is ultimately dependent on the qualifications and diligence of the field observers, as well as the veracity of their results, as they were reported to Xenops by Mr. Ametov and Mr. Tureyev, through Juru Ltd.

The species for which CRM was conducted included all "target" and "secondary" bird species that were observed at the site within the VP survey effort. Target species were defined to include all species with elevated conservation concern or protected status on either the national[1] or international[2] "red lists." Secondary species were defined to include all additional raptors and vultures that could potentially occur at the site, as well as selected additional large-bodied birds that could become a significant risk concern for the Project, if seriously impacted. The list of such species was developed with input from regional bird experts, and was intended to include all potentially high- or moderate- sensitivity bird species that could occur at the site. The species included within the CRM for the N2WEP are shown in Table 1, along with their national and international conservation status, their Project-specific priority level[3], and the total number of VP survey observations that were included within the CRM analysis for each season[4].

[1] Uzbekistan Federal Government, 2019. Uzbekistan Red List of Threatened Species

[2] IUCN Red List of Threatened Species, accessed June 6, 2024

[3] Project-specific priority levels are based on consideration of likely susceptibility to wind farm impacts and likelihood of occurrence at the site, as well as national and international conservation (protected) status.

[4] Note that observations that were recorded outside of the maximum reliable observation radius were regarded as "incidental" observations, and were excluded from the analysis.

Table 1: Summary of conservation/sensitivity status and numbers of VP survey observations in each season for each bird species included within the final Collision Risk Modeling analysis for the Nukus II Wind Energy Project. Conservation/protected status are as follows: EN = Endangered; VU = Vulnerable; NT = Near Threatened; (blank) = Least Concern (IUCN) or not-listed nationally. Color-coding of species' project-sensitivity classification is as follows: pink = target species; yellow = secondary species.

Scientific Name	English Common Name	Uzbek status[5]	IUCN status[6]	VP Observations[7]			
				Spring	Summer	Autumn	Winter
Aquila nipalensis	Steppe Eagle	VU	EN	3	2	2	2
Aquila chrysaetos	Golden Eagle	VU		2		2	2
Haliaeetus albicilla	White-tailed Eagle	VU					2
Falco vespertinus	Red-footed Falcon		VU	2			
Grus grus	Common Crane			6		1800	
Circus aeruginosus	Eurasian Marsh-Harrier			2			
Circus cyaneus	Hen Harrier			25		11	20
Milvus migrans	Black Kite			1	1	5	
Buteo lagopus	Rough-legged Hawk			4	1	26	46
Buteo rufinus	Long-legged Buzzard			4	30	48	17
Falco tinnunculus	Eurasian Kestrel			20	26	40	27
Falco columbarius	Merlin			1		3	

Model Input Data

Data inputs for the CRM analysis were derived from the results of the VP surveys, as well as various additional sources, depending on the type of information needed. Specific sources and pertinent assumptions for each type of input data used in the CRM are described further below.

Turbine and wind farm data

Our CRM was based on a specific technology and layout scenario currently under consideration for the N2WEP at the time of the preparation of the CRM. Specific physical parameters of the turbines, towers, and the specific model input values used to represent this scenario in the CRM analysis are detailed and explained in Table 2.

[5] Uzbekistan Federal Government, 2019. Uzbekistan Red List of Threatened Species

[6] IUCN Red List of Threatened Species, accessed 6 June, 2024

[7] Note that only observations that fell within the species-specific maximum reliable observation distance were included in the CRM and are presented in this table. Some additional observations outside of this radius were reported during the VP surveys, but these are considered "incidental" observations, and excluded from the CRM per SNH guidance, as the space beyond the maximum reliable observation distance is not considered to be sampled comprehensively.

Table 2: Model input data on physical characteristics of the turbines, towers, and wind farm configuration used in the final Collision Risk Modeling for the Nukus II Wind Energy Project, along with notes and explanations of each.

Parameter	Value(s) used in Modeling	Explanation
Turbine model	Windey WD 225-8000	Representative turbine technology under consideration at the time of the CRM
# blades	3	from manufacturer's specifications
Rotation speed (rpm)	8.7	Estimated for typical wind speed, given rotor diameter
Rotor radius (m)	110	from manufacturer's specifications, largest technology scenario under consideration
Hub height (m)	140	from manufacturer's specifications, largest technology scenario under consideration
Percent of time operational	Monthly values ranging from 64% to 85%	Project specific data not available, representative values taken from SOSS example
Maximum blade width (m)	9.53	Calculated using proportion of blade length to blade width from similar model
Pitch (degrees)	15	Representative value[8]
# turbines	29	Proposed # turbines, includes two "optional" turbines
Latitude	42	Approximate midpoint of N2WEP area
Rotor swept altitude range (risk height, m)	30-250m above ground	Based on rotor diameter and hub height

Data on Physical and Observational Characteristics of Birds

In addition to bird densities derived from VP survey data, CRM using the Band model requires certain data on the physical and observational characteristics of each modeled species of bird. Input values used in the CRM analysis are presented in Table 3. As a general rule, data on physical dimensions of birds were derived from Cornell Lab of Ornithology's Birds of the World[9], while information specific to the VP survey observations, such as maximum effective radius of observation/identification were derived from information provided by the local ornithologists, based on their observations at the site and expert judgment.

[8] Pitch is adjustable on the turbine model selected for the analysis, as well as most currently available wind turbines, depending on wind speed. A representative value of 15 degrees was used, based on a range of values reported for various turbine models at typical, commercially useful wind speeds

[9] https://birdsoftheworld.org/bow/home, accessed 23-28 May, 2024

Table 3: Physical and observational characteristics of each bird species included within the final Collision Risk Modeling analysis for the Nukus II Wind Energy Project. Color-coding of species' project-sensitivity classification is as follows: pink = tier 1 target species; yellow = tier 2 target species.

Scientific Name	English Common Name	Length (m)	Wingspan (m)	Flight type[10]	Flight speed (m/sec)[11]	Detection distance (km) [12]
Aquila nipalensis	Steppe Eagle	0.70	1.9	gliding	7.7	1
Aquila chrysaetos	Golden Eagle	0.77	2.03	gliding	11.9	1
Haliaeetus albicilla	White-tailed Eagle	0.83	2.19	gliding	9.16	1
Falco vespertinus	Red-footed Falcon	0.30	0.71	flapping	12.8	0.3
Grus grus	Common Crane	0.95	1.6	gliding	15	2
Circus aeruginosus	Eurasian Marsh-Harrier	0.48	1.3	gliding	11.2	0.5
Circus cyaneus	Hen Harrier	0.46	1.1	gliding	9.1	0.5
Milvus migrans	Black Kite	0.55	1.37	gliding	11.7	0.8
Buteo lagopus	Rough-legged Hawk	0.54	1.37	gliding	10.5	0.8
Buteo rufinus	Long-legged Buzzard	0.53	1.3	gliding	11.6	0.8
Falco tinnunculus	Eurasian Kestrel	0.31	0.68	flapping	10.1	0.3
Falco columbarius	Merlin	0.28	0.63	flapping	12.8	0.3

VP Survey Data Used to Derive Bird Density

Bird density inputs in CRM analysis represent the density of birds flying within the surveyed area at any given moment in time (or "instantaneous" bird density). These values are calculated based on the observations gathered during the VP surveys, and then further differentiated based on the percent of such flights that occurred within "risk height" equivalent to the range of altitudes swept by the turbines to be installed. The effective survey area is based on the area covered by a single VP survey point, but varies among species based on the maximum effective detection radius (Table 3). For target species, the paths and altitudes of each individual birds' flights were plotted every 15 seconds while the birds were inside of the specified observation radius (up to 2 km from the observer). For these species, the bird density was calculated by dividing the total number of fractional minutes of the birds' presence flying within the specified observation radius, by the total number of minutes of VP survey observation for the period, and then dividing that by the effective survey area, as a function of the species-specific maximum reliable detection radius. For observations of secondary species, only a single, representative flight height was recorded for each observation of an individual or flock observed flying within the specified observation radius during the VP surveys. In order to calculate the number of "observation minutes" for such species, we estimated representative observation durations by calculating the time it would take a bird to transit a typical path through the observation area, represented by the radius of the observation circle, at species-specific flight speeds (Table 3). Summaries of the VP survey data used to

[10] The model does not permit inclusion of multiple flight styles, hence only the most prevalent flight type was used for each species, based on general flight tendencies of the species

[11] Flight speeds derived from Alerstam et. al. (2007).

[12] Maximum reliable detection distance determined for each species by Xenops, primarily on the basis of input from Y. Ametov regarding his observations during the VP survey effort, and accounting not only for the distance at which each species could be reliably *observed*, but also the distance at which each species could be reliably *distinguished from other species* (identified).

calculate bird density values in each season are presented in Tables 4-7. Note that these tables show cumulative values for each season, but in the CRM analysis, the data are broken down further by month.

Table 4: Observational data from the Vantage Point surveys used to derive bird density inputs for the **spring** season (March 28 – May 17, 2021) Collision Risk Modeling analysis for the Nukus II Wind Energy Project. For all species, the total duration of observations was equivalent to the total of 180 hours, or 10,800 minutes of VP survey effort conducted at the Project during the 2021 spring season. Color coding of species by project-specific priority level follows that of Table 1.

Scientific Name	English Common Name	Number of observations[13]	% at rotor swept height[14]	Total bird minutes	Effective survey area (km^2)
Aquila nipalensis	Steppe Eagle	3	89	1.50	3.14
Aquila chrysaetos	Golden Eagle	2	83	0.75	3.14
Falco vespertinus	Red-footed Falcon	2	100	1.56	0.283
Grus grus	Common Crane	6	100	13.3	12.6
Circus aeruginosus	Eurasian Marsh-Harrier	2	100	1.49	0.785
Circus cyaneus	Hen Harrier	25	86	22.9	0.785
Milvus migrans	Black Kite	1	100	1.14	2.01
Buteo lagopus	Rough-legged Hawk	4	100	5.08	2.01
Buteo rufinus	Long-legged Buzzard	4	100	4.60	2.01
Falco tinnunculus	Eurasian Kestrel	20	95	9.90	0.283
Falco columbarius	Merlin	1	100	0.391	0.283

Table 5: Observational data from the Vantage Point surveys used to derive bird density inputs for the **summer** season (May 18 – August 31, 2021) Collision Risk Modeling analysis for the Nukus II Wind Energy Project. For all species, the total duration of observations was equivalent to the total of 180 hours, or 10,800 minutes of VP survey effort conducted at the Project during the summer season. Color coding of species by project-specific priority level follows that of Table 1.

Scientific Name	English Common Name	Number of observations[15]	% at rotor swept height[16]	Total bird minutes	Effective survey area (km^2)
Aquila nipalensis	Steppe Eagle	2	89	1.25	3.14
Milvus migrans	Black Kite	1	100	1.14	2.01
Buteo lagopus	Rough-legged Hawk	1	100	1.27	2.01
Buteo rufinus	Long-legged Buzzard	30	100	34.5	2.01
Falco tinnunculus	Eurasian Kestrel	26	95	12.9	0.283

[13] Observations of birds that were further from the observer than the maximum detection distance are regarded as incidental observations, and were not included in the CRM analysis

[14] Due to the small numbers of observations of most species, Q2R values were derived from the entire year of observations, aggregated for each species, and then this annual Q2R value was applied to each seasonal collision risk analysis.

[15] Observations of birds that were further from the observer than the maximum detection distance are regarded as incidental observations, and were not included in the CRM analysis

[16] Due to the small numbers of observations of most species, Q2R values were derived from the entire year of observations, aggregated for each species, and then this annual Q2R value was applied to each seasonal collision risk analysis.

Table 6: Observational data from the Vantage Point surveys used to derive bird density inputs for the **autumn** season (September 1 – November 15, 2021) Collision Risk Modeling analysis for the Nukus II Wind Energy Project. For all species, the total duration of observations was equivalent to the total of 180 hours, or 10,800 minutes of VP survey effort conducted at the Project during the 2021 autumn season. Color coding of species by project-specific priority level follows that of Table 1.

Scientific Name	English Common Name	Number of observations[17]	% at rotor swept height[18]	Total bird minutes	Effective survey area (km^2)
Aquila nipalensis	Steppe Eagle	2	89	1.00	3.14
Aquila chrysaetos	Golden Eagle	2	83	1.25	3.14
Grus grus	Common Crane	1800	100	4000	12.6
Circus cyaneus	Hen Harrier	11	86	10.1	0.785
Milvus migrans	Black Kite	5	100	5.70	2.01
Buteo lagopus	Rough-legged Hawk	26	100	33.0	2.01
Buteo rufinus	Long-legged Buzzard	48	100	55.2	2.01
Falco tinnunculus	Eurasian Kestrel	40	95	19.8	0.283
Falco columbarius	Merlin	3	100	1.17	0.283

Table 7: Observational data from the Vantage Point surveys used to derive bird density inputs for the **winter** season (November 16, 2021 – March 13, 2022) Collision Risk Modeling analysis for the Nukus II Wind Energy Project. For all species, the total duration of observations was equivalent to the total of 180 hours, or 10,800 minutes of VP survey effort conducted at the Project during the 2021-2022 winter season. Color coding of species by project-specific priority level follows that of Table 1.

Scientific Name	English Common Name	Number of observations[19]	% at rotor swept height[20]	Total bird minutes	Effective survey area (km^2)
Aquila nipalensis	Steppe Eagle	2	89	1.25	3.14
Aquila chrysaetos	Golden Eagle	2	83	1.00	3.14
Haliaeetus albicilla	White-tailed Eagle	2	100	3.64	3.14
Circus cyaneus	Hen Harrier	20	86	18.3	0.785
Buteo lagopus	Rough-legged Hawk	46	100	58.4	2.01
Buteo rufinus	Long-legged Buzzard	17	100	19.5	2.01
Falco tinnunculus	Eurasian Kestrel	27	95	13.4	0.283

[17] Observations of birds that were further from the observer than the maximum detection distance are regarded as incidental observations, and were not included in the CRM analysis

[18] Due to the small numbers of observations of most species, Q2R values were derived from the entire year of observations, aggregated for each species, and then this annual Q2R value was applied to each seasonal collision risk analysis.

[19] Observations of birds that were further from the observer than the maximum detection distance are regarded as incidental observations, and were not included in the CRM analysis

[20] Due to the small numbers of observations of most species, Q2R values were derived from the entire year of observations, aggregated for each species, and then this annual Q2R value was applied to each seasonal collision risk analysis.

Collision Avoidance Parameter

Published, validated collision avoidance (CA) parameters are not available for most of the target species we modeled at the N2WEP, yet the CA parameter is well-known to be a very important parameter in Band CRM analysis, with outcomes very sensitive to slight variation in CA (Cook et. al., 2012). For each species included within the CRM analysis for the N2WEP, we developed a "most realistic" CA parameter value, bounded by a "conservative" low parameter estimate, and a high estimate, reflecting an upper bound, based on a comprehensive review of available literature, interpreted with species- and site-specific information. The values used for each species are presented in Table 8, and then a brief explanation/justification is presented for each species below.

Table 8: Collision avoidance parameters used in the final bird Collision Risk Modeling analysis for the Nukus II Wind Energy Project (see text for explanation and justification). Color coding of species by project-specific sensitivity categories follows that of Table 1.

Scientific Name	English Common Name	Lower bound value	Most realistic value	Upper bound value
Aquila nipalensis	Steppe Eagle	0.981	0.9958	0.999
Aquila chrysaetos	Golden Eagle	0.981	0.9958	0.999
Haliaeetus albicilla	White-tailed Eagle	0.95	0.975	0.99775
Falco vespertinus	Red-footed Falcon	0.873	0.969	0.999
Grus grus	Common Crane	0.95	0.99	0.995
Circus aeruginosus	Eurasian Marsh-Harrier	0.95	0.99	0.999
Circus cyaneus	Hen Harrier	0.95	0.99	0.999
Milvus migrans	Black Kite	0.98	0.992	0.9985
Buteo lagopus	Rough-legged Hawk	0.978	0.995	0.999
Buteo rufinus	Long-legged Buzzard	0.978	0.995	0.999
Falco tinnunculus	Eurasian Kestrel	0.873	0.969	0.999
Falco columbarius	Merlin	0.98	0.99	0.995

Eagles in the genus Aquila

The Golden Eagle (*Aquila chrysaetos*) has been the subject of several empirical research studies designed toward the objective of defining the most appropriate Collision Avoidance (CA) parameters for use with this species in modeling its risk of colliding with wind turbines, using the Band CRM. The low bound CA parameter value of 0.981 selected for the present analysis, corresponds to the lowest CA value estimated for Golden Eagles in Whitfield and Madders, 2006a, based on their analysis of data from wind farms in California. This value is likely to be conservative, underestimating the true extent of Golden Eagles' avoidance of collisions with wind turbines, as Whitfield and Madders (2009) suggested that a CA parameter of 0.99 is "precautionary" for this species. The CA value selected as "most likely" for the present analysis, 0.9958, corresponds to the mean adjusted CA estimate for Golden Eagles at the Altamont Wind Facility in California, USA, presented by Whitfield and Madders (2009), and is very close to the median CA value for this species of 0.995, presented by Whitfield and Madders (2006a) and the value of 0.99 recommended by SNH (2018). The upper bound CA value of 0.999 for Golden Eagles was selected based on the upper bound of 100% CA presented for Golden Eagles by Whitfield and Madders (2006a). No published estimates of CA were available for Steppe Eagle (*Aquila nipalensis*), so we used the same CA values for this species as we did for Golden Eagle, based on the similarity of these two congeneric species in terms of size, shape, behavior, and flight morphology.

White-tailed Eagle

For the White-tailed Eagle (*Haliaeetus albicilla*), a species whose behavior around, and risk of collisions with wind turbines has been extensively studied at the Smøla Wind Farm in coastal Norway, we used the value of 0.95 CA recommended by SNH (2018) as a lower bound, with values of 0.975 and 0.99775 for the most realistic, and upper bound CA values, respectively, based on empirically derived CA parameter values presented in May et. al. (2011) on the basis of satellite telemetry studies conducted at the Smøla Wind Farm.

Eurasian Kestrel and Red-footed Falcon

We represented these two species in the model using a range of CA values developed for the congeneric American Kestrel (*Falco sparverius*) based on the analysis of Whitfield and Madders (2006a), with 0.873 representing the lower bound CA value, 0.969 representing the median value (close to the value of 0.95 recommended for kestrels by SNH [2018]), and 0.999 substituted for 1 (100% avoidance), as the upper bound CA value. A kestrel-derived CA value was assigned to the Red-footed Falcon as this species shares kestrels' habitat of engaging in hovering flights while hunting, which may render it similarly susceptible to collisions with wind turbines.

Harriers (genus Circus)

We used published CA values empirically derived for the Hen Harrier (*Circus cyaneus*) to represent the collision avoidance tendencies of both of the *Circus* species observed during the spring VP surveys at the NBWEP. In their review of wind farm impacts to Hen Harriers, Whitfield and Madders (2006b) concluded that a CA value of 0.95, used by some authors for this species, was "too low," suggesting that a value of 0.99 was "more realistic." Accordingly, we used the value of 0.95 as a lower bound CA value, and 0.99 as our most likely value, also noting that SNH (2018) recommends using a value of 0.99 for Hen Harrier. We used a CA value of 0.999 as the upper bound for modeling harrier collision risk in our analysis, corresponding to the median CA value for *Circus cyaneus* presented in Whitfield and Madders (2006a).

Black Kite

To represent the CA parameter for the Black Kite (*Milvus migrans*), we used a series of published parameter estimates and recommendations that have been developed for the congeneric, and morphologically similar Red Kite (*Milvus milvus*). SNH (2010) recommended a CA value of 0.98 for Red Kite, and we used this as the lower bound CA value for Black Kite in our analysis. The value of 0.992 that we used as the most realistic CA parameter value is based on the empirical result of Urquhart and Whitfield (2016) for Red Kite, and is closer to the value of 0.99 currently recommended by SNH (2018) for Red Kite. The upper bound value of 0.9985 is based on the data presented in Whitfield and Madders (2006a) regarding fatality rate in proportion to passage rates of Red Kites at wind farms.

Hawks and Buzzards in the genus Buteo

No published CA values were available for the two *Buteo* species observed during the VP surveys at the N2WEP, hence we relied on CA values empirically derived for a congener, the Red-tailed Hawk (*Buteo jamaicensis*) by Whitfield and Madders (2006a), as follows: lower bound – 0.978; median value (or "most likely" in our analysis) – 0.995; upper bound – 0.999 (substituted for the value of 1, or 100% avoidance, presented as the upper bound CA value by Whitfield and Madders [2006a]).

Merlin

No published CA values were available for this species, hence we based our hypothesized CA values on the recommendation of Cook et. al. (2012), who suggested using 0.95, 0.99, and 0.995 as a range of CA values to represent species for which no species-specific information is available, but substituting a value of 0.98 for the lower bound value, following the recommendation of SNH (2010), which corresponds to the default value recommended by SNH (2018). We note that the Merlin, though closely related to the Eurasian Kestrel and Red-footed Falcon, has a much different style of flight and hunting behavior, relying on high speed aerial pursuit of small bird prey instead of the slower-speed pursuit of ground-based prey of kestrels. In contrast to kestrels, Merlins do not engage in hovering flights, which is likely to render them far less susceptible to collisions with wind turbine rotors.

Results and Conclusions

The results of the CRM analysis for the N2WEP are summarized in Tables 9-13. Tables 9 – 12 present each of the single season CRM results for each modeled species, and Table 13 presents the cumulative collision risk predictions of the CRM analysis for the entire, one-year survey period. The cumulative results were generated by adding the values for all seasons together for each species, hence preserving the natural between-season variation in risky flight behavior deriving from the empirical data.

Collision Risk in Tier 1 Target Species

The CRM analysis predicts that none of the tier 1 target species are likely to experience collision frequencies greater than 1 per 13 years (Table 13), based on the CRM results for the most likely collision avoidance parameter values modeled. *At this level of predicted collision risk, the N2WEP does not raise serious concerns for potential impacts to any of these species*. The strength and certainty of this conclusion are limited by the uncertainties inherent in predicting bird fatality rates using CRM. Nonetheless, the CRM results provide a reasonably firm basis for characterizing collision risk across the full spectrum of seasonal variation at the site. The lack of observations of most of the tier 1 target species in the VP survey data set, and the scarcity of the observations of the four tier 1 species that were observed (Steppe, Golden, and White-tailed Eagles, Red-footed Falcon, fewer than 10 total observations of each, Table 1), indicate that the area is not heavily used by any tier 1 target species. It should be noted that there was one observation of an additional tier 1 target species during the summer VP surveys: a Short-toed Snake-Eagle (*Circaetus gallicus*, IUCN LC, Uzbek VU). However, this species was not included in the CRM because this observation took place beyond the maximum reliable observation distance for this species, hence it did not conform to the data input requirements for CRM, per SNH guidance. Nonetheless, this observation confirms that this species may be present, if rare, at the N2WEP site during the summer season, and collision risk, though likely to be very low, is not zero for this species.

Collision Risk in Tier 2 Target Species

Among the results for tier 2 target species, the results for Eurasian Kestrel and Common Crane, two common and widespread species that do not have elevated conservation status at either the national or international levels, stand out as distinct from the rest, with predicted collision fatality rates of 8.72 and 4.21 per year for the Kestrel and Crane, respectively, under the most realistic collision avoidance parameter values modeled (Table 13). By contrast, no other species modeled had a collision rate higher than one fatality per year, and only four other tier 2 species had predicted collision rates greater than once per 10 years under the most realistic collision avoidance scenarios (Table 13). This result for

Eurasian Kestrel is not surprising in light of the known susceptibility of closely-related American Kestrels to wind turbine collisions at wind energy facilities in North America (AWWI 2019), as the collision avoidance parameters derived for American Kestrels were used to represent Eurasian Kestrel in the CRM analysis. In light of the similarity in flight styles, behavior, and ecology of these two species, we believe that this prediction is likely to be accurate. However, it does not represent a serious biodiversity risk, as this is a very common, widespread species for which the predicted level of fatality would not likely exert a population-level impact. By contrast, the prediction for Common Cranes, which resulted from the observation of a very large number of individuals (1800) flying through the area during autumn migration (Table 1), is likely to be an overestimate of risk, based on empirical evidence indicative of extremely low collision susceptibility of the closely-related North American species, Sandhill Crane to wind turbine collisions during their migratory flights (AWWI 2019). Nonetheless, for the Common Crane, as with the Eurasian Kestrel, even if the fatality rate predicted by the CRM were to be observed during the operations phase of the Project, it would not represent a serious risk concern, as the Common Crane is also a very common and widespread species, that would be unlikely to experience a population-level impact from the predicted level of fatalities.

Predicted collision rates for additional tier 2 target species also do not raise serious concerns, as predicted fatality rates ranged from moderate to very low for all species, and as all of the species in this category are widespread, abundant raptors with no elevated conservation status at either the national, or international level.

Summary

Overall, the results of the final, full-year CRM analysis indicate that the N2WEP has *a low-moderate level of collision risk for sensitive bird species*. Among tier 1 target species, a category that includes all bird species with elevated national and/or international conservation/protected status that potentially occur at the site, only four species have been detected within the specified maximum reliable observation radius during the VP survey effort, to date, and none are predicted to experience annual collision frequency greater than one fatality per 13 years under the most realistic collision avoidance rate parameters modeled (Table 13). This reflects the extremely low abundance of tier 1 target species recorded at the site during the VP surveys. Among tier 2 target species, a category that includes all other raptors and selected additional large bird species that could potentially be sensitive issues for the Project, if impacted, only eight species were detected at the site during the VP survey effort. Of these, the Eurasian Kestrel (*Falco tinnunculus*) was predicted to experience the highest collision rates, with 8.72 collisions predicted per year, followed by the Common Crane (*Grus grus*), for which 4.21 collisions per year are predicted under the most realistic collision avoidance scenario (Table 13). None of the other tier 2 target species were predicted to experience collisions more frequently than once per year under the most realistic collision avoidance scenarios modeled. Based on these results, no serious bird collision risk concerns are apparent for the Project.

Table 9: Estimated rates of collisions per **spring** season for bird species at the Nukus II Wind Energy Project, predicted by Band Collision Risk Modeling analysis, under a range of Collision Avoidance (CA) parameter values (see Table 8 for specific CA values, and see text for explanation and justification of each). Color coding of species by project-specific sensitivity level follows that of Table 1. Rows are included for all modeled species, but information is only presented in the table for species that were observed during the spring, 2021 VP surveys.

English Common Name	Using lower bound CA value		Using most realistic CA value		Using upper bound CA value	
	Collisions/spring	Springs to 1 collision	Collisions/spring	Springs to 1 collision	Collisions/spring	Springs to 1 collision
Steppe Eagle	0.0450	22	0.00995	100	0.00237	422
Golden Eagle	0.00418	239	0.000923	1080	0.000220	4540
White-tailed Eagle	0	N/A	0	N/A	0	N/A
Red-footed Falcon	0.308	3	0.0752	13	0.00243	412
Common Crane	0.0645	15	0.0129	77	0.00645	154
Eurasian Marsh-Harrier	0.0853	11	0.0171	58	0.00171	586
Hen Harrier	2.32	<1	0.464	2	0.0464	21
Black Kite	0.0107	93	0.00429	233	0.000804	1240
Rough-legged Hawk	0.0548	18	0.0125	80	0.00249	401
Long-legged Buzzard	0.0531	18	0.0121	82	0.00242	413
Eurasian Kestrel	6.13	<1	1.50	<1	0.0482	20
Merlin	0.388	2	0.194	5	0.0969	10

Table 10: Estimated rates of collisions per **summer** season for bird species at the Nukus II Wind Energy Project, predicted by Band Collision Risk Modeling analysis, under a range of Collision Avoidance (CA) parameter values (see Table 8 for specific CA values, and see text for explanation and justification of each). Color coding of species by project-specific sensitivity level follows that of Table 1. Rows are included for all modeled species, but information is only presented in the table for species that were observed during the summer, 2021 VP surveys.

English Common Name	Using lower bound CA value		Using most realistic CA value		Using upper bound CA value	
	Collisions/summer	Summers to 1 collision	Collisions/summer	Summers to 1 collision	Collisions/summer	Summers to 1 collision
Steppe Eagle	0.00992	100	0.00219	456	0.000522	1910
Golden Eagle	0	N/A	0	N/A	0	N/A
White-tailed Eagle	0	N/A	0	N/A	0	N/A
Red-footed Falcon	0	N/A	0	N/A	0	N/A
Eurasian Marsh-Harrier	0	N/A	0	N/A	0	N/A
Hen Harrier	0	N/A	0	N/A	0	N/A
Black Kite	0.0193	51	0.00771	129	0.00145	691
Rough-legged Hawk	0.0227	44	0.00515	194	0.00103	970
Long-legged Buzzard	0.590	1	0.134	7	0.0268	37
Eurasian Kestrel	9.15	<1	2.23	<1	0.0721	13
Merlin	0	N/A	0	N/A	0	N/A

Table 11: Estimated rates of collisions per **autumn** season for bird species at the Nukus II Wind Energy Project, predicted by Band Collision Risk Modeling analysis, under a range of Collision Avoidance (CA) parameter values (see Table 8 for specific CA values, and see text for explanation and justification of each). Color coding of species by project-specific sensitivity level follows that of Table 1. Rows are included for all modeled species, but information is only presented in the table for species that were observed during the autumn, 2021 VP surveys.

English Common Name	Using lower bound CA value		Using most realistic CA value		Using upper bound CA value	
	Collisions/autumn	Autumns to 1 collision	Collisions/autumn	Autumns to 1 collision	Collisions/autumn	Autumns to 1 collision
Steppe Eagle	0.00586	170	0.00129	772	0.000308	3240
Golden Eagle	0.00828	120	0.00183	546	0.000436	2290
White-tailed Eagle	0	N/A	0	N/A	0	N/A
Red-footed Falcon	0	N/A	0	N/A	0	N/A
Common Crane	21.0	<1	4.20	<1	2.10	<1
Eurasian Marsh-Harrier	0	N/A	0	N/A	0	N/A
Hen Harrier	0.669	1	0.134	7	0.0134	74
Black Kite	0.0698	14	0.0279	35	0.00523	191
Rough-legged Hawk	0.444	2	0.101	9	0.0202	49
Long-legged Buzzard	0.772	1	0.175	5	0.0351	28
Eurasian Kestrel	8.95	<1	2.18	<1	0.0704	14
Merlin	0.126	7	0.0631	15	0.0316	31

Table 12: Estimated rates of collisions per **winter** season for bird species at the Nukus II Wind Energy Project, predicted by Band Collision Risk Modeling analysis, under a range of Collision Avoidance (CA) parameter values (see Table 8 for specific CA values, and see text for explanation and justification of each). Color coding of species by project-specific sensitivity level follows that of Table 1. Rows are included for all modeled species, but information is only presented in the table for species that were observed during the winter, 2021-2022 VP surveys.

English Common Name	Using lower bound CA value		Using most realistic CA value		Using upper bound CA value	
	Collisions/winter	Winters to 1 collision	Collisions/winter	Winters to 1 collision	Collisions/winter	Winters to 1 collision
Steppe Eagle	0.0416	24	0.00921	108	0.00219	456
Golden Eagle	0.00851	117	0.00188	531	0.000448	2230
White-tailed Eagle	0.0841	11	0.0421	23	0.00379	264
Red-footed Falcon	0	N/A	0	N/A	0	N/A
Common Crane	0	N/A	0	N/A	0	N/A
Eurasian Marsh-Harrier	0	N/A	0	N/A	0	N/A
Hen Harrier	1.45	<1	0.290	3	0.0290	34
Black Kite	0	N/A	0	N/A	0	N/A
Rough-legged Hawk	1.04	<1	0.235	4	0.0471	21
Long-legged Buzzard	0.437	2	0.0994	10	0.0199	50
Eurasian Kestrel	11.5	<1	2.81	<1	0.0905	11
Merlin	0	N/A	0	N/A	0	N/A

Table 13: Estimated rates of collisions per **year** for bird species at the Nukus II Wind Energy Project, predicted by Band Collision Risk Modeling analysis, under a range of Collision Avoidance (CA) parameter values (see Table 8 for specific CA values, and see text for explanation and justification of each). Color coding of species by project-specific sensitivity level follows that of Table 1.

English Common Name	Using lower bound CA value		Using most realistic CA value		Using upper bound CA value	
	Collisions/year	years to 1 collision	Collisions/year	years to 1 collision	Collisions/year	years to 1 collision
Steppe Eagle	0.102	9	0.0226	44	0.00539	185
Golden Eagle	0.0210	47	0.00464	215	0.00110	906
White-tailed Eagle	0.0841	11	0.0421	23	0.00379	264
Red-footed Falcon	0.308	3	0.0752	13	0.00243	412
Common Crane	21.1	<1	4.21	<1	2.11	<1
Eurasian Marsh-Harrier	0.0853	11	0.0171	58	0.00171	586
Hen Harrier	4.44	<1	0.888	1	0.0888	11
Black Kite	0.0998	10	0.0399	25	0.00748	133
Rough-legged Hawk	1.56	<1	0.354	2	0.0708	14
Long-legged Buzzard	1.85	<1	0.421	2	0.0842	11
Eurasian Kestrel	35.7	<1	8.72	<1	0.281	3
Merlin	0.514	1	0.257	3	0.128	7

Literature Cited

Alerstam, T., Rosen, M., Backman, J., Ericson, G. P., Hellgren, O.. (2007). Flight Speeds among Bird Species: Allometric and Phylogenetic Effects, *PLoS Biology,* v. 5(8): e197.

American Wind Wildlife Institute (AWWI). (2019). AWWI Technical report: A summary of bird fatality data in a nationwide database. Washington, DC.

Band, B.. (2012). Using a collision risk model to assess bird collision risks for offshore windfarms. Produced for the Crown Estate, Strategic Ornithological Support Services programme, project SOSS-02, including accompanying Collision Risk spreadsheet and worked example.

Bevanger, K. (1998). Biological and conservation aspects of bird mortality caused by electricity power lines: a review. Biological Conservation 86:67-76.

Cook., A. S. C. P., A. Johnston, L. J. Wright, & N. H. K. Burton. (2012). A review of flight heights and avoidance rates of birds in relation to offshore wind farms. BTO research report #618. Prepared for the Crown Estate - Strategic Ornithological Support Services programme, project SOSS-02. The nunnery, UK.

Garvin, J. C., C. S. Jennelle, D. Drake, & S. M. Grodsky. (2011). Response of raptors to a windfarm. Journal of Applied Ecology, 48(1), 199–209. https://doi.org/10.1111/j.1365-2664.2010.01912.x

Scottish Natural Heritage. (2010). Use of Avoidance Rates in the SNH Wind Farm Collision Risk Model.

Scottish Natural Heritage. (2014). Guidance: Assessing impacts to pink-footed and graylag geese from small-scale wind farms in Scotland.

Scottish Natural Heritage. (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. V2, March, 2017.

Scottish Natural Heritage. (2018). Avoidance rates for the onshore SNH wind farm collision risk model. V2, September, 2018.

Urquhart, B., & D. P. Whitfield. (2016). Derivation of an avoidance rate for Red Kite (Milvus milvus) suitable for onshore wind farm collision risk modelling. Natural Research Information Note 7. Natural Research Ltd., Banchory, UK.

Uzbekistan Federal Government. (2019). Red List of Threatened Species (Russian).

Vasilakis, D. P., Whitfield, D. P., Schindler, S., Poirazidis, K. S., & Kati, V. (2016). Reconciling endangered species conservation with wind farm development: Cinereous vultures (Aegypius monachus) in south-eastern Europe. *Biological Conservation*, *196*, 10–17.

Whitfield, D. P.. (2009). Collision avoidance of golden eagles at wind farms under the 'Band' collision risk model. Report to Scottish Natural Heritage. Natural Research. Ltd. Banchory, UK.

Whitfield, D. P. & M. Madders. (2006a). Deriving collision avoidance rates for Red Kites (*Milvus milvus*). Natural Research Information Note 3. Banchory, UK.

Whitfield, D. P. & Madders, M.. (2006b). A Review of the Impacts of Wind Farms on Hen Harriers (*Circus cyaneus*) and an Estimation of Collision Avoidance Rates. Natural Research Information Note 1 (revised). Banchory, UK.

Whitfield, D. P. & B. Urquhart. (2015). Deriving an avoidance rate for swans suitable for onshore wind farm collision risk modelling. Natural Research Information Note 6. Banchory, UK.

APPENDIX G – ARCHAEOLOGY CONSULTATION

«ACWA POWER WIND KARATAU» МЧЖ ва Бердақ номидаги Қорақалпоқ давлат университети ўртасида тузилган хўжалик шартномаси асосида Қорақалпоғистон Республикаси Султон Увайс тоғи (Қаратов) тизмаси ҳудудига қуриладиган Шамол электростанциясидан, Беруний тумани марказидаги подстанциягача тортиладиган электр энергиясини узатиш линияси ҳудудидаги қурилиш майдонида археологик қидирув ва харитага олиш бўйича дастлабки натижаларга

Хулоса

Ўзбекистон Республикаси Олий таълим, фан ва инновациялар вазирлиги Қорақалпоқ давлат университети билан **“ACWA POWER WIND KARATAU”** ўртасида 2024 йилнинг 13 май санасидаги 32 сонли хўжалик шартномасига асос 2024 йил 10-30 май аролигида Қорақалпоғистон Республикасининг Беруний тумани Султон Увайс тоғи (Қаратов) ҳудудида қурилаётган шамол электростанцияларидан Беруний туманидаги электр энергияни тақсимлаш подстанциясигача бўлган 86 км масофада археологик кузатув ва барлов (разведка) ишлари олиб борилди. Ниҳоятда , бу ҳудудларда археологик обидаларнинг илк деҳқон жамоаларининг дастлабки ҳаётидан дарак берувчи тош буюм қолдиқлари, оддий сопол парчалари, ва бошқа асори-атиқалардан бошлаб ривожланган ўрта асрлардаги айрим тарихий ва маданий мерос объектлари бўлган бир нешта археологик артефакт қолдиқлари сақланган.

Султон Увайс тоғ (Қаратов) тизмаси Қораколпоғистон Республикаси ҳудуди миқёсида, Қизилқумнинг шимоли-ғарбий қисмида жойлашган, унинг ғарбий қисмлари Амударёнинг ўнг соҳилларига тақалиб борувчи унча баланд бўлмаган паст тоғли балантдиклар тизмасидан иборат. Денгиз сатҳидан 500 метлар чамаси баландликка кўтарилган тоғ тизмаси шарқ йўналишида чўзилган. Умумий узунлиги 70 километрга яқин бўлиб, унинг эниги шарқий қисмида 4–5 километр, марказий ва ғарбий қисмида эса 13 километргача ўзгариб туради. Амударёнинг қадимий Оқчадарё делтаси ҳавзасигача туташиб турувчи жанубий ён бағирлари анча тик, шимолий ён бағри кўзга ёрқин ташланмайдиган даражада пасайиб Қизилқум чўли ерлари билан қўшилиб кетади. Тоғ тизмаси асосан қуйи палеозой қолдиқ жинсларининг юқори даражада метаморфланган жинсларидан иборат бўлиб, улар орасида амфиболитлар, гнейслар ва мармарлар, ғарбий қисмида эса кремнийли сланецлар устунлик қилади. Деярли барча ҳудудларида палеозой даври қатламларида бўр ва учламчи давр қолдиқларининг минераллари - оҳактошлар, мергеллар, қумтошлар ва гиллар қайд этилган (Баратов, Маматкулов, Рафиқов, 2002. Б. 440).

Султон Увайс тоғ ён бағри ҳудудларида тош даврига оид дастлабки тадқиқотлар XX асрнинг 60 йилларида Хоразм археология-этнография экспедицияси фаолияти билан боғлиқ. Хусусан, экспедициянинг илмий ходими А.В. Виноградов томонидан Бурли 3 тош даври устохонаси тадқиқ этилган (Виноградов, 1968. С.126-134). Бу ёдгорлик материаллари ҳамда ёдгорлик атроф ҳудудларидан тосадифий тарзда топилган кам сонли артефактлар кейинги йиллардаги тадқиқотларда мутахассислар томонидан атрофлича талқин этилган ва улар палеолит даврининг сўнгги босқичи жамоалари моддий маданиятига тегишли бўлганлиги ҳақидаги хулосага келинган (Виноградова, 1998. С.74-77.).

Республикамиз мустақиллиги йилларида Султон Увайс тоғи ва унга туташ ҳудудларда тош даври ёдгорликларини топиш борасида археологик қидирув ишлари амалга оширилган. Бу археологик текширув ишлари Ўзбекистон-Франция халқаро археология экспедицияси ходимлари томонидан бажарилиб, археологик қидирув ишлари жараёнида Султон Увайс тоғининг

жанубий ва жануби-шарқий ён-бағирларида ҳамда ушбу тоғнинг шарқий тарафида жойлашган Аяз қалъа атрофидан қатор тош даври жамоаларига тегишли бўлган топилма жойларнинг аниқланишига эришилган ва улар археологик харитага олинган. Қўлга киритилган тош буюмлари тўплами тош учириндилари учириб олинганлиги излари сақланган турли кўринишли тош ўзаклари, ишлов берилган ва ишлов берилганлиги излари бўлмаган тош учириндилар, камроқ сонли учириндилардан ясалган қирғич қуроллари, шунингдек кўп сонли ишлаб чиқариш чиқиндиларидан иборат бўлган. Мутахассислар кўрсатишича, тошни парчалаш ва қайта ишлаш техникасига кўра бу топилма жойларнинг тош буюмларининг индустрияси сўнгги палеолит даврига тегишли бўлган (Хужаназаров, Брунет, Шимчак, 2006. С.244-250).

Ўтган асрда Султон Увайс тоғ (Қаратов) тизмаси ҳудуди геологлар ва археологлар томонидан ўрганилган. Археологик маълумотларга кўра, тизма ҳудудидан дафн қилиш обектлари ва аҳоли пункти турдаги бир қатор археологик объектлар топилган. Тоғ тизмасининг сўнгги тадқиқотлари 2015-2018 йилларда амалга оширилди. Ишлар натижасида фанга номаълум бўлган бир қатор археологик объектлар топилди. Аммо тоғ тизмаси ҳудуди ҳали ҳам археологлар томонидан тўлиқ ўрганилмаган. Археологик қидирув ишларига ҳудуднинг саноат мақсадларида ўзлаштирилиши ҳам тўсқинлик қилмоқда бунда геологларнинг обектлари мустасно эмас. Айни пайтда тоғ тизмасида мармар, вермикулит ва бошқа каби фойдали қазилмаларни қазиб олиш билан шуғулланадиган саноат корхоналари томонидан фаол равишда ўрганилмоқда ва қайта ишланмоқда.

Қорақалпоқ давлат университетининг археология кафедраси ходимлари томонидан 2023-йил август ойида Султон Увайс тоғида тош даври маконларини аниқлаш мақсадида қидирув ишлари амалга оширилди. Бу қидирув иши жараёнида Самарқанд давлат университети профессори Н.У.Холматов иштирок этди. Археологик қидирув ишлари шарқда Султон Увайс тоғининг жанубий ён бағри Кесиктовдан бошланиб, ундан шарқий йўналишда Аёз қалъага туташиб кетган Бурлитов ҳудудигача, ғарбда Султон Увайс бобо зиёратгоҳигача, шимолда эса тоғнинг шимолий ён бағрида Қизилқум билан туташиб кетган Учтов деб аталган қисмларигача бўлган маршуритда олиб борилган. Қидирув ишлари давомида тош даврига тегишли ҳаммаси бўлиб 28 топилмажой аниқлаб, уларнинг GPS қурилмаси ёрдамида координаталари олинган. Топилма жойлардан кўплаб тош буюмлари тўплами йиғиб олинган лекин бу жой Султон Увайс тоғи (Қаратов) тизмаси ҳудудига қуриладиган шамол электр станцияси қурилиш майдонидан узоқда жойлашган. Координатаси: N 41°59.503’ E 060°48.392’. (Қорақалпоқ давлат университетининг 2023 йил Қорақалпоғистон Республикаси Қораўзак, Беруний, туманлари ҳудудидаги Султон Увайс (Қора тоғ) тоғи ва унга туташ ҳудудларда археологик қидирув ишлари ҳисобати, Н.,2023)

Амалга оширилган илмий-тадқиқот ишлари натижасида Увайс тоғ (Қаратов) тизмасида тарихий-маданий мерос объектлари (археологик ёдгорликлар) хусусиятига эга бўлган объектлар мавжудлиги (йўқлиги)ни

аниқлаш мақсадида археологик тадқиқот кузатув ва барлов (разведка) ўтказилди. Саноат объекти ҳудуди, шунингдек, унга туташ ҳудудлар визуал кўздан кечирилди ва археологик объектлари жойлашиш мумкин бўлган жойлар кўриб чиқилди. Турбина қурилиш майдонлари диаметри 100 (650) метрга яқин булган ҳудуд ва электр узатиш линияси ҳар икки томондан 50 (325) метргача булган ҳудудни уз ичига қамраб олди.

Саноат объектининг лойиҳа-қурилиш зонасида маданий (археологик) мерос объекти белгилари булиши мумкин бўлган объектларни кўздан кечириш натижасида улар визуал тарзда аниқланмади, чунки ҳудудларда қалинлиги 3 м гача қум бўлган. Режалаштирилган қурилишнинг айрим нуқталарида (юқоридаги тадқиқот зоналаридан ташқарисида) XII-XIV асрларга оид сопол идишлар бўлаклари кўринишидаги археологик артефактлар қолдиқларининг топилиши, бу янги кенг қамровли тадқиқотлар олиб бориш учун асос бўлади. Шуни таъкидлаш керакки, агар археологик объектлар қурилиш ишлари давомида топилган бўлса (қум, тўпроқ қатлами остида топилган бўлса), бу объектлар жойи археологик тадқиқотлар ўтказилиши керак, яки археолог мутахассислар назоратида бўлиш керак.

Султон Увайс тоғ (Қаратов) тизмасининг

Northing	Easting
42.088533°	60.579140°
42.097669°	60.586638°
42.107604°	60.592732°
42.070003°	60.705995°
42.069198°	60.710761°
42.072306°	60.819932°
42.027201°	60.811581°
42.042139°	60.697865°
42.048314°	60.692336°

координаталари ҳудудига қуриладиган шамол электростанстияси ҳудуди ва Қаратов - Беруний электр узатиш линиясининг

NORTHING	EASTING
42.090490°	60.573663°
42.088645°	60.572654°
42.054132°	60.675814°
42.012589°	60.710793°
41.956226°	60.689155°
41.955503°	60.688045°
41.948071°	60.683171°
41.894107°	60.686335°
41.861732°	60.682603°
41.843352°	60.670276°
41.769997°	60.683720°

41.761989°	60.686917°
41.758963°	60.686401°

координаталар зонаси визуал тарзда кўз билан кўриб чиқилди ва маданий (археологик) мерос объектлари аниқланмади, шуни таъкидлаш керакки, электр узатиш линияси трубиналар жойлашиш керак булган айрим жойларда, қишлоқ хўжалиги экинлари (деҳқон ёки фермер хўжалиги) учун мўлжалланган майдонлар мавжуд.

ҚҚДУ Фан ва инновациялар бўйича проректор

г.ф.д., професор _____ И. Р. ТУРДЫМАМБЕТОВ

ҚҚДУ Археология кафедраси мудири

т.ф.н. профессор _____Ж.Х. ХАКИМНИЯЗОВ

Хўжалик шартномаси раҳбари

(PhD), доцент_____А.К.АЛИМБЕТОВ

APPENDIX H – MINISTRY OF MINING RESPONSE LETTER REGARDING FUTURE MINING EXPLOITATION

O‘ZBEKISTON RESPUBLIKASI
TOG‘-KON SANOATI VA GEOLOGIYA VAZIRLIGI
THE MINISTRY OF MINING AND GEOLOGY OF THE REPUBLIC OF UZBEKISTAN

100060, Toshkent shahri, Mirobod tumani, T. Shevchenko ko‘chasi, 11-uy
info@mingeo.uz, uzgeolcom@exat.uz; Tel.: 71-256-86-53; faks: 71-256-86-58

2024-yil “30” 04 03-1575 -son

“Juru Energy Consulting” MChJ

Sizning 2024-yil 13-martidagi JEC-OUT-24-259-sonli xatingizga javoban, Qoraqalpog‘iston Respublikasi Beruniy tumanida 200 MVt quvvatga ega shamol elektr stansiyasini (*ShES*) hamda havo elektr uzatish tarmoqlarini (*HEUT*) qurilishida mavjud va ayni vaqtda olib borilayotgan qazilma ishlariga nisbatan rioya qilinishi kerak bo‘lgan talablar o‘rganilib ilovaga muvofiq yuborilmoqda.

Ilova: 2 varaqda.

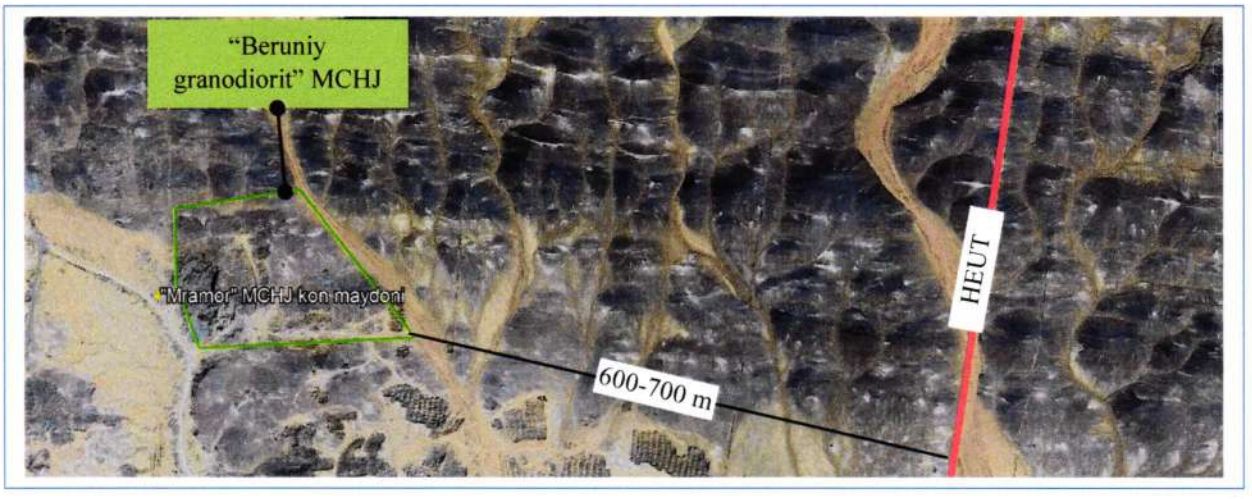
Vazir kotibiyati boshlig‘i **Z. Saidov**

Ijrochi: *Davronov A.*
telefon: *(71) 256-15-36*
kirish raqami: *2425*

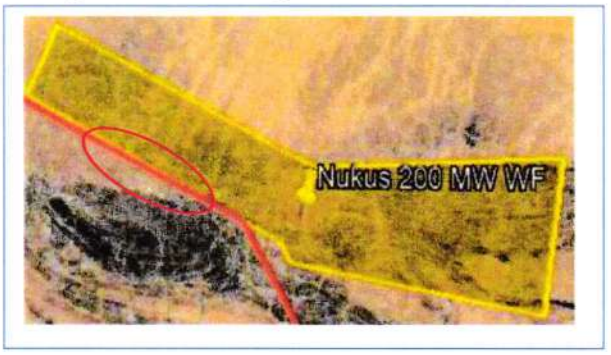
Kon-geologiya vazirligining
2024-yil 30- aprel *dagi*
03-1575 *-sonli xatiga ilova*

Jamiyat tomonidan 2024-yilning 19 - 21 – fevral oyida olib borilgan o‘rganishlar natijasida qurilishi rejalashtirilayotgan havo elektr uzatish tarmog‘i (*HEUT*) va Shamol elektr stansiyasi (*ShES*) maydonlarida bir nechta qazilma joylari hamda loyiha maydonidan 4,5 km masofada bo‘lgan “Mramor MChJ” nomli karyer aniqlangan (*2 va 3- ilovalarga qarang*). Qoraqalpog‘iston Respublikasi Beruniy tumanida 200 MVt quvvatga ega ShESni hamda HEUT qurilishida mavjud va ayni vaqtda olib borilayotgan qazilma ishlariga nisbatan rioya qilinishi kerak bo‘lgan talablar bo‘yicha Kon-geologiya vazirligi quyidagilarni ma‘lum qiladi:

- xatda keltirilgan “Mramor” MCHJ kon maydoni deb nomlangan hududda Kon-geologiya vazirligi 2019-yilda “Beruniy granodiorit” MCHJga geologiya qidiruv ishlari uchun ruxsatnoma rasmiylashtirilgan bo‘lib, qazib olish ishlariga ruxsatnoma berimagan. Qazib olish ishlari boshlangan taqdirda ham ShES va HEUTlarga (*oraliq masofa – 700-800 metr*) xavfli holatni keltirib chiqarmaydi;



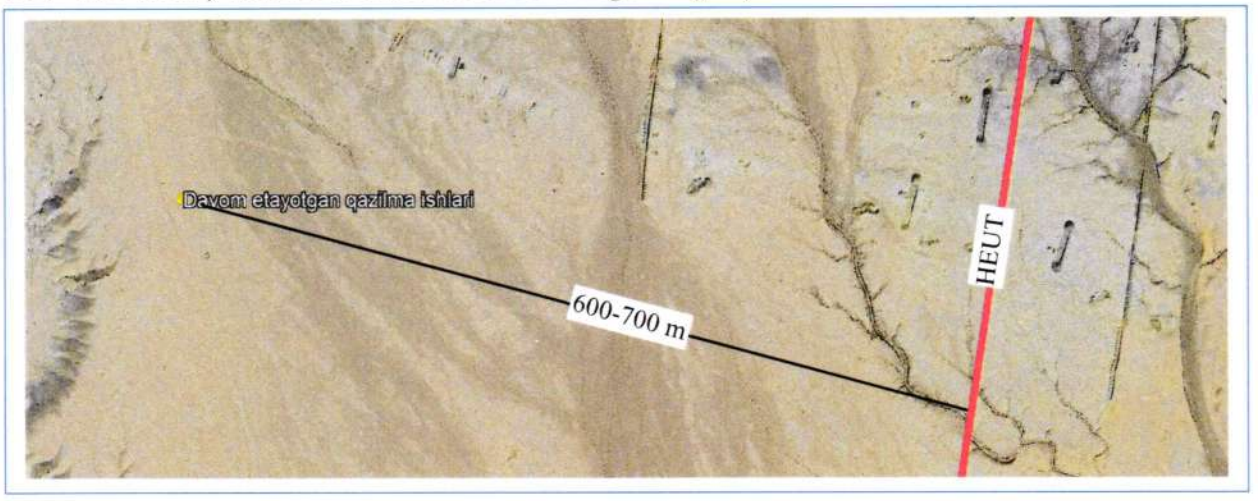
- xatda keltirilgan “Geologik qazilmalar 1, 2, 3” Kon-geologiya vazirligi Davlat dasturi doirasida geologik o‘rganish ishlari uchun yer usti lahimlari (*kanava*) qazilgan bo‘lib, namuna natijalariga ko‘ra, ahamiyatli hisoblanmaydi va foydalanilmasligi kafolatlanadi;





Ijrochi: *Davronov A.*
telefon: *(71) 256-15-36*
kirish raqami: *2425*

- xatda keltirilgan “Davom etayotgan qazilma ishlari” Kon-geologiya vazirligi tomonidan geologiya qidiruv ishlari va qazish ishlariga ruxsatnoma rasmiylashtirilmagan. Shu bilan birga, ShES va HEUT larga (*oraliq masofa – 600-700 metr*) xavfli holatni keltirib chiqarmaydi;



- xatda keltirilgan “Boshqa tegishli savollar” Kon-geologiya vazirligi tomonidan geologiya qidiruv ishlari hamda O‘zbekiston Respublikasi Vazirlar Mahkamasining 133-sonli Nizomiga asosan ruxsatnomalar berilishida ShES va HEUT larining xavfsizlik zonalari hisobga olinishi kafolatlanadi.

Regional va rudali geologiya bo‘limi boshlig‘i **N. Dulabova**

Ijrochi: *Davronov A.*
telefon: *(71) 256-15-36*
kirish raqami: *2425*

APPENDIX I - BIODIVERSITY CUMULATIVE IMPACTS ASSESSMENT

Nukus 1 & 2 Wind Farm Project
Uzbekistan

Biodiversity Cumulative Impact Assessment



April 2025

Document Information

Project Name	Nukus 200 MW Phase 2 Wind Farm
5Cs Project Number	1305/001/156
Document Title	Biodiversity Cumulative Impact Assessment
Client	ACWA POWER
5Cs Project Manager	Max Burrow
5Cs Project Director	Ken Wade

Document Control

Version	Version Date	Description	Author	Reviewer	Approver
1.0	02/10/2024	CIA Draft V.1	Robert Negru	Sonya Benjamin	Tarek Tabaja
2.0	11/11/2024	CIA Draft V.2	Robert Negru	Sonya Benjamin	Tarek Tabaja
3.0	08/04/2025	Final Draft to address LEA comments	KRW	SF	MB

1	Financial Capital
2	Social Capital
3	Natural Capital
4	Manufactured Capital
5	Human Capital

Regardless of location, mode of delivery or function, all organisations are dependent on *The 5 Capitals of Sustainable Development* to enable long term delivery of its products or services.

Sustainability is at the heart of everything that 5 Capitals achieves. Wherever we work, we strive to provide our clients with the means to maintain and enhance these stocks of capital assets.

Disclaimer

5 Capitals cannot accept responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose.
This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from the party which commissioned it.

This document is issued for the party which commissioned it and for specific purposes connected with the above-identified project only. It should not be relied upon by any other party or used for any other purpose

5 Capitals Environmental and Management Consulting
Principal office: PO Box 119899 Sheikh Zayed Road, Dubai, UAE
☏+971 4 343 5955 🖷+971 4 343 9366

CONTENTS

1 EXECUTIVE SUMMARY 1

2 INTRODUCTION 5

2.1 Project Background 5

2.2 Summary of the Ecological Assessment Process 5

2.3 Purpose and Scope of the Biodiversity CIA 6

3 NUKUS 1 AND NUKUS 2 WIND FARMS 8

3.1 Assessing Ecological Cumulative Impacts 8

3.1.1 Species-Specific and Habitat-Specific Focus 9

3.1.2 Data Sources and Global Context 9

3.2 Selecting Biodiversity Sensitive Receptors (SRs) 10

3.2.1 Critical Habitat Assessment (CHA) Findings 10

3.2.2 Environmental and Social Impact Assessment (ESIA) Findings 11

4 SPECIES THREAT ASSESSMENTS 13

4.1 Avifauna 13

4.1.1 Cumulative Collision Risk Assessment for Nukus 1 and Nukus 2 13

4.1.2 Breeding Birds (Raptors) 14

4.1.3 Breeding Birds (Ground birds) 27

4.1.4 Passage Migrants and Seasonal Visitors (Raptors) 31

4.1.5 Passage Migrants and Seasonal Visitors (Waterbirds) 54

4.1.6 Passage Migrants and Seasonal Visitors (Groundbirds) 63

4.2 Bats 74

4.2.1 *Rhinolophus hipposideros* (Lesser Horseshoe Bat) 74

4.2.2 *Tadarida teniotis* (European Free-tailed Bat) 78

4.2.3 *Rhinolophus ferrumequinum* (Greater Horseshoe Bat) 83
4.2.4 *Myotis blythii* (Lesser Mouse-eared Bat) 87
4.3 Mammals 91
4.3.1 *Vulpes corsac* (Corsac Fox) 91
4.3.2 *Vormela peregusna* (Marbled Polecat) 96
4.3.3 *Gazella subgutturosa* (Goitered Gazelle) 100
4.4 Reptiles 105
4.4.1 *Testudo horsfieldii* (Central Asian Tortoise) 105
4.4.2 *Eremias velox* (Rapid Racerunner) 109
4.4.3 *Trapelus sanguinolentus* (Steppe Agama) 113
4.4.4 *Platyceps karelini* (Spotted Desert Racer) 116
4.5 Flora 119
4.5.1 *Lepidium subcordatum* (Brassicaceae) 119
4.5.2 *Astragalus centralis.* (Fabaceae) 122
4.5.3 *Ferula kyzylkumica* (Apiaceae) 125
4.5.4 *Lagochilus vvedenskyi* (Lamiaceae) 128
4.5.5 *Lappula aktaviensis* (Boraginaceae) 131
4.5.6 *Lappula parvula* (Boraginaceae) 134
4.5.7 *Scorzonera bungei* (Asteraceae) 137
4.5.8 *Silene tomentella* (Caryophyllaceae) 140
4.5.9 *Stipa aktauensis* (Poaceae) 143
4.5.10 *Xylosalsola chiwensis* (Amaranthaceae) 146
5 RENEWABLES: REGIONAL CUMULATIVE IMPACTS 150
5.1 Introduction 150
5.2 Renewable Energy Expansion in Uzbekistan 150
5.3 Summary of cumulative impacts of windfarms 151

5.3.1 Collision Risk 151
5.3.2 Habitat Loss and Fragmentation 152
5.3.3 Displacement and Behavioural Changes 153
5.4 Quantitatively Assessing Cumulative Impacts 153
5.5 Cumulative Impacts of Regional Renewable Projects 154
5.6 Discussion 154
5.6.1 Collision Risk to Birds and Bats 155
5.6.2 Habitat Loss and Fragmentation 155
5.6.3 Displacement and Behavioural Changes 156
5.6.4 Lack of Comprehensive Data 156
5.6.5 Mitigation Measures 156
5.7 Conclusion 157
6 REFERENCES 158

LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
CIA	Cumulative Impact Assessment
CHA	Critical Habitat Assessment
ESIA	Environmental and Social Impact Assessment
IFC	International Finance Corporation
PS6	Performance Standard 6 (IFC)
IUCN	International Union for Conservation of Nature
EOO	Extent of Occurrence
CRMP	Collision Risk Management Plan
OHTL	Overhead Transmission Line
LC	Least Concern (IUCN Red List Status)
NT	Near Threatened (IUCN Red List Status)
VU	Vulnerable (IUCN Red List Status or Uzbekistan Red Data Book Status)
EN	Endangered (IUCN Red List Status)
GW	Gigawatt
MW	Megawatt
PBFs	Priority Biodiversity Features
SBV	Significant Biodiversity Value
SRs	Sensitive Receptors
UzRDB	Uzbekistan Red Data Book

1 EXECUTIVE SUMMARY

Purpose and Scope of the CIA

The CIA evaluates the cumulative impacts of the Nukus 1 and Nukus 2 Wind Farms on biodiversity and specifically the key species that have been identified through baseline surveys that qualify as IFC Significant Biodiversity Values (SBVs) either listed by IUCN as endangered, critically endangered, or endemic species, or are listed in the Uzbekistan Red data Book for this region or local habitats. It also includes at least one species of least concern the common Crane due to the globally significant aggregations of this species during migration.

It provides an assessment of potential cumulative impacts on biodiversity, focusing on critical species, while considering non-project-related pressures such as poaching, climate change and regional development.

The CIA is an annexe to the ESIA and is consistent with the mitigation measures of the detailed assessment but also highlights the importance of adaptive mitigation for the SBVs if mortality thresholds are exceeded. Whilst for the avifauna this particularly applies to the operational wind turbines and OHTL power lines which can cause mortality due to collision, it also highlights other aspects of cumulative impacts due to road traffic on mammals and reptiles. In addition the loss of rare flora including endemic species is also highlighted as a risk due to cumulative impacts. Ongoing monitoring and biodiversity management is required during construction and operational phases to ensure the long-term viability of sensitive species and natural habitats.

Key Findings Nukus Wind Farms

- **Avifauna**: Highly variable collision risks for migratory raptors and breeding species such as the Golden Eagle and Eurasian Griffon Vulture, which have cumulative predicted collision rates with the WTGs as 1:115 years and 1:1.5 years respectively In addition smaller raptors such as Common Kestrel have the highest predicted collision rate of 13/year. Adaptive mitigation will be implemented if mortality thresholds are exceeded.
- **Bats**: Collision risks are elevated for migratory bat species, including the Lesser Horseshoe Bat and European Free-tailed Bat. Adaptive mitigation will be implemented if mortality thresholds are exceeded. **Mammals**: Habitat fragmentation potentially poses a threat to species like the Goitered Gazelle although the footprint of the project facilities is <2.5% of the Project area including construction buffer zones. All temporary habitats will be restored post construction.

- **Reptiles**: Species like the Central Asian Tortoise are potentially at risk due to disturbance from construction, although this can be manged through translocation from construction work areas prior to clearance.
- **Flora**: Endemic plant species such as *Lepidium subcordatum* and *Astragalus centralis* face direct mortality and habitat loss, but will checked for presence by a botanist prior to any site clearance with resulting translocation if the facility cannot be relocated.

Cumulative Impact Summary Table

The table provides a concise overview of the key biodiversity components potentially impacted by the Nukus 1 and Nukus 2 Wind Farms. It highlights the specific risks posed to each component (e.g., avifauna, bats, mammals, reptiles, and flora), outlines recommended mitigation and monitoring measures to detect these impacts, and assesses the likely residual impact after mitigation.

Table 1-1. Summary of Cumulative Impacts, Mitigation Measures, and Residual Effects for Biodiversity Receptors in the Nukus 1 and Nukus 2 Wind Farms

Component	Key Impacts	Mitigation/Monitoring Measures	Residual Impact
Avifauna	Collision risk for raptors and migratory birds	- Seasonal restrictions on turbine operation and/or SDOD if mortality thresholds are exceeded	Low to moderate, with monitoring
Bats	Collision risk for foraging and migrating bats	- Turbine curtailment would be applied adaptively if mortality thresholds are exceeded.	Low to moderate, with monitoring
Mammals	Habitat fragmentation from infrastructure	- Minimize construction footprint (this is. 1.5% of Project area for NUKUS 2 permanent facilities) - - Habitat restoration of all temporary sites post-construction	Low to moderate, with monitoring

Component	Key Impacts	Mitigation/Monitoring Measures	Residual Impact
Reptiles	Habitat disturbance, particularly for the Central Asian Tortoise	- Pre-construction surveys and translocation - Construction phase monitoring	Low, with mitigation
Flora	Habitat loss of endemic plant species	- Protect sites of rare flora - Implement habitat restoration programs	Low, if restoration is successful

Cumulative Impacts of Other Regional Developments

- **Mining**: The project area is adjacent to both active and operational mining sites, as well as potential future mining areas. These mining activities could amplify habitat fragmentation and disturbance risks for both flora and fauna.
- **Other Wind Farms**: The adjacent Nukus 100 MW wind project in Karatau could significantly increase the risk of cumulative impacts on migratory birds and bats. Coordination between wind projects is essential for effective mitigation.
- **Infrastructure Development**: Roads and other infrastructure related to regional development projects contribute to habitat degradation, particularly for mammals and reptiles. Mitigation efforts should include habitat corridors and landscape-level planning to reduce fragmentation.

Recommendations for Mitigation and Monitoring

- **Avifauna**: Implement monitoring and adaptive SDOD/curtailment if mortality thresholds are exceeded.
- **Bats**: Implement monitoring and adaptive curtailment if mortality thresholds are exceeded.
- **Mammals**: Maintain habitat and connectivity for species such as the Goitered Gazelle.
- **Reptiles**: Conduct pre-construction reptile surveys and relocate sensitive species as needed.

- **Flora**: Protect sites of rare, endemic species and establish conservation zones for high-value plant species and monitor the success of habitat restoration efforts.

2 INTRODUCTION

2.1 Project Background

The Republic of Uzbekistan is undergoing a significant transformation in its energy sector, with the Government of Uzbekistan (GOU) setting ambitious targets to increase electricity production from 12.9 GW in 2019 to 29.3 GW by 2030. The driving force behind this expansion is the Uzbekistan 2030 Energy Strategy, which outlines mid- and long-term goals to diversify the energy mix, promote economic growth, and enhance energy security. Central to this strategy is the development of renewable energy sources, with a particular focus on wind and solar power.

As part of this strategic initiative, the GOU aims to develop 8 GW of renewable energy capacity by 2030, with wind power contributing 3 GW. The Nukus Wind Power Projects, comprising a 100 MW and a 200 MW wind farm, are integral components of this renewable energy vision. These projects are located in the Karatau Mountain range, within the Karauzak District of the Republic of Karakalpakstan, an area identified for its potential in wind energy generation due to favorable wind conditions and available land.

The Nukus 100 MW Wind Farm (Nukus 1) and the Nukus 200 MW Wind Farm (Nukus 2) are situated approximately 83 km east of Nukus and 62 km north of Urgench, adjacent to each other. Together, these wind farms will contribute to Uzbekistan's national energy strategy, supporting the country's commitment to cleaner energy and reducing dependence on fossil fuels. In addition to the wind turbines, the projects will include infrastructure such as transmission lines, access roads, and substations, which are necessary to connect the generated electricity to the national grid.

The development of the Nukus Wind Farms is a significant step in realizing the GOU's renewable energy goals, aligning with Uzbekistan's broader climate commitments under the Paris Agreement and its national drive for sustainable economic development. These projects are expected to reduce greenhouse gas emissions, create local employment opportunities, and improve energy access, while also requiring careful consideration of their potential environmental and social impacts.

2.2 Summary of the Ecological Assessment Process

In line with international environmental and social standards, the Nukus 100 MW and Nukus 200 MW Wind Farms underwent thorough Environmental and Social Impact Assessments (ESIAs) to

evaluate the potential impacts on the local environment, biodiversity, and communities. This process is essential for identifying, assessing, and managing the impacts of such large-scale infrastructure projects, ensuring that they align with best practices in environmental stewardship and social responsibility.

The ecological assessment component of the ESIA was designed to establish a comprehensive baseline of the region's biodiversity. The baseline surveys focused on key ecological features, such as local vegetation, wildlife populations (especially avifauna and bats), and sensitive habitats. These surveys were conducted over multiple seasons to capture the dynamic nature of the environment and to ensure that potential impacts on biodiversity were fully understood. Juru Energy, an environmental consulting firm, carried out the initial ecological surveys for Nukus 1 in 2020, followed by further site visits by 5 Capitals and Juru Energy in 2021 to update the findings and ensure accuracy. For Nukus 2, pre-bid surveys were conducted in 2021-22, with additional surveys carried out in 2024.

The assessment identified Significant Biodiversity Values (SBVs) including critical species, habitats, and ecological processes that could be affected by the projects. In the context of the Nukus Wind Farms, particular attention was given to terrestrial ecology, bird species (due to the risk of collision with turbines), and the potential for habitat disturbance.

The assessment also considered the potential cumulative impacts of the wind farms in combination with other developments in the region, such as mining activities and adjacent wind energy projects. The findings highlighted both the direct impacts of construction and operation, as well as the broader ecological and social context in which the projects are situated.

2.3 Purpose and Scope of the Biodiversity CIA

The Cumulative Impact Assessment (CIA) for the Nukus 100 MW and Nukus 200 MW Wind Farms aims to evaluate how the combined effects of these projects, along with other existing, planned, or foreseeable developments, may impact biodiversity over time. Cumulative impacts are those that arise not only from a single project but from the additive and interactive effects of multiple projects or activities in the same region. These impacts may be more significant than the impacts of any one project alone, especially when combined with natural environmental stressors, such as climate change or habitat degradation.

Key objectives of the biodiversity CIA include:

- **Analysis of Other Human Activities and Environmental Drivers**: The CIA assesses how the impacts of the **Nukus Wind Farms** might combine with other existing and planned

developments in the area, such as mining and additional wind energy projects. It also considers environmental drivers, such as climate variability, that could influence the region's biodiversity.

- **Assessment of Cumulative Effects on Biodiversity**: The CIA evaluates how the combined effects of multiple developments might influence habitat fragmentation, species displacement, and mortality risks, particularly for sensitive species such as birds and bats.
- **Proposed Mitigation Measures**: The CIA outlines strategies to minimize the cumulative impacts on biodiversity, focusing on practical steps that can be taken to protect key species and habitats. These measures are designed to align with both national regulations and international environmental standards.
- **Monitoring and Management**: To ensure the long-term viability of the region's biodiversity, the CIA includes recommendations for ongoing monitoring and adaptive management. This will help track the effectiveness of mitigation measures and respond to any unforeseen cumulative impacts that may arise during the lifespan of the wind farms.

3 NUKUS 1 AND NUKUS 2 WIND FARMS

3.1 Assessing Ecological Cumulative Impacts

Assessing cumulative impacts from an Environmental and Social Impact Assessment (ESIA) perspective involves evaluating the potential effects of a proposed project within the broader context of existing, adjacent, and reasonably foreseeable developments. For wind farms, this typically includes a review of current and planned wind energy projects, as well as other significant regional developments, to understand how multiple projects may collectively affect the environment and biodiversity. This is particularly critical in areas where multiple renewable energy projects are concentrated, as is the case with the Nukus 100 MW and Nukus 200 MW Wind Farms.

In this context, two significant challenges arise when assessing ecological cumulative impacts on biodiversity receptors:

1 **Limited Knowledge of Other Projects and Regional-Level Planning:** Traditional cumulative impact assessments often rely on the availability of detailed information about other ongoing or planned projects in the region. However, access to such data is frequently constrained by the lack of a **regional-level assessment** or **Strategic Environmental Assessment (SEA)**, which would provide a holistic overview of current and future developments. Without this broader planning insight, cumulative impacts may be underestimated or misrepresented, particularly when relying solely on existing baseline conditions.

To conduct a comprehensive cumulative impact assessment, it is essential to have a clear understanding of the region's **long-term development plans**, **government targets for renewable energy expansion**, and other **infrastructure strategies**. For the **Nukus Wind Farms**, this involves considering not only the adjacent **Nukus 100 MW wind project** but also other potential developments, such as mining operations and infrastructure projects in the area of influence. Integrating these future scenarios provides a more accurate understanding of how regional land use and industrial activity may evolve, allowing for a more meaningful assessment of cumulative ecological impacts.

2 **Integration of Non-Project and Non-Sector-Related Threats:** A second issue in traditional cumulative impact assessments is the tendency to focus exclusively on project-related or sector-specific threats, often overlooking broader environmental stressors that can exacerbate impacts on ecological receptors. When assessing cumulative impacts on **biodiversity**, a more holistic approach is needed—one that accounts for **non-project-**

related pressures such as habitat degradation, climate change, and land-use changes driven by factors outside the immediate scope of wind energy development.

This broader perspective is crucial in understanding the **synergistic effects** of multiple stressors on sensitive species and habitats. For example, **habitat fragmentation** caused by infrastructure projects (e.g., roads, transmission lines) and **climate variability** (e.g., changes in precipitation or temperature) may combine with the direct impacts of wind farms, such as **collision risk** for avifauna and bats, to produce cumulative effects that are greater than the sum of their parts. Therefore, a thorough assessment of cumulative ecological impacts must integrate these external threats to provide a comprehensive picture of how species and ecosystems may be affected over time.

3.1.1 Species-Specific and Habitat-Specific Focus

The subsequent sections of this assessment take a **species-specific** and **habitat-specific** approach, focusing on **priority and critical species** identified through the **ESIA process** for the **Nukus 100 MW** and **Nukus 200 MW Wind Farms**. This approach ensures that the assessment captures the unique sensitivities of key biodiversity receptors, considering not only their vulnerability to direct project impacts but also their exposure to cumulative regional pressures.

This includes an evaluation of the following:

- **Avifauna**: Species that are at risk from **collision** with wind turbines or **habitat displacement**, particularly migratory birds and those with large home ranges.
- **Bats**: Species that may be affected by **turbine strikes**, as well as the **loss of roosting and foraging habitats**.
- **Terrestrial Flora and Fauna**: Critical and priority species that may face habitat loss or degradation due to both direct project impacts and cumulative pressures from other developments in the region.

This method allows for a more nuanced understanding of how individual species and habitats may be affected by cumulative impacts, particularly when regional development patterns and external environmental drivers are considered.

3.1.2 Data Sources and Global Context

In addition to site-specific data gathered from **baseline surveys** and **field assessments** conducted as part of the **Nukus 1** and **Nukus 2 ESIAs**, this cumulative impact assessment also draws on **global and regional biodiversity trends** to contextualize the findings. These data sources include:

- **Birds of the World Online** (*https://birdsoftheworld.org/*), which provides comprehensive information on bird species, including their distribution, behavior, and conservation status.
- **BirdLife International** (*https://datazone.birdlife.org/*), which offers critical data on the global status of bird populations, including **Important Bird Areas (IBAs)** and **Endangered Species**.
- **The IUCN Red List** (*https://www.iucnredlist.org/*), a key resource for identifying species at risk of extinction and understanding the **conservation status** of flora and fauna at both global and regional scales.

By taking into account both regional development trends and non-project-related threats, this section establishes a solid foundation for assessing cumulative ecological impacts. This integrative approach ensures that the cumulative effects of multiple developments on biodiversity are fully considered, allowing for more informed decision-making on mitigation strategies and biodiversity management. The subsequent sections will delve deeper into species-specific cumulative impacts, offering a detailed analysis of how the Nukus Wind Farms and other regional projects may affect the long-term viability of critical and priority species.

3.2 Selecting Biodiversity Sensitive Receptors (SRs)

The findings of the Critical Habitat Assessment (CHA) and Environmental and Social Impact Assessment (ESIA) were integral in identifying the key biodiversity receptors (SBVs and PBFs) and assessing their sensitivity to the potential impacts of the Nukus 1 and Nukus 2 Wind Farms. These findings formed the foundation for determining the species and habitats at risk of cumulative impacts and the subsequent measures needed to mitigate these risks.

3.2.1 Critical Habitat Assessment (CHA) Findings

The CHA for the Nukus Wind Farms identified a range of sensitive ecological receptors, primarily focusing on species and habitats that meet the criteria for Critical Habitat under international standards such as the International Finance Corporation (IFC) Performance Standard 6 (PS6). The CHA recognized several key biodiversity features, with an emphasis on:

- **Avifauna**: The CHA identified the project area as an important region for several raptor species, particularly Golden Eagles, Cinereous Vultures, and Eurasian Griffons, which were classified as breeding birds in the region. These species are particularly vulnerable to wind turbine collisions. Additionally, migratory species such as the Egyptian Vulture, Steppe Eagle, and Saker Falcon were identified as passage migrants that use the

project area seasonally. The Common Crane and White-tailed Sea Eagle were also noted for their migratory patterns through the project's area of influence.

- **Bats**: Several bat species, including the Lesser Horseshoe Bat, and European Free-tailed Bat, were highlighted as potentially using the site for foraging and roosting. These species are sensitive to collision risks from wind turbines, particularly during migration.
- **Mammals**: The Goitered Gazelle, Corsac Fox, and Steppe Polecat were identified as key species that may be impacted by habitat fragmentation and human disturbance resulting from the project.
- **Reptiles**: The Central Asian Tortoise and Caspian Monitor were noted as species of conservation importance, given their limited habitat range and susceptibility to soil compaction and habitat disruption.
- **Flora**: The CHA also identified several critical plant species, including *Lepidium subcordatum* and *Stipa aktauensis,* which are endemic to the region and classified as Priority Biodiversity Features (PBFs). These species are important for maintaining the integrity of the desert ecosystem but are vulnerable to habitat alteration caused by the construction of wind farm infrastructure.

In summary, the CHA concluded that the project area qualifies as Critical Habitat for two species, due to the presence of species that are globally or regionally threatened, as well as the presence of SBVs and/or PBFs. The CHA recommended specific mitigation measures to minimize impacts on these sensitive receptors, including seasonal restrictions on construction, the implementation of collision risk mitigation measures for birds and bats, and habitat restoration efforts.

3.2.2 Environmental and Social Impact Assessment (ESIA) Findings

The ESIA further elaborated on the CHA findings by providing a more detailed assessment of the potential impacts on biodiversity. The ESIA's findings on sensitive biodiversity receptors include:

- **Avifauna**: The ESIA confirmed the presence of key raptor species, such as the Golden Eagle, Cinereous Vulture, and Eurasian Griffon, within the project area. These species were identified as breeding birds of high conservation concern due to their low reproductive rates and vulnerability to disturbance. The ESIA also highlighted the risk of turbine collisions for migratory birds, particularly during peak migration seasons.
- **Bats**: Bat activity in the area was recorded. The ESIA noted that bat species are at high risk of collision with turbines, particularly during their migration periods.

- **Mammals**: Terrestrial mammals such as the Goitered Gazelle were identified as sensitive receptors due to their reliance on undisturbed habitats.
- **Reptiles**: The Central Asian Tortoise was identified as particularly vulnerable to construction activities.
- **Flora**: Several plant species, including *Astragalus centralis* were highlighted as Priority Biodiversity Features. These species are important for stabilizing the soil and maintaining the ecological balance of the project area, and the ESIA recommended habitat restoration efforts to mitigate the impacts on these species.

The ESIA concluded that while the project would have some significant impacts on biodiversity, particularly for avifauna, bats, and endemic plant species, these impacts could be mitigated through a combination of avoidance, minimization, and offset measures. This includes measures such as adjusting turbine placement to reduce collision risk, habitat restoration, and monitoring of sensitive species.

4 SPECIES THREAT ASSESSMENTS

4.1 Avifauna

4.1.1 Cumulative Collision Risk Assessment for Nukus 1 and Nukus 2

Table 4-1. Annual rates of predicted collision risk from the collision risk assessment reports.

Species	Nukus 1 - Lower bound CA (collisions / year)	Nukus 1 - Most realistic CA (collisions / year)	Nukus 1 - Upper bound CA (collisions / year)	Nukus II - Lower bound CA (collisions / year)	Nukus II - Most realistic CA (collisions / year)	Nukus II - Upper bound CA (collisions / year)	Cumulative Collision Risk (Nukus 1 & 2) collisions / year
Steppe Eagle (*Aquila nipalensis*)	0.022	0.00485	0.00116	0.102	0.0226	0.00539	0.02745
Golden Eagle (*Aquila chrysaetos*)	0.0181	0.00401	0.000954	0.0210	0.00464	0.00110	0.00865
White-tailed Eagle (*Haliaeetus albicilla*)	-	-	-	0.0841	0.0421	0.00379	0.0421
Red-footed Falcon (*Falco vespertinus*)	0.144	0.0351	0.00113	0.308	0.0752	0.00243	0.1103
Common Crane (*Grus grus*)	3.72	0.223	0.130	21.1	4.21	2.11	4.433
Western Marsh-Harrier (*Circus aeruginosus*)	1	0.242	0.0242	0.0853	0.0171	0.00171	0.2591
Hen Harrier (*Circus cyaneus*)	0.542	0.108	0.0108	4.44	0.888	0.0888	0.996
Long-legged Buzzard (*Buteo rufinus*)	0.829	0.188	0.0377	1.85	0.421	0.0842	0.609
Rough-legged Hawk (*Buteo lagopus*)	0.322	0.0733	0.0147	1.56	0.354	0.0708	0.4273
Eurasian Kestrel (*Falco tinnunculus*)	23	5	0.183	35.7	8.72	0.281	13.72
Merlin (*Falco columbarius*)	-	-	-	0.514	0.257	0.128	0.257

4.1.2 Breeding Birds (Raptors)

4.1.2.1 *Aquila chrysaetos* (Golden Eagle)

The **Golden Eagle** occupies a wide range of flat or mountainous, largely open habitats, often above the tree line, from sea level to 4000m. In Uzbekistan, the species was found in the Sultanuizdag mountain range, approximately 11 km from the planned OHTL. According to IUCN Red List and Birdlife International, the species global population is estimated between 85,000-160,000 mature individuals, with an estimated extent of occurrence (EOO) of approximately 140,000,000 km2.

The golden Eagle is listed as **Least Concern (LC)** on **IUCN Red List**. However, in the **Uzbekistan Red Data Book** the species is listed as **Vulnerable (VU)**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Golden Eagle faces various threats at national, regional, and global levels. In Uzbekistan and similar regions, deliberate persecution through poisoning, shooting, and trapping still occurs, particularly where livestock and game management are prevalent. Electrocution from power lines is a major cause of mortality, as eagles often perch on energized equipment, posing significant risks in areas with expanding infrastructure. Wind energy developments also pose a threat, particularly to sub-adults, with collisions being a significant issue, especially near migration routes. Grazing pressure, both from overgrazing and undergrazing due to grassland abandonment, affects the availability of suitable habitats for the species.

On a global scale, historical persecution has diminished, but deliberate killing still exists. In the USA, exposure to anticoagulant rodenticides has been reported, posing a new risk to eagle populations. Electrocution continues to be a leading cause of death in North America, with an estimated 504 eagles killed annually by unsafe power lines. Wind farms, especially in California, cause direct mortality through collisions, and future developments could increase this threat in other flyway regions. Habitat loss, food supply changes, and afforestation, along with declining prey species like rabbits in the Mediterranean, are further exacerbated by changes in land management. Additionally, climate change, particularly drought, threatens to alter habitats and reduce prey availability, posing long-term risks to Golden Eagle populations worldwide.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Golden Eagle at Nukus 1 Project Site (Baseline Survey Results):

- Vantage Point (VP) surveys for the Golden Eagle were undertaken at the Nukus 1 project site for one year, covering all four seasons, from April 2020 to March 2021.

Additional survey hours were conducted between March and April 2021 to ensure comprehensive monitoring.

- During these surveys, the Golden Eagle was observed during multiple seasons, including winter, spring, and summer. However, no Golden Eagles were recorded during the autumn 2022 survey.

Presence of Golden Eagle at Nukus 2 Project Site (Baseline Survey Results):

- The Golden Eagle was observed at the Nukus 2 project site during raptor nesting surveys conducted in March and April 2024.
- A nesting pair of Golden Eagles was identified at Nesting Site NN-1, where both adult male and female birds were observed flying near the nest during two survey rounds, suggesting active breeding. This nesting site is located within the project area, approximately 42.061714° N, 60.638857° E, in a rocky and elevated location typical of Golden Eagle nesting behavior.

The presence of a breeding pair indicates that the Nukus 2 site is an important area for the Golden Eagle, potentially providing both nesting and foraging habitats.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Golden Eagle include:

1. **Collision with Wind Turbines**
    - Raptors, including the Golden Eagle, are at risk of colliding with operational wind turbines. Generally, large, soaring birds are particularly vulnerable, especially during migration periods. Sub-adult eagles, which are more exploratory in their movements, are at higher risk.
    - The turbines pose a direct mortality threat to birds of prey, which could lead to population declines in species already under pressure from other environmental and anthropogenic factors.
2. **Electrocution from Power Lines**
    - Electrocution is a significant threat posed by the OHTL, as large birds like the Golden Eagle often perch on transmission poles. Without adequate mitigation measures, such as raptor-safe designs, the risk of electrocution remains high.
3. **Noise and Vibration**

- Noise from construction activities and operational turbines can disturb sensitive species, including raptors. For species like the Golden Eagle, noise can disrupt communication, displace them from important foraging or nesting areas, and lead to increased energy expenditure due to avoidance behaviour.
- Vibration caused by heavy machinery during construction can collapse burrows and affect small mammals and reptiles in the project area.

4. **Vehicular Collisions**
    - The movement of construction vehicles poses an indirect threat to scavenging birds like eagles, which are attracted to roadkill. Increased vehicle traffic increases the risk of collisions with wildlife during the construction phase.
5. **Air Pollution (Dust and Emissions)**
    - Dust from construction may reduce plant health, indirectly affecting herbivores and raptors like the Golden Eagle by impacting prey availability. Emissions from machinery can degrade air quality but are unlikely to have a significant impact on wildlife health in the area.
6. **Introduction of Invasive Species**
    - Imported soil and machinery may introduce invasive plants, potentially leading to habitat degradation, but this risk is considered minor compared to other project impacts.
7. **Wildlife Displacement**
    - The presence of humans, machinery, and noise during construction and operation can displace sensitive wildlife, such as migratory waterbirds and shy mammals. While this is less relevant for the Golden Eagle, it could be significant for nesting or breeding pairs, which may avoid areas near turbines, potentially impacting reproductive success.

Indirect threats for the Golden Eagle include:

1. **Biosecurity Risks**
    - The introduction of invasive species or pathogens through imported materials could degrade local habitats, potentially affecting prey availability for raptors like the Golden Eagle.
2. **Loss of Prey Availability**

- Habitat changes due to invasive species or dust may reduce prey availability, such as small mammals and reptiles, but this is less significant compared to other impacts.

3. **Light Pollution**
    - Artificial lighting could disrupt nocturnal wildlife, indirectly affecting predator-prey dynamics, though the impact on Golden Eagles is minimal.
4. **Soil Erosion and Vegetation Damage**
    - Soil erosion and vegetation loss from machinery may degrade habitats, affecting herbivores and burrowing species, with limited indirect effects on raptors.
5. **Fire Risk**
    - Increased fire risk from human activity and machinery poses a potential threat to habitats and species, though less critical than the risks from collisions and electrocution for Golden Eagles.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2:

The Golden Eagle, being a large raptor, is vulnerable to collisions **with wind turbines, especially by recently fledged sub-adults.** The Collision Risk Assessment (CRA) for both projects provides the following predictions:

- **Nukus 1 (Most realistic scenario): 0.00401 collisions/year, approximately 1 collision every 249 years.**
- **Nukus 2 (Most realistic scenario): 0.00464 collisions/year, approximately 1 collision every 215 years.**

Cumulative: The combined risk for both projects is estimated at 0.00865 collisions/year, or approximately 1 collision every 115 years, which is minimal.

Other cumulative impacts include habitat disturbance during the construction and operational phases, which could displace Golden Eagles from important foraging or nesting areas, though this is less likely due to the species' adaptability to anthropogenic pressures.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- A **3-year Fatality Monitoring Program** will assess actual collision risks, including carcass searches and bias correction factors. Adaptive management strategies, such as real-time monitoring and turbine shut-down during high-risk periods, will be implemented if mortality thresholds are exceeded.
- **Turbine Design**: The turbines are designed to minimize collision risks, avoiding structures like lattice towers that attract birds for perching.
- **Bird Deflectors** on OHTL: Markers will be installed on the overhead transmission lines to increase visibility, especially during migratory periods when collision risks are higher.
- **Pre-Construction Surveys**: Surveys will be conducted before construction to identify any active nests within the project area. If nesting pairs are found, construction planning will be reviewed to avoid disturbance during critical breeding seasons and a buffer zone of at least 1km will be established around the nest site to avoid disturbance.
- **Electrocution Mitigation**: OHTL towers will be fitted with raptor-safe designs, ensuring sufficient spacing between energized wires and grounded components to prevent electrocution.

Residual cumulative impacts

- **Collision Risk**: After mitigation, the residual collision risk remains low, with ongoing monitoring to ensure collision rates remain below the thresholds. However, there is still a minor risk of fatalities due to the Golden Eagle's large size and flight behavior, especially in areas near the OHTL. Residual cumulative impacts are expected to be **minor**, but adaptive management will be adopted if the mortality threshold is exceeded.
- **Electrocution Risk**: The risk of electrocution is significantly reduced with proper tower design and the installation of bird deterrents. Residual impacts are considered **minor**, provided ongoing maintenance ensures the effectiveness of these deterrents.
- **Disturbance and Habitat Fragmentation**: The impact of disturbance and habitat fragmentation is expected to be **negligible to minor** after mitigation. **Monitoring and buffer zones of at least 1km will ensure breeding pairs and nests are protected.** The Golden Eagle is a wide-ranging species, and the project area is not critical for its foraging. Additionally, post-construction habitat restoration will help to restore any temporary habitat loss.

In conclusion, the **residual cumulative impacts** of both projects on the Golden Eagle are predicted to be **low**, with minor risks of collision and electrocution. These will be closely

monitored through the CRMP, ensuring that any unexpected mortality can be addressed promptly.

4.1.2.2 *Gyps fulvus* (Eurasian Griffon)

The **Eurasian Griffon** is a large scavenger, commonly found in mountainous and semi-arid regions. The species plays a critical role in ecosystems by feeding on carrion and thus helping in the nutrient recycling process. The species has an estimated global population of approximately 30,000–40,000 individuals.

Globally, the species is listed as **Near Threatened (NT)** on the **IUCN Red List**, while the **Uzbekistan Red Data Book** lists it as **Vulnerable (VU)**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The **Eurasian Griffon** faces several significant threats at various scales:

- **Poisoning**: The species is susceptible to secondary poisoning from toxic carcasses, particularly in regions where poison is used to control predators. This is a common problem in areas where livestock management is prevalent.
- **Electrocution and Collisions**: Eurasian Griffons are at high risk of electrocution from power lines and collisions with wind turbines due to their large wingspan and frequent use of power poles as perches.
- **Habitat Loss**: Deforestation, land development, and human encroachment into previously undisturbed habitats limit suitable foraging and roosting areas for the species.
- **Food Availability**: Changes in agricultural practices and the reduction of traditional livestock herding reduce the availability of large carcasses, which are a critical food source for these vultures.
- **Climate Change**: Shifts in climate, especially droughts, are expected to exacerbate the decline in food availability and suitable habitats for the species.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Eurasian Griffon at Nukus 1 Project Site (Baseline Survey Results):

During the bird surveys conducted in 2020-2021, Eurasian Griffon Vultures were observed foraging in the vicinity of Vantage Point 1 and Vantage Point 3. No nests were identified within the survey area, suggesting the site is primarily used for foraging rather than breeding.

Presence of Eurasian Griffon at Nukus 2 Project Site (Baseline Survey Results):

A single Eurasian Griffon was recorded circling near Nesting Site NN-3, a rocky area that could potentially be used for roosting or future nesting activity, though no active nests were confirmed during the surveys.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for Eurasian Griffon include:

1. **Collision with Wind Turbines**:
    - The risk of collision with operational wind turbines is significant for large soaring birds like the Eurasian Griffon. These birds rely on thermal updrafts to soar and forage, making them particularly vulnerable to turbine blades, especially in open areas like the Nukus wind farm.
    - Young vultures and sub-adults are more prone to collision risks as they tend to fly lower and have less experience avoiding obstacles.
2. **Electrocution from Power Lines**:
    - The construction of overhead transmission lines (OHTL) poses a major electrocution risk for Eurasian Griffons. Without the implementation of raptor-safe designs, the species could suffer fatalities from perching on energized equipment along the transmission route.
3. **Habitat Fragmentation**:
    - The construction of access roads, wind turbines, and transmission lines could potentially fragment the habitat in these semi-arid regions if land take is significant. Habitat fragmentation could isolate local populations and limit their movement across suitable foraging grounds, affecting food availability and increasing energy expenditure.
4. **Food Supply Reduction**:
    - Reduced availability of large carcasses due to changing livestock practices in the region could limit the food supply for the Eurasian Griffon. This would negatively impact local populations that rely heavily on carrion from domestic livestock.
5. **Disturbance from Human Activity**:

- Construction and operation activities could lead to displacement of the Eurasian Griffon from important foraging areas, especially if these activities coincide with critical feeding times. The species is known to be sensitive to human disturbance and may avoid areas with high levels of activity.

Indirect threats for Eurasian Griffon include:

1. **Biosecurity Risks**:
    - The introduction of invasive species during construction could degrade the local ecosystems, indirectly affecting the prey base that supports vultures by diminishing the biodiversity needed to sustain carrion supplies.
2. **Habitat Degradation**:
    - Dust and emissions from construction activities may degrade local vegetation and habitats, which indirectly impacts the availability of prey species and therefore carcasses for scavenging vultures.
3. **Fire Risk**:
    - The increased risk of accidental fires due to construction activity could lead to habitat loss, which would further reduce available foraging areas for the Eurasian Griffon. Fires may also reduce the presence of key prey species, resulting in lower food availability.
4. **Soil Erosion**:
    - Soil disturbance during construction activities may lead to erosion, reducing the quality of the habitat and affecting prey populations. This could indirectly impact the Eurasian Griffon's food resources.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Eurasian Griffon is highly vulnerable to collisions with wind turbines due to its large wingspan, soaring flight behavior, and reliance on thermal updrafts, which often bring it into turbine rotor-swept zones.

- **Nukus 1 (Most realistic scenario): Predicted 0.242 collisions/year, approximately 1 collision every 4.1 years.**

- **Nukus 2 (Most realistic scenario): Predicted 0.421 collisions/year, approximately 1 collision every 2.4 years.**

Cumulative: These values suggest that there could be up to 1 Eurasian Griffon fatality every 1.5 years between both projects. Given the species' **Near Threatened (NT)** status globally and its **Vulnerable (VU)** listing in the **Uzbekistan Red Data Book**, even a low number of fatalities could pose a significant risk to the local population, especially as the species' slow reproduction rate may not compensate for losses due to project-related impacts.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded, turbine shut-down will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available.

Electrocution Mitigation:

- **Raptor-Safe OHTL Design**: All overhead transmission lines will be equipped with bird deflectors and designed to minimize electrocution risk by spacing energized parts to prevent large birds from contacting multiple wires simultaneously.
- **Perch Deterrents**: OHTL structures may be fitted with deterrents to prevent perching, if there is a residual risk after applying raptor-safe design to the OHTL towers, which might then further reduce the risk of electrocution for large birds like the Eurasian Griffon.

Disturbance Mitigation:

- **Pre-Construction Surveys**: Pre-construction surveys are critical for identifying key foraging areas. Where possible, construction activities will be timed to avoid sensitive periods, such as when vultures are most likely to be foraging.
- **Buffer Zones**: Buffer zones of 1km will be established around any key roosting or nest sites identified during pre-construction and monitoring surveys to reduce disturbance from construction and operational activities respectively.

Habitat Restoration:

- Post-construction habitat restoration of temporary laydown areas will include replanting and soil stabilization efforts to prevent the potential for habitat fragmentation, ensuring the ecosystem remains functional for prey species that vultures rely on for scavenging.

Residual cumulative impacts

- **Collision Risk**: Even after implementing mitigation, the residual collision risk remains moderate. The Eurasian Griffon's flight behavior—soaring at heights where turbines operate—makes it particularly vulnerable. The cumulative collision risk across both projects, estimated at roughly 1 fatality every 1.5 years, presents a **moderate residual impact**, particularly given the species' conservation status. Ongoing monitoring and adaptive management will be essential to minimize long-term impacts.
- **Electrocution Risk**: With the installation of raptor-safe designs and perch deterrents on OHTL structures, the risk of electrocution is significantly reduced. However, the Eurasian Griffon's habit of perching on tall structures means a residual electrocution risk remains. The residual impact is expected to be **low**, provided maintenance of OHTL structures is carried out regularly to ensure deterrents remain effective.
- **Disturbance and Habitat Fragmentation**: The residual impact of disturbance and habitat fragmentation is expected to be **minor** following habitat restoration efforts and the creation of buffer zones. The Eurasian Griffon has a broad home range and is unlikely to be severely affected by localized disturbances once mitigation measures are implemented.
- **Food Availability**: The residual impact on food availability is expected to be **negligible**, provided that livestock management in the area remains stable and allows for a consistent supply of carrion for scavengers. The project is not expected to cause significant reductions in livestock numbers, which would otherwise affect vulture populations.

Overall, while the residual cumulative impacts for the Eurasian Griffon are considered **moderate**, especially concerning collision risk, mitigation measures such as the CRMP and electrocution risk management will help reduce the overall long-term impacts on the species.

4.1.2.3 *Circus aeruginosus* (Western Marsh-harrier)

The **Western Marsh-Harrier** is a medium-sized raptor commonly found in wetland areas, including marshes and reed beds. It primarily preys on small mammals, birds, and amphibians, contributing to ecological balance by controlling these populations. This species has a widespread distribution across Europe, Asia, and parts of Africa, with stable populations in many regions.

Globally, the Western Marsh-Harrier is classified as **Least Concern (LC)** on the **IUCN Red List** due to its relatively large range and stable population trends. However, in Uzbekistan, it is classified as **Vulnerable (VU)** in the **Uzbekistan Red Data Book**, reflecting regional conservation concerns. The species is sensitive to habitat changes and human disturbances, particularly in its breeding and foraging grounds.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Western Marsh-Harrier faces several significant threats across various scales:

- **Habitat Loss and Degradation**: Wetland drainage and land conversion for agriculture or development reduce suitable habitats, impacting breeding and foraging areas.
- **Pesticide Exposure**: The use of pesticides in agricultural areas can decrease prey availability and lead to secondary poisoning in Western Marsh-Harriers.
- **Collision Risks**: While less susceptible to collisions than larger raptors, Western Marsh-Harriers are still at risk, particularly when foraging near wind farms.
- **Disturbance from Human Activities**: Increased human activity near breeding sites can cause nest abandonment and reduce breeding success.
- **Climate Change**: Changing water levels and droughts impact wetland habitats, affecting prey availability and breeding grounds.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Western Marsh-Harrier at Nukus 1 Project Site (Baseline Survey Results):

During the 2020-2021 surveys, Western Marsh-Harriers were observed at the Nukus 1 project site, with multiple sightings recorded in spring, summer, and winter vantage point surveys. Observations indicate that the site is used for foraging rather than nesting, given the absence of nesting evidence during the survey periods.

Presence of Western Marsh-Harrier at Nukus 2 Project Site (Baseline Survey Results): At the Nukus 2 site, Western Marsh-Harriers were also recorded, albeit in lower numbers, with sightings across several vantage points. Specifically, the species was observed at VP4 (1 observation), VP5 (3 observations), and at VP6 (1 observation). These observations suggest the species occasionally forages within the project area but does not rely on it as a primary habitat.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Western Marsh-harrier include:

1. **Collision with Wind Turbines**:
    - The Western Marsh-Harrier, although less prone to collision than larger raptors, remains vulnerable when foraging near wind turbines. The species' flight patterns within the rotor-swept zone increase the potential for collision, especially during migration and high-risk periods.
    - Collision risk modeling at Nukus 1 predicts 0.242 collisions/year (most realistic scenario), or approximately 1 collision every 4.1 years. For Nukus 2, the estimated risk is 0.0171 collisions/year, or roughly 1 collision every 58.5 years.
2. **Habitat Disturbance:**
    - Construction activities could temporarily disrupt foraging behaviour, particularly if these activities coincide with peak migration periods when the Western Marsh-Harrier is present in the area.

Indirect threats for the Western Marsh-harrier include:

1. **Prey Availability Reduction:**
    - Construction and operation activities may impact local prey populations, indirectly affecting foraging opportunities for the Western Marsh-Harrier.
2. **Biosecurity Risks:**
    - The introduction of invasive species during construction may alter local ecosystems, potentially affecting the prey base that supports Western Marsh-Harrier populations.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

Given its foraging behavior and occasional presence in the project areas, the cumulative collision risk for Western Marsh-Harriers across both projects is a moderate concern.

- **Nukus 1 (Most realistic scenario)**: Predicted 0.242 collisions/year, approximately 1 collision every 4.1 years.
- **Nukus 2 (Most realistic scenario)**: Predicted 0.0171 collisions/year, approximately 1 collision every 58.5 years.
- **Cumulative Impact**: Combined, the collision risk across both sites is approximately 0.2591 collisions/year, equivalent to 1 collision every 3.9 years. While the cumulative rate is low, it still poses a moderate risk due to the species' reliance on wetland habitats that are increasingly limited.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction:** A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded, turbine shut-down will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Habitat Restoration**:
- Post-construction habitat restoration will include replanting and soil stabilization efforts to prevent habitat fragmentation, ensuring the ecosystem remains functional for prey species that vultures rely on for scavenging.

Residual cumulative impacts

- ***Collision Risk*:** Despite the implementation of mitigation measures, the residual collision risk for Western Marsh-Harrier is expected to remain low to moderate, with continuous monitoring necessary to ensure population stability.
- ***Disturbance Impact*:** Habitat disturbance impact is anticipated to be minor, with adaptive management and habitat restoration efforts expected to support the species' foraging needs.

Overall, while the Western Marsh-Harrier is not expected to be heavily impacted by the Nukus 1 and 2 projects, monitoring during peak migration periods and adaptive management will be critical to mitigate potential impacts on this species.

4.1.3 Breeding Birds (Ground birds)

4.1.3.1 *Chlamydotis macqueenii* (Asian Houbara Bustard)

The **Asian Houbara Bustard** is a large ground-dwelling bird species primarily found in desert and semi-desert regions across Central Asia and parts of North Africa. This species is known for its elaborate courtship displays and seasonal migrations. The global population is declining, with an estimated population of 50,000–100,000 individuals. The species has an Extent of Occurrence (EOO) of around 12,000,000 km².

The **IUCN Red List** classifies the species as **Vulnerable (VU)**, and it holds the same status in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Asian Houbara Bustard faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: Large-scale habitat destruction from infrastructure development, agriculture, and human encroachment leads to a reduction in suitable breeding and foraging areas.
- **Poaching**: The species is frequently poached for sport and traditional hunting practices, particularly in the Middle East, which significantly impacts population numbers.
- **Disturbance from Human Activity**: Increased human presence in the region, including development projects, leads to disturbances that can displace the species, particularly during breeding and migratory periods.
- **Climate Change**: Changing weather patterns and droughts may further reduce the availability of suitable habitats, particularly in arid and semi-arid regions where the species is typically found.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Asian Houbara Bustard at Nukus 1 Project Site (Baseline Survey Results):

No individuals of the Asian Houbara Bustard were observed during the 2020-2021 surveys at Nukus 1, despite the presence of suitable habitat conditions. The lack of sightings suggests that

high levels of human disturbance, likely linked to infrastructure development, may have displaced the species from the area.

Presence of Asian Houbara Bustard at Nukus 2 Project Site (Baseline Survey Results):

Similarly, no Asian Houbara Bustard was observed at Nukus 2 during the 2021-2022 and 2024 surveys. The absence of sightings is attributed to the same factors of human disturbance, likely driving the species away from potential breeding and foraging areas near the project site.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Asian Houbara Bustard include:

1. **Habitat Loss**:
    - The construction of wind turbines, access roads, and related infrastructure leads to the direct loss of open desert and semi-desert habitats that are crucial for the Asian Houbara Bustard's breeding and foraging activities.
    - Fragmentation of habitats caused by road networks and turbine placements could further isolate populations and reduce suitable habitats.
2. **Disturbance from Construction Activity**:
    - Increased human presence, noise, and heavy machinery during the construction phase are likely to displace the Asian Houbara Bustard from key foraging and breeding areas. This could have a significant impact, especially if construction activities coincide with the breeding season.

Indirect threats for the Asian Houbara Bustard include:

1. **Reduction in Prey Availability**:
    - Habitat degradation due to dust emissions and soil erosion from construction activities could reduce the availability of food sources such as insects and small vertebrates, which are essential for the **Asian Houbara Bustard** during the breeding season.
2. **Increased Risk of Poaching**:
    - The presence of construction workers and increased access to remote areas may lead to higher risks of poaching, further threatening local populations of the **Asian Houbara Bustard**.
3. **Fire Risk**:

- Accidental fires caused by increased human activity and machinery could devastate important desert habitats, leading to further habitat loss and reduced availability of suitable breeding grounds for the species.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Asian Houbara Bustard is a ground-dwelling bird with limited flight activity, typically only flying during migration or in response to immediate threats. As a result, the collision risk with wind turbines is lower than for larger, soaring birds. However, during migration, when the species might fly at higher altitudes, there is a potential, though minimal, risk of collision with turbines.

- **Nukus 1 (Most realistic scenario)**: No individuals were observed during the 2020-2021 surveys, and the collision risk for the species remains low due to its ground-dwelling nature and limited flight activity.
- **Nukus 2 (Most realistic scenario)**: Similarly, no sightings were recorded at Nukus 2, indicating that the immediate project area may not be heavily utilized by the species for foraging or breeding.

Given the species' **Vulnerable (VU)** status on both the IUCN Red List and the Uzbekistan Red Data Book, the cumulative collision risk across both projects is expected to be **low** due to its terrestrial lifestyle. However, during migration periods, there remains a minor risk of interaction with turbines.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Monitoring**: Although the risk of collision is low, monitoring programs will include efforts to detect any instances of collision involving the species, particularly during migration periods.

Habitat Loss and Fragmentation Mitigation:

- **Pre-Construction Surveys**: Surveys conducted during the peak breeding season prior to construction were aimed at identifying any critical habitats for the Asian Houbara Bustard, of which none were observed.
- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 25 % of the overall Project area (including construction buffers) and is therefore considered

insignificant within the wider landscape context and is unlikely to result in habitat fragmentation.

- **Habitat Restoration**: Post-construction habitat restoration will restore laydown areas and temporary construction buffers to provide natural habitat conditions for the species.

Disturbance Mitigation:

- **Buffer Zones**: Buffer zones around construction areas will help reduce disturbances from construction activities, especially during the breeding season, although to date no Houbara Bustards have been observed on either of the NUKUS windfarm sites.
- **Noise and Human Activity Management**: Measures to minimize noise and human presence in areas where the species may forage or breed will help reduce displacement risks during construction.

Poaching Prevention:

- **Access Control**: To reduce the risk of increased poaching, access to remote areas will be strictly controlled, with project personnel being briefed on the conservation status of the species. Patrols and monitoring will be increased to deter poaching activities.

Residual cumulative impacts

- **Collision Risk**: After implementing the mitigation measures, the residual collision risk for the Asian Houbara Bustard is expected to remain **low**. Given the species' primarily ground-dwelling nature and limited flight time, the risk of turbine collision is minimal, even during migration periods. However, the potential remains for rare interactions, particularly during long-distance flights.
- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **moderate**. While the Asian Houbara Bustard was not observed in the immediate project area during baseline surveys, the project's development could still reduce the availability of suitable habitats in the region, although for NUKUS 2 this is 1.5% of the Project area and <2.5% including the Project buffers around the work areas. Habitat restoration efforts will mitigate the temporary loss.
- **Disturbance from Human Activity**: The residual impact from disturbance is expected to be **moderate**, particularly during the construction phase when increased human activity, noise, and machinery are present. These factors may temporarily displace the species from nearby foraging and breeding areas. After construction, disturbance is

expected to decline, but the ongoing presence of turbines and associated infrastructure may still lead to avoidance behavior.

- **Reduction in Prey Availability**: The residual impact on prey availability is expected to be **minor**. Habitat restoration will help recover some of the prey base (small vertebrates and insects) affected by construction activities. However, the potential for habitat degradation due to dust and soil erosion may still lead to a minor reduction in food resources for the Asian Houbara Bustard in the long term.
- **Increased Risk of Poaching**: The residual risk of poaching is expected to be **low** after mitigation measures such as restricted access and increased monitoring are implemented. While the presence of workers in remote areas may temporarily raise the poaching risk, control measures are expected to minimize this threat.

Overall, the **residual cumulative impacts** for the Asian Houbara Bustard are considered **moderate**, with the most significant risks arising from habitat loss, disturbance, and the potential for poaching. However, with continued monitoring and adaptive management, these impacts can be controlled to prevent further population declines.

4.1.4 Passage Migrants and Seasonal Visitors (Raptors)

4.1.4.1 *Neophron percnopterus* (Egyptian Vulture)

The **Egyptian Vulture** is a small vulture that inhabits open, desert, and mountainous areas across Southern Europe, Northern Africa, and Central Asia. It is a migratory raptor, known for its scavenging behavior and use of tools to break open eggs. The species has an Extent of Occurrence (EOO) of approximately 10,000,000 km² and an estimated global population of 12,000–38,000 mature individuals.

The species is listed as **Endangered (EN)** on the **IUCN Red List** and as **Vulnerable (VU)** in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Egyptian Vulture faces numerous threats on local, regional, and global scales:

- **Poisoning**: The species is vulnerable to poisoning, particularly from baited carcasses aimed at other predators, which it consumes as part of its scavenging behavior.
- **Electrocution**: Collisions with and electrocution by power lines present a significant threat, particularly in areas where new infrastructure development is occurring.

- **Habitat Loss**: Infrastructure development, agriculture, and land-use changes are reducing the available habitat for this species.
- **Decline in Prey Availability**: Reduced livestock numbers and shifts in land management practices, including less carrion availability, impact the species' ability to find food.
- **Poaching**: Illegal trapping and hunting are additional pressures, especially in areas where the species migrates or winters.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Egyptian Vulture at Nukus 1 Project Site (Baseline Survey Results):

The Egyptian Vulture was observed during the Raptor Nesting Survey in 2020-2021, with a single individual recorded in flight at Vantage Point 3 (VP-3). No nesting activity was observed, but the sighting indicates the species uses the area for foraging during migration periods.

Presence of Egyptian Vulture at Nukus 2 Project Site (Baseline Survey Results):

Similarly, one Egyptian Vulture was observed at Nukus 2 during the May 2024 Raptor Nesting Survey, again at VP-3. The species was seen foraging, but no nesting behaviour was identified, indicating the site is primarily used as a stopover during migration.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Egyptian Vulture include:

1. **Collision with Wind Turbines**:
    - The construction of wind turbines at both project sites poses a significant risk to migratory species like the Egyptian Vulture. As soaring birds, they are vulnerable to collisions with turbine blades, particularly during migration when they pass through wind farms.
2. **Electrocution from Power Lines**:
    - The **Overhead Transmission Lines (OHTL)** planned for both projects present a high electrocution risk for vultures. Without proper mitigation measures, such as raptor-safe designs, this infrastructure could pose a significant danger to the Egyptian Vulture and other large birds.
3. **Habitat Loss**:
    - The development of wind farm infrastructure, including roads, turbines, and the OHTL, will result in minimal habitat loss (approximately 2.5% of the project area

including 30m buffer zones around the WTGs), resulting in a slight reduction in the area available for foraging during migration.

Indirect threats for the Egyptian Vulture include:

1. **Disturbance from Human Activity**:
    - Construction noise and increased human presence at the project sites may disturb vultures during critical migration periods, potentially displacing them from key foraging areas.
2. **Reduction in Prey Availability**:
    - Habitat changes caused by construction activities may reduce the availability of carrion, particularly if changes in land use reduce livestock numbers significantly or wild prey populations, impacting the vulture's ability to find food.
3. **Poaching Risk**:
    - Increased human access to remote areas as a result of construction activities may lead to increased poaching, which could further threaten the species, particularly in areas where it migrates.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Egyptian Vulture is a migratory species that is vulnerable to collisions with wind turbines due to its soaring flight patterns, particularly during migration periods. The species was observed foraging at both Nukus 1 and Nukus 2, indicating that these areas may be used as stopovers during migration.

- **Nukus 1 (Most realistic scenario): Predicted 0.0421 collisions/year, or approximately 1 collision every 23.7 years.**
- **Nukus 2 (Most realistic scenario): Predicted 0.0421 collisions/year, or approximately 1 collision every 23.7 years.**

Cumulative: Across both sites, this suggests approximately 1 Egyptian Vulture fatality every 11.8 years. Given the species' Endangered (EN) status on the IUCN Red List and Endangered (EN) status in the Uzbekistan Red Data Book, even infrequent collisions could pose a significant risk to the local and regional populations, particularly because vultures have slow reproductive rates.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Electrocution Mitigation**:
- **Raptor-Safe OHTL Design**: The OHTL will be designed to minimize electrocution risks for large birds like the Egyptian Vulture. This includes installing bird deflectors and spacing energized components sufficiently to prevent vultures from contacting multiple wires simultaneously.
- **Perch Deterrents**: Perch deterrents may be installed on OHTL structures to discourage vultures from perching on power lines, although provision of insulated cables close to the towers is an alternative in reducing the risk of electrocution.

Habitat Protection:

- **Disturbance Mitigation**: Construction activities will utilise the existing access road built for NUKUS 1 and will avoid disturbance during peak migration seasons by keeping works within the WTG pads and 30m buffer and avoid construction of new minor access tracks and cabling (BOP) to reduce the likelihood of displacing vultures from foraging areas.

Residual cumulative impacts

- **Collision Risk**: Even with mitigation, the residual collision risk remains **moderate** due to the Egyptian Vulture's soaring flight behavior and frequent use of thermals during migration. While the predicted collision rate is low, with one collision expected every 12 years across both sites, the **Endangered (EN)** status of the species makes even occasional fatalities significant. Ongoing monitoring and adaptive management will be critical to ensure that actual mortality rates do not exceed acceptable thresholds.
- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe designs and perch deterrents on the OHTL. These

mitigation measures are proven to significantly reduce the risk of electrocution for large birds, though regular maintenance of the infrastructure is necessary to ensure deterrents remain effective.

- **Habitat Loss and Disturbance**: The residual impact of habitat loss and disturbance is anticipated to be **low**, as the development of wind farm infrastructure, including turbines, roads, and the OHTL, will reduce available foraging areas by no more than 2.5% during migration. However, the creation of small controlled buffer zones around WTG work areas and the timing of construction to avoid construction of new minor access tracks and cabling (BOP) during peak migration periods will help minimize short-term impacts.
- **Reduction in Prey Availability**: The residual impact on prey availability is expected to be **minor**. While habitat changes could temporarily reduce carrion availability, ongoing land-use practices and livestock management should continue to provide sufficient food sources for the Egyptian Vulture in the region.
- **Poaching Risk**: The residual risk of poaching is expected to be **low** after the implementation of access control and increased monitoring. While the presence of workers and increased access to remote areas might initially raise the risk of poaching, measures to control access and enforce regulations should mitigate this threat.

Overall, the **residual cumulative impacts** for the Egyptian Vulture are considered **moderate**, primarily due to the potential for collisions during migration and habitat loss from infrastructure development. Continued monitoring and adaptive management are essential to mitigating these risks and ensuring that the species' population is not adversely affected by the projects.

4.1.4.2 *Aquila nipalensis* (Steppe Eagle)

The **Steppe Eagle** is a large migratory raptor species predominantly found in open steppe and semi-desert regions across Central Asia, including Uzbekistan. It is known for its long migrations, often covering vast distances to reach wintering grounds. The global population is declining, with an Extent of Occurrence (EOO) of approximately 6,500,000 km².

The **IUCN Red List** classifies this species as **Endangered (EN)**, while it is listed as **Vulnerable (VU)** in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Steppe Eagle faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: Steppe and semi-desert regions are increasingly being converted to agriculture or used for infrastructure development, leading to habitat loss.
- **Electrocution**: Like many large raptors, Steppe Eagles are vulnerable to electrocution on power lines, particularly in areas with expanding infrastructure.
- **Collision with Wind Turbines**: Wind energy developments pose a significant collision risk, especially during migration.
- **Poisoning**: The species is also susceptible to secondary poisoning from carcasses baited with toxins intended for predators, as well as from agricultural chemicals.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Steppe Eagle at Nukus 1 Project Site (Baseline Survey Results):

Steppe Eagles were observed in multiple seasons during the 2020-2021 surveys at Nukus 1, including sightings at VP-3 and VP-4. A total of 10 individual sightings were recorded across the spring, summer, and winter, primarily during migration periods, indicating the site's potential as a stopover point during their long migratory journeys.

Presence of Steppe Eagle at Nukus 2 Project Site (Baseline Survey Results):

Similarly, Steppe Eagles were observed at Nukus 2 during the spring and autumn 2024 surveys. One individual was recorded flying at VP-3 in April, and another at VP-4 in March, highlighting the area's potential significance as a migratory route.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Steppe Eagle include:

1. **Collision with Wind Turbines**:
    - The construction of wind turbines at both project sites poses a significant collision risk for migratory species like the Steppe Eagle. Soaring birds are highly vulnerable to collisions with turbine blades, especially during migration when they are less familiar with the landscape.
2. **Electrocution from Power Lines**:
    - The **Overhead Transmission Lines (OHTL)** planned for both Nukus 1 and Nukus 2 present a substantial electrocution risk for the Steppe Eagle. Without proper mitigation, such as the implementation of raptor-safe designs, the risk of electrocution from power lines is high, particularly in migratory corridors.

3. **Habitat Loss**:
    - Habitat fragmentation due to the construction of wind turbines, access roads, and OHTL may reduce the available foraging and resting areas for the Steppe Eagle, particularly in critical migratory stopover zones, although for NUKUS 2 the area removed for permanent facilities is <1.5% of the Project area..

Indirect threats for the Steppe Eagle include:

1. **Disturbance from Human Activity**:
    - Increased human presence and noise from construction activities may disturb Steppe Eagles during migration, causing displacement from key resting areas and increasing energy expenditure during critical migratory periods.
2. **Reduction in Prey Availability**:
    - Habitat changes due to construction activities may lead to a reduction in the availability of small mammals and other prey species, indirectly affecting the Steppe Eagle's ability to sustain itself during migration.
3. **Light Pollution**:
    - Artificial lighting from the project could disrupt the natural behaviour of migratory birds, including Steppe Eagles, by altering their nocturnal flight paths or affecting prey behaviour.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Steppe Eagle, a large migratory raptor, is highly vulnerable to collisions with wind turbines, especially during migration when soaring birds are less familiar with the local landscape and flying at heights within the rotor-swept zones. The species was observed at both project sites during migration periods, indicating the importance of these areas as stopover points.

- **Nukus 1 (Most realistic scenario): Predicted 0.00485 collisions/year, or approximately 1 collision every 206 years.**
- **Nukus 2 (Most realistic scenario): Predicted 0.0226 collisions/year, or approximately 1 collision every 36.4 years.**

Cumulative: Across both sites, this suggests approximately 0.02745 collisions/year, or approximately 1 collision every 36.4 years. Given the species' Endangered (EN) status on the

IUCN Red List and Vulnerable (VU) status in the Uzbekistan Red Data Book, even rare collisions could have a significant effect on the local population, particularly due to the species' slow reproductive rate and migratory behaviour.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Electrocution Mitigation**:
- **Raptor-Safe OHTL Design**: OHTL will be designed to minimize electrocution risks for large raptors like the Steppe Eagle. This includes installing bird deflectors and ensuring sufficient spacing between energized wires and grounded structures to prevent eagles from completing a circuit.
- **Perch Deterrents**: Perch deterrents will be installed on OHTL structures to reduce the likelihood of Steppe Eagles perching on dangerous power lines, further reducing electrocution risks.

Habitat Loss and Fragmentation Mitigation:

- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 2.5% of the overall Project area and is therefore considered insignificant and is unlikely to result in habitat fragmentation. **Habitat Restoration**: Post-construction habitat restoration will focus on restoration of temporary laydown areas to re-establish natural vegetation suitable for supporting prey species.

Residual cumulative impacts

- **Collision Risk**: Even with mitigation measures, the residual collision risk remains **moderate** due to the Steppe Eagle's soaring flight behaviour and its frequent use of thermals at heights that may coincide with wind turbine rotor zones. Although the predicted collision rates are low (approximately 1 fatality every 36 years), the species' **Endangered (EN)** status means that even small numbers of fatalities could have

significant consequences for the population. Ongoing monitoring will be critical to ensure that actual mortality rates do not exceed the threshold.

- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe OHTL designs and perch deterrents. These mitigation measures will significantly reduce the likelihood of Steppe Eagles being electrocuted by power lines. However, the long-term effectiveness of these measures will depend on regular maintenance and monitoring to ensure that deterrents remain functional.
- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **low to moderate**, in relation to the loss of potential stopover zones for Steppe Eagles during migration. Habitat restoration will mitigate the impacts of temporary laydown areas and the permanent land loss caused by WTGs and access roads which may still reduce the availability of suitable foraging and potential resting areas.
- **Disturbance from Human Activity**: The residual impact from disturbance is expected to be **moderate**, particularly during the construction phase, when noise and human activity are highest. Steppe Eagles may avoid the area during migration if disturbances coincide with their stopover periods, potentially increasing energy expenditure and reducing the likelihood of successful migration. After construction, the residual disturbance from operational activities is expected to be minimal.
- **Reduction in Prey Availability**: The residual impact on prey availability is expected to be **minor**. While construction activities may temporarily reduce the availability of small mammals and other prey species, habitat restoration efforts and natural recolonization of prey populations will help sustain foraging opportunities for the Steppe Eagle over the long term.

Overall, the **residual cumulative impacts** for the Steppe Eagle are considered **low to moderate**, with the primary risks arising from collision with wind turbines during migration and human disturbance. The implementation of ongoing monitoring and adaptive management, if required, will be essential to mitigating these risks and ensuring that the Steppe Eagle population remains stable in the project area.

4.1.4.3 *Aquila heliaca* (Imperial Eagle)

The **Imperial Eagle** is a large raptor species that inhabits open woodlands, steppes, and forest-steppe regions. This species is migratory, with populations moving across large geographic ranges, including Central Asia, Southern Europe, and the Middle East. The Extent of

Occurrence (EOO) for the Imperial Eagle is approximately 3,000,000 km², with an estimated global population of around 3,000–5,000 individuals.

The **IUCN Red List** classifies the species as **Vulnerable (VU)**, and it holds the same status in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Imperial Eagle faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: Conversion of steppe and forest-steppe regions into agricultural land and other human developments has led to significant habitat loss for the species.
- **Electrocution**: One of the most prominent threats to the species is electrocution by power lines. This is particularly dangerous for large raptors, which often perch on power poles.
- **Poisoning**: Secondary poisoning from pesticides used to control predators and rodents is also a common cause of mortality.
- **Wind Farms**: The construction of wind turbines poses a serious risk of collision, particularly during migration.
- **Decline in Prey**: Changes in land use, including the reduction of natural prey species due to overhunting and habitat changes, can significantly affect the population of Imperial Eagles.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Imperial Eagle at Nukus 1 Project Site (Baseline Survey Results):

A single Imperial Eagle was observed during the Raptor Nesting Survey at Nukus 1 in 2020-2021, flying over Vantage Point 4 (VP-4). This suggests the species may use the site as a migratory stopover, though no nesting activity was recorded.

Presence of Imperial Eagle at Nukus 2 Project Site (Baseline Survey Results):

Similarly, one Imperial Eagle was observed at Nukus 2 in March 2024 during the same nesting survey at VP-4. The observation was of a foraging individual, indicating the site's use for migratory foraging, but again, no nesting behavior was recorded.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Imperial Eagle include:

1. **Collision with Wind Turbines**:
    - Wind turbines pose a high risk to large, soaring birds like the Imperial Eagle. These birds are particularly vulnerable during migration periods when they traverse large distances and are less familiar with local topography. The risk of collision is significant, especially given the frequent wind conditions that align with migration pathways.
2. **Electrocution from Power Lines**:
    - The Overhead Transmission Line (OHTL) associated with both Nukus projects poses a substantial risk of electrocution for large raptors. Without proper mitigation measures like raptor-safe designs, the Imperial Eagle could be severely impacted by interactions with energized equipment.
3. **Habitat Loss**:
    - The construction of wind turbines, access roads, and associated infrastructure fragments important open landscapes, reducing available foraging and roosting habitats for migratory raptors such as the Imperial Eagle.

Indirect threats for the Imperial Eagle include:

1. **Disturbance from Human Activity**:
    - Increased human activity during construction, including noise and vehicle movements, may disturb Imperial Eagles during key migratory and foraging periods, forcing them to expend additional energy avoiding these areas.
2. **Reduction in Prey Availability**:
    - Changes in land use, particularly the reduction of prey populations due to habitat degradation, dust emissions, and other construction-related activities, may indirectly impact the Imperial Eagle by reducing its food sources.
3. **Light Pollution**:

Artificial lighting from the project may disrupt nocturnal wildlife behavior, which could indirectly affect prey species, leading to shifts in predator-prey dynamics that could impact the foraging efficiency of the Imperial Eagle.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Imperial Eagle is a large, migratory raptor that is highly susceptible to collisions with wind turbines due to its soaring flight patterns and use of thermals to traverse large distances. The species was observed at both Nukus 1 and Nukus 2, primarily during migration, indicating the significance of these areas as stopover points for foraging and resting.

- **Nukus 1 (Most realistic scenario): Predicted 0.00485 collisions/year, or approximately 1 collision every 206 years.**
- **Nukus 2 (Most realistic scenario): Predicted 0.0226 collisions/year, or approximately 1 collision every 44 years.**

Cumulative: Across both sites, this suggests 1 Imperial Eagle fatality approximately every 36.4 years. Given the species' Vulnerable (VU) status on both the IUCN Red List and the Uzbekistan Red Data Book, even rare collisions could have a significant impact on the local and regional populations, particularly because of the species' slow reproductive rate and migratory behavior.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available.

Electrocution Mitigation:

- **Raptor-Safe OHTL Design**: The Overhead Transmission Lines (OHTL) will be equipped with bird deflectors, and designs will ensure sufficient spacing between energized wires and grounded components to prevent electrocution. These measures are crucial for preventing fatalities in large raptors like the Imperial Eagle, which often use power lines for perching.
- **Perch Deterrents**: Perch deterrents will be installed on OHTL structures to discourage perching, further minimizing the risk of electrocution.

Habitat Loss and Fragmentation Mitigation:

- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area (<2.5% including construction buffers) and is therefore considered insignificant within the landscape context and is unlikely to result in habitat fragmentation. **Habitat Restoration**: Following construction, habitat restoration efforts will focus on ensuring that important open landscapes are maintained for foraging and roosting.

Residual cumulative impacts

- **Collision Risk**: Despite the mitigation measures in place, the residual collision risk for the Imperial Eagle remains **moderate**. The species' soaring behavior and frequent use of thermals, especially during migration, puts it at continued risk of collision with turbines, even with shutdown protocols in place. The low predicted collision rate (1 fatality every 36 years) still poses a potential risk, given the species' **Vulnerable (VU)** status. Ongoing monitoring and adaptive management will be crucial to ensuring that mortality rates do not exceed acceptable thresholds.
- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe designs and perch deterrents on the OHTL. These measures are proven to significantly reduce the risk of electrocution in large raptors, though regular maintenance and monitoring are essential to ensure their continued effectiveness.
- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **low to moderate**, in relation to the loss of potential stopover zones for Imperial Eagle during migration. Habitat restoration will mitigate the impacts of temporary laydown areas and the permanent land loss caused by WTGs and access roads which may still reduce the availability of suitable foraging and potential resting areas.
- **Disturbance from Human Activity**: The residual impact from disturbance is expected to be **moderate**, particularly during the construction phase, when increased noise, vehicle movements, and human activity are at their highest. Imperial Eagles may avoid the area during key migratory periods, potentially leading to increased energy expenditure and reduced foraging opportunities. Post-construction, disturbance is expected to be minimal.
- **Reduction in Prey Availability**: The residual impact on prey availability is expected to be **minor**. While construction activities may temporarily reduce the number of small

mammals and other prey species, habitat restoration and recolonization of prey populations will help sustain foraging opportunities for the Imperial Eagle over the long term.

Overall, the **residual cumulative impacts** for the Imperial Eagle are considered **moderate**, with the primary risks arising from collisions with turbines during migration and habitat loss from infrastructure development. Continued monitoring and adaptive management are essential to mitigating these risks and ensuring that the population remains stable in the project area.

4.1.4.4 *Falco cherrug* (Saker Falcon)

The **Saker Falcon** is a large, powerful falcon found primarily in open landscapes such as steppe, semi-desert, and agricultural areas across Central Asia, Europe, and the Middle East. This species is a formidable hunter, preying on small mammals and birds. Globally, the population is estimated between 6,100–14,900 mature individuals, and its Extent of Occurrence (EOO) is approximately 9,000,000 km².

The species is classified as **Endangered (EN)** on the **IUCN Red List** and holds the same status in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Saker Falcon faces numerous threats on local, regional, and global scales:

- **Electrocution**: The most significant threat to this species is electrocution on poorly designed power lines, particularly in steppe and semi-desert regions where it often perches.
- **Poaching**: Illegal trapping and trade, especially for falconry, is a major concern, especially in Central Asia and the Middle East.
- **Habitat Degradation**: Changes in land use, particularly the conversion of steppe habitats to agriculture or infrastructure, reduce suitable foraging grounds for the falcon.
- **Collision with Wind Farms**: Wind turbines pose a significant collision risk, especially in open landscapes frequently used by soaring birds like the Saker Falcon.
- **Prey Decline**: Changes in agricultural practices and overhunting of prey species, such as small mammals, can reduce food availability.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Saker Falcon at Nukus 1 Project Site (Baseline Survey Results):

One individual Saker Falcon was observed at Vantage Point 2 (VP-2) during the 2020-2021surveys. This single sighting suggests that the falcon may use the area for foraging during its migration but no nesting behavior was recorded.

Presence of Saker Falcon at Nukus 2 Project Site (Baseline Survey Results):

The Saker Falcon was observed at Nesting Site NN-2 during both the March and April 2024 surveys, with both male and female individuals present. This confirmed an active breeding site within the project area, located at 42.058947 N, 60.653087 E. The presence of a nesting pair indicates the importance of the area for breeding.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Saker Falcon include:

1. **Collision with Wind Turbines**:
    - As a large, soaring species, the Saker Falcon is at high risk of collision with wind turbine blades, especially during its extensive foraging flights and migrations across open landscapes. This threat is especially pertinent given the species' frequent use of the project area.
2. **Electrocution from Power Lines**:
    - The planned Overhead Transmission Lines (OHTL) associated with the project pose a severe electrocution risk for the Saker Falcon, especially given its tendency to perch on power poles. Raptor-safe power line designs are essential to minimize this risk.
3. **Habitat Loss and Fragmentation**:
    - The construction of wind turbines and other infrastructure will result in habitat loss, which could limit the Saker Falcon's foraging range. The fragmentation of steppe habitats, critical for this species, may also reduce the availability of prey.

Indirect threats for the Saker Falcon include:

1. **Disturbance from Human Activity**:
    - Construction activities, including noise and vehicular movement, may disturb falcons during the critical nesting and foraging periods. This disturbance could reduce the falcons' breeding success, especially at Nesting Site NN-2.
2. **Prey Reduction**:

- Changes in land use due to the project could reduce the population of small mammals, the Saker Falcon's primary prey. This would have a cascading effect on the falcon's foraging efficiency and overall reproductive success.

3. **Poaching Risk**:

   - Increased human access to previously remote areas due to the project could raise the risk of illegal poaching and trapping of the Saker Falcon for the falconry trade, particularly during the breeding season.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Saker Falcon is a large, soaring raptor that frequently uses open landscapes for hunting and migration. Its extensive foraging flights, especially over steppe and semi-desert areas, put it at risk of collision with wind turbines, particularly given its regular use of the project area for both foraging and breeding.

- **Nukus 1 (Most realistic scenario): Predicted 0.0351 collisions/year, or approximately 1 collision every 28.5 years.**
- **Nukus 2 (Most realistic scenario): Predicted 0.0752 collisions/year, or approximately 1 collision every 13.3 years.**

Cumulative: Across both sites, this suggests 1 Saker Falcon fatality approximately every 9.5 years. Given the species' Endangered (EN) status on both the IUCN Red List and the Uzbekistan Red Data Book, this presents a significant risk, particularly because of the species' slow reproductive rate and the critical importance of the project area for breeding, as evidenced by the active nest found at Nukus 2.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.

- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Electrocution Mitigation**:
- **Raptor-Safe OHTL Design**: The Overhead Transmission Lines (OHTL) will be designed with sufficient spacing between energized wires and grounded components to prevent electrocution, particularly as Saker Falcons frequently perch on power poles. Bird deflectors will also be installed to minimize collision risks with power lines.
- **Perch Deterrents**: Perch deterrents will be installed on OHTL structures to discourage the falcons from perching in high-risk areas, further reducing electrocution risk.

Habitat and Nesting Site Protection:

- **Pre-Construction Surveys**: Surveys were conducted to identify key foraging and breeding areas for the Saker Falcon. The nesting site at Nukus 2 (NN-2) was identified, and measures will be implemented to avoid disturbance to this critical area.
- **Habitat Restoration**: Following construction, habitat restoration efforts will focus on minimizing habitat fragmentation and ensuring that important foraging habitats are preserved for the Saker Falcon's hunting needs.

Residual cumulative impacts

- **Collision Risk**: Despite the mitigation measures, the residual collision risk for the Saker Falcon remains **moderate**. The species' large range, soaring flight patterns, and regular use of the project area for both foraging and breeding mean that even with shutdown protocols, there is still a risk of collision with turbines. The low predicted collision rate (1 fatality every 9.5 years) is concerning, given the species' **Endangered (EN)** status and the potential impact on breeding pairs. Ongoing monitoring and adaptive management will be essential to managing this risk over the life of the project.
- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe designs and perch deterrents on the OHTL. These mitigation measures are highly effective in reducing electrocution risks for large raptors, though regular maintenance and monitoring are essential to ensure their continued effectiveness.
- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **moderate**, especially considering the importance of steppe habitats for the Saker Falcon's foraging and breeding activities. The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area (<2.5% including construction buffers) and is therefore considered insignificant within the landscape

context and is unlikely to result in habitat fragmentation. **Disturbance from Human Activity**: The residual impact from disturbance is anticipated to be **moderate**, particularly during the construction phase, when noise, human presence, and vehicle movements are at their peak. Construction activities near Nesting Site NN-2 could disturb the breeding pair, potentially affecting their reproductive success. After construction, operational activities are expected to have minimal disturbance impacts.

- **Prey Reduction**: The residual impact on prey availability is expected to be **minor**, as habitat restoration will help sustain small mammal populations, the primary prey for the Saker Falcon. While construction activities may cause short-term reductions in prey availability, post-construction habitat recovery should allow for recolonization of prey species.
- **Poaching Risk**: The residual risk of poaching is expected to be **low** after the implementation of access control and monitoring measures. Increased access to remote areas due to construction could initially raise the poaching risk, but mitigation measures such as controlled access and education campaigns for workers will minimize this threat.

Overall, the **residual cumulative impacts** for the Saker Falcon are considered **moderate**, primarily due to the risks of collision, habitat fragmentation, and potential disturbance during breeding. Continued monitoring, adaptive management, and careful protection of critical breeding sites like Nesting Site NN-2 will be essential to safeguarding this species over the course of the project.

4.1.4.5 *Falco vespertinus (Red-footed Falcon)*

The **Red-footed Falcon** is a small migratory raptor, primarily inhabiting open woodland, grasslands, and agricultural landscapes. This species plays an essential ecological role by preying on large insects and small vertebrates, thus contributing to the regulation of insect populations. The global population of the Red-footed Falcon is estimated to be stable but is subject to seasonal fluctuations as the species migrates.

Globally, the Red-footed Falcon is listed as **Near Threatened (NT**) on the **IUCN Red List** due to habitat loss and degradation, particularly on its breeding grounds. It is also recognized as **Vulnerable (VU)** in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Red-footed Falcon faces several key threats at different scales:

- **Habitat Loss and Degradation**: Expansion of agriculture and urbanization reduces available nesting and foraging areas, impacting the species' reproductive success and survival rates.
- **Pesticide Exposure**: The widespread use of pesticides in agricultural areas decreases insect prey availability and can lead to secondary poisoning in Red-footed Falcons.
- **Collision Risks**: Although smaller than other raptors, the Red-footed Falcon faces collision risks with wind turbines, particularly during migration periods.
- **Climate Change**: Changes in climate affect prey availability and migratory patterns, potentially disrupting the species' ability to survive in both breeding and wintering grounds.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Red-footed Falcon at Nukus 1 Project Site (Baseline Survey Results):

During the 2020-2021 surveys, Red-footed Falcons were observed in low numbers at the Nukus 1 project site, with sightings recorded in spring and summer vantage point surveys. Observations indicate limited foraging activity, suggesting the site may be part of the species' migratory path rather than a primary foraging or breeding area.

Presence of Red-footed Falcon at Nukus 2 Project Site (Baseline Survey Results):

Two Red-footed Falcons were recorded at Nukus 2, observed primarily during the spring vantage point surveys. This low frequency of sightings further suggests that the site serves as a transit route rather than critical habitat.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Red-footed Falcon include:

1. **Collision with Wind Turbines:**
    - The Red-footed Falcon, although smaller and more agile than larger raptors, is still susceptible to collisions with wind turbines, especially during its migratory flights when energy demands are high, and manoeuvrability might be reduced.

- Collision risk modeling at Nukus 1 predicts 0.0351 collisions/year (most realistic scenario), or approximately 1 collision every 28.5 years. For Nukus 2, the estimated risk is 0.0752 collisions/year, or roughly 1 collision every 13.3 years.

2. **Habitat Disturbance:**

   - Construction and operation activities could disrupt foraging behavior, particularly if these activities coincide with the species' migratory periods.
   - Given the site's limited role as a foraging ground, the overall disturbance impact is expected to be minimal but should be monitored during peak migration seasons.

Indirect threats for the Red-footed Falcon include:

1. **Prey Availability Reduction:**

   - Construction activity could disrupt local insect populations, indirectly impacting the food resources available for the Red-footed Falcon during migration.

2. **Biosecurity Risks:**

   - Invasive species introduced during construction may alter the ecosystem, potentially affecting the availability and diversity of prey insects.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

Due to its migratory behavior, the cumulative collision risk for Red-footed Falcons across both projects remains a concern, even though it is lower than for larger raptors.

- **Nukus 1 (Most realistic scenario)**: Predicted 0.0351 collisions/year, approximately 1 collision every 28.5 years.
- **Nukus 2 (Most realistic scenario)**: Predicted 0.0752 collisions/year, approximately 1 collision every 13.3 years.
- **Cumulative Impact**: Combined, the collision risk across both sites is approximately 0.1103 collisions/year, equivalent to 1 collision every 9 years. This cumulative rate presents a low but notable risk, particularly given the species' Near Threatened status globally and Vulnerable status in Uzbekistan.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Residual Cumulative Impacts**
- ***Collision Risk*:** Following the implementation of CRMP and turbine shutdowns during migration, residual collision risk for Red-footed Falcons is expected to remain low. Monitoring and adaptive management will be critical in ensuring that cumulative impacts remain minimal over time.
- ***Disturbance Impact*:** With limited disturbance anticipated, residual impact on foraging and migration behavior is expected to be negligible.

Overall, while the Red-footed Falcon is not heavily impacted by the Nukus 1 and 2 projects, ongoing monitoring during migration periods will be essential to manage and mitigate any cumulative or residual impacts on this Near Threatened species.

4.1.4.6 *Falco columbarius (Merlin)*

The **Merlin** is a small and agile falcon, typically found in open habitats such as grasslands, scrublands, and tundra. Known for its speed and precision, this falcon preys on small birds, contributing to the regulation of avian populations in its ecosystem. The Merlin is a migratory species with a wide range that extends across the Northern Hemisphere.

Globally, the Merlin is classified as **Least Concern (LC)** on the **IUCN Red List**, reflecting stable population trends. In Uzbekistan, however, it is listed as **Vulnerable (VU)** in the **Uzbekistan Red Data Book**, indicating a regional conservation concern due to threats such as habitat loss and disturbance.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Merlin faces several important threats at different scales:

- **Habitat Loss**: Expansion of agriculture and urban development reduces available open habitats, limiting nesting and foraging areas.

- **Disturbance from Human Activities**: Increased human activity in breeding and wintering grounds can disrupt the Merlin's hunting and roosting behaviors.
- **Climate Change**: Changes in climate patterns can impact prey availability and alter migratory routes, affecting the species' survival and reproduction.
- **Collision Risks**: Although smaller than other raptors, Merlins are still at risk of collision with wind turbines, especially during migration.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Merlin at Nukus 1 Project Site (Baseline Survey Results):

No Merlins were observed at the Nukus 1 site, indicating that this area is not within the species' primary range for foraging or nesting.

Presence of Merlin at Nukus 2 Project Site (Baseline Survey Results):

At the Nukus 2 site, the Merlin was observed during vantage point survey (VP4) in spring 2020 (1 observation) and autumn 2020 (3 observations). These observations suggest that the site serves as a migratory stopover, with limited evidence of the species using the area extensively for foraging.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Merlin include:

1. **Collision with Wind Turbines:**
    - Although Merlins have better manoeuvrability than larger raptors, they still face collision risks when navigating through turbine zones, particularly during migratory periods when they may be fatigued or in dense flocks.
    - Collision risk modelling at Nukus 2 predicts 0.257 collisions/year (most realistic scenario), or approximately 1 collision every 3.9 years.
2. **Habitat Disturbance:**
    - Construction activities near foraging grounds may temporarily disrupt the species' behavior, especially if they coincide with migration.

Indirect threats for the Merlin include:

1. **Prey Availability Reduction:**
    - Construction activities could disturb local bird populations, indirectly impacting food availability for Merlins.
2. **Habitat Degradation:**
    - Dust and emissions from construction could degrade nearby vegetation, indirectly impacting small bird populations that Merlins rely on for food.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

While the Merlin is not frequently observed at the project sites, cumulative collision risk remains a consideration, particularly given its Vulnerable status in Uzbekistan.

- **Nukus 1**: No observed collision risk due to absence of the species at this site.
- **Nukus 2 (Most realistic scenario)**: Predicted 0.257 collisions/year, or approximately 1 collision every 3.9 years.
- **Cumulative Impact**: The cumulative collision risk is estimated at 0.257 collisions/year across both projects, representing a low but notable risk, especially considering the Merlin's status as a Vulnerable species in Uzbekistan.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, if any, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Residual Cumulative Impacts**
- ***Collision Risk*:** With CRMP measures in place, residual collision risk is expected to remain low, though periodic monitoring will be essential to ensure that impacts are minimized.

- ***Disturbance Impact*:** Disturbance impact is anticipated to be minimal, given the Merlin's limited use of the area.

Overall, the Merlin is not anticipated to face significant impacts from the Nukus 1 and 2 projects. Nonetheless, periodic monitoring during migration and adaptive management will help to mitigate any cumulative or residual effects on this Vulnerable species.

4.1.5 Passage Migrants and Seasonal Visitors (Waterbirds)

4.1.5.1 *Grus grus* (Common Crane)

The **Common Crane** is a large, migratory waterbird found primarily in wetlands, agricultural landscapes, and migration stopover points across Europe and Central Asia. The species typically forms large flocks during migration and is known for its loud, trumpeting calls and graceful, synchronized flight patterns. With an Extent of Occurrence (EOO) estimated at over 10,000,000 km², the global population is estimated at approximately 500,000–700,000 individuals.

The species is currently listed as **Least Concern (LC)** on the **IUCN Red List** due to its large population and wide distribution. The species is not listed in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Common Crane faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: The drainage of wetlands for agricultural and development purposes is the primary threat to the species, reducing its available breeding and stopover sites.
- **Collision with Power Lines**: As a large, low-flying species, cranes are vulnerable to collisions with overhead power lines, particularly during migration.
- **Disturbance**: Human activities, including agriculture, construction, and hunting, can disturb cranes at key stopover points, leading to decreased foraging efficiency and increased energy expenditure during migration.
- **Climate Change**: Changes in water availability and habitat suitability due to climate change could affect migration routes and stopover sites, making it harder for cranes to find adequate resting and feeding grounds.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Common Crane at Nukus 1 Project Site (Baseline Survey Results):

During the 2022 survey at Nukus 1 site adjacent to Nukus 2, significant numbers of Common Cranes were observed at Vantage Points 1, 2, and 3. In total, 290 individuals were recorded, with 90 individuals at VP1, 80 individuals at VP2, and 120 individuals at VP3.

Surveys in 2022 also noted the presence of potentially thousands of cranes passing through the area during migration, suggesting that the project site is located within a flyway used by large flocks of migrating cranes.

Presence of Common Crane at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, 180 individuals of Common Cranes were recorded at VP3 during the March 2024 survey. The cranes were observed flying through the area as part of their migration, with no evidence of roosting or nesting within the project site.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Common Crane include:

1. **Collision with Wind Turbines**:
    - The **Common Crane**, as a large and migratory species, is at risk of colliding with wind turbines, particularly during its long-distance migrations across open landscapes like the project areas. The turbines pose a direct mortality threat to cranes, especially during periods of high wind when flight paths may be altered.
2. **Collision with Overhead Transmission Lines (OHTL)**:
    - The planned OHTL is a significant hazard for the Common Crane, as it is prone to flying at low altitudes during migration. Without the implementation of bird-safe designs, collisions with the power lines could result in crane fatalities.
3. **Habitat Loss**:
    - The construction of wind turbines and access roads will reduce the available foraging and resting habitat for migrating cranes by <2.5 % of the Project area for NUKUS 2,.

Indirect threats for the Common Crane include:

1. **Disturbance from Human Activity**:
    - Increased human activity, noise, and vehicular movements during the construction and operation of the project could disturb migrating Common

Cranes, potentially displacing them from key stopover areas. This would increase energy expenditure during migration, reducing the overall fitness and survival rates of individuals.

2. **Reduction in Food Availability**:
    - Construction activities may degrade local agricultural fields or wetland areas, reducing the availability of food resources for cranes during migration. The species relies heavily on agricultural lands for foraging during stopovers, and a reduction in these areas could affect their migratory success.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Common Crane is a large, migratory species that frequently flies at low altitudes during migration, making it particularly vulnerable to collisions with wind turbines and overhead transmission lines (OHTL). The species was observed in large numbers at both Nukus 1 and Nukus 2 during migration periods, confirming that these areas are critical stopover points for the cranes.

- **Nukus 1 (Most realistic scenario): Predicted 0.223 collisions/year, or approximately 1 collision every 4.5 years.**
- **Nukus 2 (Most realistic scenario): Predicted 4.21 collisions/year, or approximately 4 collisions per year.**

Cumulative collision risk for Nukus 1 and Nukus 2: Predicted 4.433 collisions/year, suggesting that over time, the cranes could experience slightly more than 4 collisions annually across both project sites. Given the species' Least Concern (LC) status on the IUCN Red List, the predicted collision rate may not pose a threat to the global population. However, this high collision risk remains concerning for the long-term local impact, especially given the heavy use of the area as a migration corridor.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- A **3-year Fatality Monitoring Program** will assess actual collision risks, including carcass searches and bias correction factors. Adaptive management strategies, such as real-time monitoring and turbine shut-down during high-risk periods, will be implemented if mortality thresholds are exceeded.

OHTL Mitigation:

- **Bird-Safe OHTL Design**: Overhead transmission lines will be equipped with bird deflectors to increase visibility, particularly for large migratory species like the Common Crane. These deflectors are designed to reduce the likelihood of collisions with power lines by 50%, especially during migration when cranes are flying at low altitudes.
- **Bird Deflectors** on OHTL: Markers will be installed on the overhead transmission lines to increase visibility although it is acknowledged that BFDs are, on average, only 50% effective. This would reduce predicted annual collisions for both NUKUS 1 and 2 to two birds annually.
- **Spatial Planning**: The placement of OHTL will avoid key migratory corridors where possible, reducing the likelihood of interactions between cranes and power lines.

Habitat Loss and Disturbance Mitigation:

- **Pre-Construction Surveys**: Surveys conducted before construction identified suitable stopover and foraging areas for Common Cranes. These surveys have identified turbines in higher risk areas which may require adaptive mitigation if mortality thresholds are exceeded. Habitat loss due to temporary facilities will be minimised in these key areas.
- **Habitat Restoration**: Post-construction habitat restoration will aim to rehabilitate disturbed areas and maintain open landscapes that are important for migrating cranes during stopovers.

Residual cumulative impacts

- **Collision Risk**: Despite the mitigation measures, the residual collision risk for the Common Crane remains **moderate to high**, particularly due to the species' frequent use of low-altitude flight paths during migration and the high number of individuals passing through the area. The predicted 4.43 fatalities per year, even with mitigation, represent a significant impact on local populations. Continued monitoring and adaptive management will be essential to managing this risk over the long term.
- **OHTL Collision Risk**: The residual risk of collision with OHTL is expected to be **moderate** after the implementation of bird deflectors and careful spatial planning. However, given the species' propensity to fly at low altitudes during migration, the risk of OHTL collisions cannot be entirely eliminated.

- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **moderate**, particularly in relation to the loss of stopover areas for migrating cranes. However, the footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area (<2.5% including construction buffers) and is therefore considered insignificant within the landscape context and is unlikely to result in habitat fragmentation..
- **Disturbance from Human Activity**: The residual impact from human disturbance is expected to be **moderate**, particularly during the construction phase, when noise and vehicle movements are at their highest. The presence of human activity near key stopover points may displace Common Cranes, leading to increased energy expenditure and reduced foraging efficiency during migration. After construction, disturbance impacts are expected to decrease, though they may still affect some individuals during operational activities.
- **Reduction in Food Availability**: The residual impact on food availability is expected to be **minor**, as cranes rely heavily on agricultural lands for foraging during migration. While construction may temporarily reduce the availability of foraging areas, post-construction habitat restoration and continued agricultural practices in the region should ensure that sufficient food resources are available for migrating cranes.

Overall, the **residual cumulative impacts** for the Common Crane are considered **moderate to high**, primarily due to the higher probability of collision with turbines and OHTL during migration and the loss of suitable stopover habitats. Continued monitoring, adaptive management, and mitigation strategies will be essential to reducing these impacts and ensuring the species can continue to use the project area as a safe migration corridor.

4.1.5.2 *Haliaeetus albicilla* (White-tailed Sea Eagle)

The **White-tailed Sea Eagle** is a large bird of prey found near coastal areas, lakes, rivers, and wetlands across Eurasia. This eagle is a proficient hunter, feeding mainly on fish and waterbirds. The global population of the species is considered stable, with an Extent of Occurrence (EOO) exceeding 10,000,000 km².

It is classified as **Least Concern (LC)** on the **IUCN Red List**, but the species holds a **Vulnerable (VU)** status in the **Uzbekistan Red Data Book** due to threats within the country's region.

NATIONAL, REGIONAL AND GLOBAL THREATS

The White-tailed Sea Eagle faces numerous threats on local, regional, and global scales:

- **Habitat Destruction**: Wetland drainage and damming of rivers are primary threats to the species in Central Asia and other regions, reducing nesting and foraging habitats.
- **Electrocution and Collisions**: The species is vulnerable to collisions with wind turbines and electrocution on poorly designed power lines, particularly during migration and foraging flights.
- **Poisoning**: Secondary poisoning from lead and other contaminants ingested via prey, such as waterbirds or fish, has been recorded as a major issue in many areas.
- **Disturbance**: Increased human activity near critical breeding or wintering sites can lead to nest abandonment, especially in regions with expanding infrastructure or agriculture.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of White-tailed Sea Eagle at Nukus 1 Project Site (Baseline Survey Results):

One individual of the White-tailed Sea Eagle was recorded during the winter 2022 survey at Vantage Point 1 (VP-1) on February 19, 2022. This observation indicates that the project site may be used as a wintering or foraging ground during migration.

Presence of White-tailed Sea Eagle at Nukus 2 Project Site (Baseline Survey Results):

No White-tailed Sea Eagles were observed at Nukus 2 during the surveys, suggesting that the site may not be frequently used by this species, or it is only utilized during specific migration periods.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the White-tailed Sea Eagle include:

1. **Collision with Wind Turbines**:
    - The **White-tailed Sea Eagle** is a large, soaring bird that is at risk of colliding with wind turbine blades, particularly during foraging flights and migration across open landscapes. This poses a significant mortality risk, especially in regions with high turbine density.

2. **Electrocution from Power Lines**:
    - The planned **Overhead Transmission Lines (OHTL)** associated with the project present a high electrocution risk for large birds like the White-tailed Sea Eagle,

which frequently perches on tall structures. Without raptor-safe designs, the species could face fatal interactions with energized equipment.

3. **Habitat Loss**:
    - The construction of wind turbines, access roads, and related infrastructure could result in habitat loss, particularly near wetlands or rivers where the White-tailed Sea Eagle forages. Fragmentation of these critical habitats may reduce the species' ability to find sufficient prey.

Indirect threats for the White-tailed Sea Eagle include:

1. **Disturbance from Human Activity**:
    - Increased noise, vehicular traffic, and human presence during the construction and operational phases could disturb **White-tailed Sea** Eagles from their wintering or foraging areas, reducing foraging efficiency and increasing energy expenditure during migration.
2. **Pollution and Contaminants**:
    - Dust and emissions from construction activities could reduce air and water quality, indirectly affecting prey species, particularly fish and waterbirds. This decline in prey availability could negatively impact the foraging success of the White-tailed Sea Eagle.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The White-tailed Sea Eagle is a large, soaring bird that frequently uses open landscapes and wetlands for foraging, making it vulnerable to collisions with wind turbines. The risk is heightened during foraging and migration flights, when the species may travel across areas with turbine installations. At Nukus 1, a White-tailed Sea Eagle was observed during the winter, suggesting that the area may be used as a foraging ground during migration or wintering periods.

- **Nukus 1 (Most realistic scenario): No predicted collision data for White-tailed Sea Eagles specifically, though the risk is presumed moderate given the species' flight patterns and large size.**
- **Nukus 2 (Most realistic scenario): Predicted 0.0421 collisions/year, or approximately 1 collision every 23.7 years.**

Cumulative: Across both sites, this suggests an estimated 1 White-tailed Sea Eagle fatality every 23.7 years. Although the species is classified as Least Concern (LC) on the IUCN Red List, its Vulnerable (VU) status in the Uzbekistan Red Data Book emphasizes the regional importance of minimizing fatalities.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available.

Electrocution Mitigation:

- **Raptor-Safe OHTL Design**: All Overhead Transmission Lines (OHTL) will be designed with sufficient spacing between energized wires to prevent electrocution, particularly as White-tailed Sea Eagles often perch on tall structures. Bird deflectors will also be installed to increase visibility and reduce collision risks with power lines.
- **Perch Deterrents**: Perch deterrents may be installed on OHTL towers to prevent eagles from using these structures for perching, thereby reducing the risk of electrocution.

Habitat and Foraging Ground Protection:

- **Pre-Construction Surveys**: Surveys conducted prior to construction identified key foraging areas and potential wintering grounds for the White-tailed Sea Eagle. These surveys informed the placement of turbines and OHTL, ensuring that critical wetland and riverine habitats are avoided.
- **Habitat Restoration**: Habitat restoration efforts post-construction will aim to mitigate any habitat loss, particularly in areas suitable for foraging near wetlands and rivers.

Residual cumulative impacts

- **Collision Risk**: Even with mitigation measures in place, the residual collision risk for the White-tailed Sea Eagle remains **moderate**. The species' large size and soaring behavior,

especially during foraging flights and migration, put it at continued risk of collision with wind turbines. While the predicted collision rate (1 fatality every 23.7 years) is low, the regional vulnerability of the species increases the significance of even a single fatality. Ongoing monitoring and adaptive management are essential to managing this risk over the life of the project.

- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe OHTL designs and perch deterrents. These mitigation measures are effective in reducing the electrocution risk for large raptors, although regular maintenance and monitoring will be necessary to ensure that deterrents remain functional.
- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **moderate**, particularly for foraging habitats near wetlands and rivers. Although habitat restoration efforts will mitigate some of the loss, the construction of turbines, access roads, and transmission lines may reduce the availability of key foraging habitats. The strategic placement of infrastructure and ongoing habitat management will be critical to minimizing these long-term impacts.
- **Disturbance from Human Activity**: The residual impact from disturbance is anticipated to be **moderate**, particularly during the construction phase, when noise, vehicle movements, and human presence are at their peak. This may disturb White-tailed Sea Eagles from foraging areas or wintering grounds, potentially leading to increased energy expenditure and reduced foraging efficiency. After construction, the disturbance from operational activities is expected to decrease, though it may still affect some individuals.
- **Pollution and Contaminants**: The residual impact of pollution and contaminants is expected to be **minor**, with dust and emissions from construction activities having a limited, short-term impact on water quality and prey availability. However, the risk of contamination through waterborne pollutants, particularly in wetlands or rivers, should be monitored to ensure that the White-tailed Sea Eagle's prey base (fish and waterbirds) remains unaffected.

Overall, the **residual cumulative impacts** for the White-tailed Sea Eagle are considered **moderate**, primarily due to the risks of collision with turbines, habitat loss, and disturbance during foraging and migration periods. Continued monitoring, adaptive management, and habitat protection measures will be essential to safeguarding this species over the course of the project.

4.1.6 Passage Migrants and Seasonal Visitors (Groundbirds)

4.1.6.1 *Falco tinnunculus* (Common Kestrel)

The **Common Kestrel** is a small raptor widely distributed across open landscapes, including grasslands, steppes, and desert regions in Eurasia and Africa. It is often observed hovering while hunting for small mammals, insects, and reptiles. The species has an Extent of Occurrence (EOO) exceeding 10,000,000 km², and its population is considered stable.

It is classified as **Least Concern (LC)** on the **IUCN Red List** due to its widespread range and large population. The species is not listed in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Common Kestrel faces numerous threats on local, regional, and global scales:

- **Habitat Degradation**: The conversion of grasslands and open fields for agricultural or urban development reduces available hunting grounds, impacting the species' ability to forage effectively.
- **Pesticides and Chemicals**: The use of rodenticides and pesticides in agricultural areas poses a risk to the kestrel through secondary poisoning, particularly where it preys on small mammals.
- **Collision Risks**: As a bird that hunts at low altitudes, the Common Kestrel is vulnerable to collisions with overhead transmission lines and wind turbines, particularly in open areas where such structures are prevalent.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Common Kestrel at Nukus 1 Project Site (Baseline Survey Results):

One individual of the Common Kestrel was observed during the November 2022 survey at Vantage Point 3 (VP-3), indicating occasional use of the area for hunting or passage during migration.

Presence of Common Kestrel at Nukus 2 Project Site (Baseline Survey Results):

The species was recorded at VP-4, VP-2, and VP-5 during multiple surveys in spring 2024, with individuals observed flying low over the project area. The presence of the species at all vantage points suggests that the site is part of its broader foraging territory, though no breeding behavior was observed.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct t**hreats for the Common Kestrel include:**

1. **Collision with Wind Turbines**:
    - The Common Kestrel is vulnerable to colliding with wind turbines due to its low-altitude hunting behavior, which makes it more susceptible to flying into turbine blades during foraging flights.
2. **Electrocution from Power Lines**:
    - The overhead transmission lines (OHTL) planned for the project present a significant electrocution risk, as kestrels often perch on power lines during hunting. Without bird-safe designs, electrocution could result in kestrel fatalities.

Indirect threats for the Common Kestrel include:

1. **Reduction in Prey Availability**:
    - Habitat degradation caused by construction activities, including road-building and turbine installation, is unlikely to reduce prey availability for the kestrel by disturbing small mammals and reptiles in the project area.
2. **Disturbance from Human Activity**:
    - Increased noise, vehicle movement, and human presence during construction and operation phases is unlikely to disturb the Common Kestrel and displace it from its hunting grounds, particularly during periods of peak activity, such as migration or early mornings when the species hunts most actively.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Common Kestrel is a small, low-flying raptor that hunts primarily over open landscapes such as grasslands, steppe, and agricultural fields. Its hunting behavior puts it at risk of collisions with wind turbines, particularly because it often flies at low altitudes while hovering and searching for prey. The species was observed at both Nukus 1 and Nukus 2 during the surveys, indicating that these areas are part of its broader foraging territory.

- **Nukus 1 (Most realistic scenario): Predicted 5 collisions/year, or 5 fatalities per year.**
- **Nukus 2 (Most realistic scenario): Predicted 8.72 collisions/year, or approximately 9 fatalities per year.**

Cumulative: Across both sites, this suggests an estimated 13.72 Common Kestrel fatalities per year. While the species is classified as Least Concern (LC) on the IUCN Red List due to its large population and wide distribution, the high predicted collision rate raises concerns about local impacts, especially if this trend continues over the project's lifespan.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Electrocution Mitigation**:
- **Raptor-Safe OHTL Design**: All overhead transmission lines (OHTL) will be designed with sufficient spacing between energized wires to prevent electrocution, as kestrels often perch on power lines while hunting. Bird deflectors will also be installed to increase visibility and reduce collision risks with power lines.
- **Perch Deterrents**: Perch deterrents will be installed on OHTL structures to discourage Common Kestrels from using these structures as perches, minimizing the risk of electrocution.

Habitat Loss and Fragmentation Mitigation:

- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is <2.5 % of the overall Project area (including construction buffers) and is therefore considered unlikely to result in habitat fragmentation..
- **Habitat Restoration**: Following construction, habitat restoration efforts will focus on rehabilitating disturbed areas to ensure that kestrels can continue to forage in the project area.

Residual cumulative impacts

- **Collision Risk**: Even with mitigation measures, the residual collision risk for the Common Kestrel remains **moderate to high** due to the species' low-altitude hunting behavior and

frequent use of open habitats near the turbines. The predicted 14 fatalities per year across both sites is significant, although the overall population is not expected to be severely impacted at a global level. However, ongoing monitoring and adaptive management will be critical to managing this risk and ensuring that local populations are not disproportionately affected.

- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe OHTL designs and perch deterrents. These measures are highly effective in reducing the risk of electrocution for small raptors like the Common Kestrel, though regular maintenance and monitoring are necessary to ensure that deterrents remain functional.
- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **low** as the construction of turbines and access roads will not significantly reduce the availability of open areas for foraging. The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area (<2.5% including construction buffers) and is therefore considered insignificant within the landscape context and is unlikely to result in habitat fragmentation. **Reduction in Prey Availability**: The residual impact on prey availability is anticipated to be **minor**, as the construction activities may temporarily disturb small mammals, insects, and reptiles, reducing the kestrel's food sources. However, post-construction habitat recovery and restoration efforts should ensure that prey populations recover, maintaining adequate food resources for the kestrel.
- **Disturbance from Human Activity**: The residual impact from human disturbance is expected to be **minor**, particularly during the operational phase. While noise, vehicle movement, and human presence during the construction phase may temporarily disturb Common Kestrels, the species is adaptable and likely to resume normal foraging behavior once construction is complete. However, ongoing monitoring will be important to ensure that human activity does not disrupt key foraging periods during migration or peak hunting times.

Overall, the **residual cumulative impacts** for the Common Kestrel are considered **moderate to high**, primarily due to the risks of collision with turbines and habitat loss. Continued monitoring, adaptive management, and habitat restoration will be essential to managing these risks and ensuring that the species is not significantly impacted by the project.

4.1.6.2 *Circus cyaneus* (Hen Harrier)

The **Hen Harrier** is a medium-sized bird of prey that inhabits open country, including steppes, wetlands, and grasslands. It is migratory in most parts of its range, moving south during the winter months. The species has an Extent of Occurrence (EOO) exceeding 10,000,000 km².

It is classified as **Least Concern (LC)** on the **IUCN Red List**, and it is not listed in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The *Hen Harrier* faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: Agricultural expansion and development reduce the availability of open grasslands and wetlands, crucial for hunting.
- **Persecution**: In some regions, particularly where gamebird management is prevalent, the species faces threats from illegal persecution, including poisoning and shooting.
- **Wind Turbines and Power Lines**: As a low-flying bird, the Hen Harrier is at risk of collisions with wind turbines and power lines, especially during migration.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Hen Harrier at Nukus 1 Project Site (Baseline Survey Results):

During the Autumn 2022 surveys, two individuals were recorded in October, and one individual was observed in November at Vantage Point 1 (VP-1). These observations indicate that the species is present at the project site during the migration season.

Presence of Hen Harrier at Nukus 2 Project Site (Baseline Survey Results):

The Hen Harrier was observed during the winter 2022 survey at Vantage Point 2 (VP-2). One individual was noted during this period, suggesting the species uses the area as part of its wintering grounds.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Hen Harrier include:

1. **Collision with Wind Turbines**:
    - The Hen Harrier is vulnerable to collisions with wind turbines, particularly during migration when it flies at low altitudes. The risk is higher in open landscapes like

those surrounding Nukus 1 and Nukus 2, where turbines could pose a significant threat to migrating and foraging birds.

2. **Electrocution from Power Lines**:
    - The construction of Overhead Transmission Lines (OHTL) poses a risk of electrocution for the Hen Harrier. Without raptor-safe designs, the species could suffer fatalities from contact with energized equipment.

Indirect threats for the Hen Harrier include:

1. **Habitat Fragmentation and Loss**:
    - The construction of turbines, access roads, and related infrastructure is unlikely to fragment the species' preferred open habitat
2. **Disturbance from Human Activity**:
    - Increased noise and human activity during the construction and operational phases may displace Hen Harriers from key foraging areas. The species is particularly sensitive to disturbance, especially during the migration season.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Hen Harrier is a low-flying bird of prey that inhabits open landscapes such as steppes, wetlands, and grasslands. Its low-altitude hunting flights and migratory behavior make it particularly vulnerable to collisions with wind turbines and power lines. The species was observed at both Nukus 1 and Nukus 2 during migration and wintering periods, suggesting that the project area is important for both migration stopovers and winter foraging.

- **Nukus 1 (Most realistic scenario): Predicted 0.108 collisions/year, or approximately 1 collision every 9.3 years.**
- **Nukus 2 (Most realistic scenario): Predicted 0.888 collisions/year, or approximately 1 collision every 1.1 years.**

Cumulative: Across both sites, this suggests an estimated 0.996 Hen Harrier fatalities per year, or approximately 1 fatality every year. While the species is classified as Least Concern (LC) on the IUCN Red List, this high predicted collision rate is a concern for local populations, particularly in areas where habitat loss and fragmentation may already be affecting the species.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.
- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines may be micro-sited to avoid the most frequented foraging paths where this information is available. **Electrocution Mitigation**:
- **Raptor-Safe OHTL Design**: The Overhead Transmission Lines (OHTL) will be designed with sufficient spacing between energized wires to prevent electrocution, especially as Hen Harriers may perch on transmission poles. Bird deflectors will also be installed to reduce the risk of collision with power lines.
- **Perch Deterrents**: Perch deterrents will be installed on OHTL structures to prevent Hen Harriers from perching in high-risk areas, further minimizing the risk of electrocution.

Habitat Loss and Fragmentation Mitigation:

- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area (<2.5% including construction buffers) and is therefore considered insignificant within the landscape context and will not result in habitat fragmentation. **Habitat Restoration**: Following construction, habitat restoration efforts will focus on maintaining and restoring open landscapes, ensuring that Hen Harriers have sufficient foraging grounds and that habitat fragmentation is minimized.

Residual cumulative impacts

- **Collision Risk**: Despite mitigation measures, the residual collision risk for the Hen Harrier remains **moderate to high**. The species' low-altitude hunting flights and use of open habitats make it vulnerable to turbine strikes even with shut-down protocols in place. The predicted collision rate (1 fatality per year) is significant, particularly for local populations. Continued monitoring and adaptive management will be essential to managing this risk and ensuring that mortality rates do not exceed acceptable thresholds.

- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe OHTL designs and perch deterrents. These measures are proven to significantly reduce the risk of electrocution in raptors, though regular maintenance and monitoring will be necessary to ensure that deterrents remain effective over time.
- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **Low**, as the construction of turbines, access roads, and transmission lines will not significantly fragment the open landscapes that Hen Harriers rely on for foraging. Although habitat restoration will mitigate some impacts, the overall reduction in available hunting grounds may affect foraging success, particularly during migration and wintering periods.
- **Disturbance from Human Activity**: The residual impact from human disturbance is expected to be **moderate**, particularly during the construction phase when noise, vehicle movements, and human presence are at their peak. Hen Harriers are sensitive to disturbance, especially during migration, and may avoid areas with high human activity, leading to increased energy expenditure and reduced foraging success. After construction, disturbance impacts are expected to decrease, though some individuals may still be affected during operational activities.

Overall, the **residual cumulative impacts** for the Hen Harrier are considered **moderate to high**, primarily due to the risks of collision with turbines, habitat loss, and disturbance during foraging and migration periods. Continued monitoring, adaptive management, and habitat restoration will be essential to managing these risks and ensuring that the species is not significantly impacted by the project.

4.1.6.3 *Buteo rufinus* (Long-legged Buzzard)

The **Long-legged Buzzard** is a medium-sized raptor commonly found in open steppe, semi-arid, and desert regions. It is a widespread resident across Eurasia and North Africa. The species hunts small mammals, birds, and reptiles and has an Extent of Occurrence (EOO) exceeding 10,000,000 km².

Classified as **Least Concern (LC)** on the **IUCN Red List**, the species is common throughout its range. The species is tot listed in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Long-legged Buzzard faces numerous threats on local, regional, and global scales:

- **Habitat Degradation**: Agricultural activities and development reduce available foraging areas for this species. Conversion of steppe and desert habitats to farmland affects its hunting success.
- **Electrocution and Collision Risks**: The species frequently perches on power lines, posing a risk of electrocution. Wind turbines also represent a collision threat, particularly in open areas.
- **Persecution**: In some regions, *Long-legged Buzzards* are persecuted due to their predation on game birds and small livestock.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Long-legged Buzzard at Nukus 1 Project Site (Baseline Survey Results):

During surveys in spring, summer, and autumn 2022, a total of 65 observations of the Long-legged Buzzard were recorded at various vantage points. The species was regularly sighted across multiple seasons, indicating its presence as a resident in the project area.

Presence of Long-legged Buzzard at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, the Long-legged Buzzard was observed frequently during March and April 2024. Individuals were sighted at Vantage Points (VP) 1, 6, and 4. The species' presence throughout the year suggests it uses both project sites as part of its foraging range.

SPECIES THREATS DUE TO THE NUKUS 1 AND NUKUS 2 PROJECTS

Direct threats for the Long-legged Buzzard include:

1. **Collision with Wind Turbines**:
    - The **Long-legged Buzzard** is vulnerable to collisions with wind turbines due to its frequent low-altitude hunting flights. The presence of wind turbines in open areas, such as those at Nukus 1 and Nukus 2, increases the risk of collision during foraging.
2. **Electrocution from Power Lines**:
    - Overhead transmission lines planned for the project present an electrocution risk, as Long-legged Buzzards frequently perch on power poles. Without raptor-safe designs, the risk of fatal interactions with energized equipment remains high.

Indirect threats for the Long-legged Buzzard include:

1. **Habitat Loss and Fragmentation**:
    - Construction of wind turbines, roads, and infrastructure will fragment the open habitats required by the species for hunting. This habitat degradation could reduce prey availability, potentially forcing Long-legged Buzzards to relocate to less optimal foraging areas.
2. **Disturbance from Human Activity**:
    - Increased noise and human activity during construction and operation phases may disturb **Long-legged Buzzards**, leading to displacement from preferred hunting grounds. This disturbance could negatively affect their foraging efficiency, particularly during breeding seasons.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Long-legged Buzzard is a medium-sized raptor that frequently hunts over open landscapes such as steppes and semi-arid regions. Its low-altitude foraging flights and tendency to perch on power lines make it vulnerable to collisions with wind turbines and electrocution from power lines. The species was regularly observed at both Nukus 1 and Nukus 2 throughout multiple seasons, indicating that these areas are part of its regular foraging range.

- **Nukus 1 (Most realistic scenario): Predicted 0.188 collisions/year, or approximately 1 collision every 5.3 years.**
- **Nukus 2 (Most realistic scenario): Predicted 0.421 collisions/year, or approximately 1 collision every 2.4 years.**

Cumulative: Across both sites, this suggests an estimated 0.609 Long-legged Buzzard fatalities per year, or approximately 1 fatality every 1.6 years. Although the species is classified as Least Concern (LC) on the IUCN Red List due to its wide distribution, this predicted collision rate is a concern for local populations, particularly given the species' frequent use of the project areas for hunting.

Mitigation implemented

Collision Risk Management Plan (CRMP):

- **Carcass Searches and Bias Correction**: A monitoring program with regular carcass searches will be implemented to assess the actual collision rate, including searcher bias and carcass persistence trials.

- **Shut-Down Protocols**: If mortality thresholds are exceeded,, turbine shut-downs will be triggered during high-risk periods, such as migration seasons or specific weather conditions that increase collision likelihood.
- **Turbine Design**: Turbines are placed to avoid the most frequented foraging paths where possible, and turbine blades are designed to minimize the risk to large birds.

Electrocution Mitigation:

- **Raptor-Safe OHTL Design**: The Overhead Transmission Lines (OHTL) will be designed with raptor-safe spacing between energized wires to prevent electrocution, as Long-legged Buzzards often perch on power poles. Bird deflectors will also be installed to increase visibility and reduce the risk of collision with power lines.
- **Perch Deterrents**: Perch deterrents will be installed on OHTL structures to prevent Long-legged Buzzards from using these structures for perching, further minimizing the risk of electrocution.

Habitat Loss and Fragmentation Mitigation:

- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area (<2.5% including construction buffers) and is therefore considered unlikely to result in habitat fragmentation. .
- **Habitat Restoration**: Following construction, habitat restoration efforts will focus on maintaining open landscapes that are important for the species' foraging behavior. This will help mitigate any loss or degradation of habitats caused by construction activities.

Residual cumulative impacts

- **Collision Risk**: Despite the implementation of mitigation measures, the residual collision risk for the Long-legged Buzzard remains **moderate to high**. The species' low-altitude hunting flights and frequent presence in the project area make it vulnerable to collisions with turbines, even with shut-down protocols in place. The predicted collision rate (1 fatality every 1.7 years) is significant for local populations, and ongoing monitoring and adaptive management will be essential to managing this risk over the long term.
- **Electrocution Risk**: The residual risk of electrocution is expected to be **low** after the implementation of raptor-safe OHTL designs and perch deterrents. These measures are effective in reducing the risk of electrocution for medium-sized raptors like the Long-

legged Buzzard, though regular maintenance and monitoring will be necessary to ensure that deterrents remain effective.

- **Habitat Loss and Fragmentation**: The residual impact of habitat loss and fragmentation is expected to be **moderate**, as the construction of turbines, access roads, and infrastructure will reduce the availability of open habitats that are critical for the Long-legged Buzzard's hunting success. While habitat restoration efforts will mitigate some impacts, the overall reduction in suitable foraging areas may force the species to relocate to less optimal habitats. Continued monitoring and habitat management will be essential to ensuring that the species can maintain sufficient foraging grounds in the project area.
- **Disturbance from Human Activity**: The residual impact from human disturbance is expected to be **moderate**, particularly during the construction phase when noise, vehicle movements, and human presence are at their highest. Long-legged Buzzards may be temporarily displaced from key foraging areas, leading to reduced foraging efficiency and increased energy expenditure. After construction, disturbance impacts are expected to decrease, though some individuals may still be affected during operational activities.

Overall, the **residual cumulative impacts** for the Long-legged Buzzard are considered **moderate to high**, primarily due to the risks of collision with turbines, habitat loss, and disturbance during foraging periods. Continued monitoring, adaptive management, and habitat restoration will be critical to managing these risks and ensuring that the species is not significantly impacted by the project.

4.2 Bats

4.2.1 *Rhinolophus hipposideros* (Lesser Horseshoe Bat)

The **Lesser Horseshoe Bat** is a small bat species typically found in caves, abandoned structures, and forested mountainous areas. The species forages for insects in forest clearings and along woodland edges. Its global Extent of Occurrence (EOO) covers much of Europe and parts of Central Asia.

Classified as **Least Concern (LC)** on the **IUCN Red List**, it holds a **Vulnerable (VU)** status in the **Uzbekistan Red Data Book** due to regional pressures on its roosting habitats and foraging grounds.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Lesser Horseshoe Bat faces numerous threats on local, regional, and global scales:

- **Roost Disturbance and Habitat Loss**: The destruction of caves, buildings, and mines used for roosting, along with the reduction of foraging habitats due to deforestation and land-use changes, poses a critical threat to this species.
- **Wind Turbine Collisions**: Like many bat species, the *Lesser Horseshoe Bat* is vulnerable to collisions with wind turbines, particularly during its nocturnal foraging flights.
- **Climate Change**: Shifts in climate can alter prey availability, particularly during periods of drought or extreme weather that affect insect populations.
- **Pollution**: Air pollution and pesticide use can reduce insect abundance, indirectly impacting the species by limiting its food resources.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Lesser Horseshoe Bat at Nukus 1 Project Site (Baseline Survey Results):

No direct observations of the Lesser Horseshoe Bat were recorded at Nukus 1 during the bat acoustic monitoring. However, potential roosting and foraging habitats exist near rocky outcrops and caves surrounding the project area, suggesting the species could be affected if future activities encroach on these sites.

Presence of Lesser Horseshoe Bat at Nukus 2 Project Site (Baseline Survey Results):

The species was detected during the July 2024 acoustic monitoring survey at Nukus 2, foraging near cave entrances and along forest edges. These areas provide ideal habitats for *Lesser Horseshoe Bats*, suggesting that the site is actively used by the species for feeding.

Direct threats for the Lesser Horseshoe Bat include:

1. **Collision with Wind Turbines**:
    - The Lesser Horseshoe Bat is at risk of colliding with wind turbines during its nocturnal foraging flights, particularly where turbines are placed near its foraging grounds. Bat mortality from turbine strikes is a well-documented issue in other wind farm projects, especially for small bat species.
2. **Habitat Loss and Fragmentation**:
    - Construction activities, including road building and the installation of wind turbines, may lead to some habitat fragmentation, potentially reducing the

availability of foraging areas and roosting sites. The destruction of forested or rocky areas could directly affect the local bat population.

Indirect threats for the Lesser Horseshoe Bat include:

1. **Disturbance from Human Activity**:
    - Increased human presence, construction noise, and light pollution could disturb *Lesser Horseshoe Bats*, especially near potential roosting sites. The species is highly sensitive to disruptions at roosting sites, particularly during the breeding and hibernation seasons.
2. **Reduction in Prey Availability**:
    - Dust emissions and habitat changes from construction may lead to a decrease in insect populations, indirectly reducing food resources for the species.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Lesser Horseshoe Bat, as a small insectivorous species, is vulnerable to collisions with wind turbines, particularly during its nocturnal foraging flights. While no direct observations were recorded at Nukus 1, acoustic monitoring at Nukus 2 confirmed the species' presence in potential foraging habitats near caves and forest edges. The bats' foraging behavior near these areas raises the likelihood of turbine collisions, particularly at Nukus 2, where the species was confirmed to be actively using the project site.

- **Nukus 1: No direct observations of Lesser Horseshoe Bat, but potential for collision risk exists due to habitat suitability.**
- **Nukus 2: The cumulative collision risk for bats at Nukus 2 is moderate given the acoustic detections of the species.**

Cumulative impacts due to other renewables on the national level and in the region

The expansion of renewable energy infrastructure, including wind farms, across Uzbekistan and Central Asia poses increasing risks to bat populations, particularly through collisions with turbines. While the impact of individual projects like Nukus 1 and 2 may be moderate, when combined with other developments in the region, the cumulative impact could lead to a significant decline in bat populations, particularly for species like the Lesser Horseshoe Bat that rely on specific foraging and roosting habitats.

Nationally, the push for wind energy is leading to the development of several wind farm projects, which increases the risk of habitat fragmentation and reduced connectivity between roosting and foraging sites. This cumulative impact is exacerbated by the destruction of natural habitats such as caves and forests, which are essential for Lesser Horseshoe Bats' roosting and foraging.

Mitigation implemented

Collision Risk Mitigation:

- **Turbine Curtailment Protocols**: Turbine curtailment applied adaptively during periods of high risk if monitoring shows mortality thresholds are breached.

Habitat Loss and Fragmentation Mitigation:

- **Pre-Construction Surveys**: Bat surveys were undertaken to align with the South African guidelines for pre-clearance bat monitoring at wind energy facilities.
- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is approximately 2.5% of the overall Project area and is therefore considered insignificant within the landscape context and will not result in habitat fragmentation or loss of wildlife corridors.
- **Roost Protection**: Buffer zones will be established around identified or potential roosting sites to prevent disturbance, and construction near these areas will be avoided.
- **Habitat Restoration**: Post-construction, efforts will be made to restore any disturbed habitats, ensuring the availability of foraging grounds near forest edges and rocky habitats for Lesser Horseshoe Bats.

Disturbance Mitigation:

- **Construction Timing and Noise Control**: Construction activities will be limited during sensitive periods such as breeding or hibernation seasons to avoid disturbing bats at roosting sites. Noise levels will be minimized near potential roosts.
- **Light Pollution Control**: Low-impact lighting will be used during both construction and operational phases to prevent disruption of bat foraging behavior.

Residual cumulative impacts

- **Collision Risk**: Despite the implementation of curtailment protocols) and bat deterrents, the **residual collision risk** for the Lesser Horseshoe Bat is expected to remain **moderate**. Given the species' small size and foraging behavior near forest edges and

rocky areas, there is still a risk of collisions with turbines, particularly at Nukus 2. Continued monitoring and adaptive management will be essential to further reduce this risk over time.

- **Habitat Loss and Fragmentation**: The **residual impact of habitat loss and fragmentation** is also expected to be **moderate**. However, he overall reduction in suitable foraging areas is no more than 2.5% maximum of the Project area so it is unlikely that construction activities will force the bats to relocate to less optimal areas. Ongoing habitat management and restoration will be undertaken post construction completion.
- **Disturbance from Human Activity**: The **residual disturbance impact** is expected to be **moderate**, particularly during the construction phase when noise and human presence are at their highest. Lesser Horseshoe Bats are sensitive to disturbances at roosting sites, especially during breeding and hibernation seasons. The species may still experience some level of disturbance during the operational phase, although light pollution and human presence will be minimized.
- **Cumulative Impact of Regional Renewables Development**: The **residual cumulative impact** at the regional level is **moderate to high**, given the increasing number of renewable energy projects in Uzbekistan and Central Asia. As more wind farms and infrastructure projects are developed, the combined effects of habitat fragmentation, turbine collisions, and roost disturbances could exacerbate the vulnerability of Lesser Horseshoe Bats, particularly in areas where suitable roosting sites are already limited.

Overall, the **residual cumulative impacts** for the Lesser Horseshoe Bat are considered **moderate**, with a need for ongoing monitoring, adaptive management, and conservation measures to ensure that the species is not significantly impacted by the project or the wider renewable energy development in the region.

4.2.2 *Tadarida teniotis* (European Free-tailed Bat)

The **European Free-tailed Bat** is a medium-sized bat species that inhabits arid and semi-arid regions. Known for its fast, straight flight, it is typically found roosting in rock crevices, cliffs, and sometimes buildings. The species is widespread across southern Europe, North Africa, and parts of Asia, with an Extent of Occurrence (EOO**)** covering millions of square kilometers.

The global population is considered stable, and it is classified as **Least Concern (LC)** on the **IUCN Red List**. In Uzbekistan, however, it is listed as **Vulnerable (VU)** in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The European Free-tailed *Bat* faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: The destruction or degradation of rocky areas, cliffs, and caves that serve as roosting sites poses a significant threat to this species, particularly in arid regions where suitable habitats are limited.
- **Wind Turbine Collisions**: As a fast-flying bat, *Tadarida teniotis* is at risk of colliding with wind turbines, especially those located in its flight paths through open desert or semi-desert landscapes.
- **Climate Change**: Shifts in climate patterns can affect insect populations, which serve as the primary food source for this species, thereby reducing prey availability.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of European Free-tailed Bat at Nukus 1 Project Site (Baseline Survey Results):

No direct observations of the European Free-tailed Bat were recorded at Nukus 1 during the bat monitoring surveys. However, the region's arid environment, with rocky areas and cliffs, could potentially provide suitable roosting and foraging habitats for the species.

Presence of European Free-tailed Bat at Nukus 2 Project Site (Baseline Survey Results):

During the July 2024 acoustic monitoring at Nukus 2, no direct observations of the European Free-tailed Bat were made. However, the environmental conditions, including open desert areas and scattered rocky formations, are considered suitable for the species. Further monitoring may reveal its presence during seasonal movements or nocturnal foraging periods.

Direct threats for the European Free-tailed Bat include:

1. **Collision with Wind Turbines**:
    - The species is at high risk of collision with operational wind turbines, particularly during nocturnal foraging flights. Its fast, straight-line flight pattern increases the likelihood of collision with turbines, especially in open areas where turbines are located near roosting or foraging grounds.
2. **Habitat Loss**:
    - The construction of infrastructure, including roads and turbines, will likely lead to habitat degradation or loss, particularly in rocky areas that serve as roosting

sites for the *European Free-tailed Bat*. Habitat fragmentation may also affect the species' ability to forage effectively.

Indirect threats for the European Free-tailed Bat include:

1. **Reduction in Prey Availability**:
    - The disturbance of local ecosystems, particularly insect populations, through dust and habitat modification may reduce prey availability. This could impact the species' ability to find sufficient food during its nightly foraging activities.
2. **Disturbance from Noise and Light Pollution**:
    - Increased noise from construction activities and artificial lighting may disturb the nocturnal behavior of the species, affecting its ability to navigate and hunt effectively during the night.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The European Free-tailed Bat is a medium-sized, fast-flying species known for its straight, high-speed flight patterns, which increase its vulnerability to collisions with wind turbines. While no direct observations were recorded at Nukus 1 or Nukus 2, the arid, open desert and rocky areas in both project locations provide suitable habitats for roosting and foraging, suggesting a potential presence during nocturnal foraging periods. Wind turbine collisions are a significant concern for this species due to its flight behavior, which makes it prone to turbine strikes.

- **Nukus 1**: **No direct observations, but suitable habitats exist, indicating a potential low to moderate risk of collision.**
- **Nukus 2: No direct observations, but environmental conditions indicate a potential moderate risk of collision during foraging**.

Given the species' vulnerability to turbine collisions and the presence of suitable habitats, the cumulative impact of wind turbines at both Nukus 1 and Nukus 2 is considered **moderate**, particularly during nocturnal flights when visibility is reduced, and bats are actively foraging.

Cumulative impacts due to other renewables on the national level and in the region

At the national and regional levels, the expansion of wind energy infrastructure across Uzbekistan and Central Asia presents growing risks to bat populations, including the European Free-tailed Bat. With its fast flight patterns and widespread distribution across open desert landscapes, the species is particularly vulnerable to turbine collisions in areas where wind

energy developments overlap with its migratory or foraging routes. The cumulative impact of multiple wind farms in the region may exacerbate this risk, potentially leading to population declines if appropriate mitigation measures are not implemented.

In addition to direct collisions, the cumulative loss of suitable roosting habitats due to infrastructure development across arid and rocky areas may further threaten this species, particularly in regions where habitat is already limited.

Mitigation implemented

Collision Risk Mitigation:

- **Turbine Curtailment Protocols**: Turbine curtailment applied adaptively during periods of high risk if monitoring shows mortality thresholds are breached.

Habitat Loss and Fragmentation Mitigation:

- **Pre-Construction Surveys**: Bat surveys were undertaken to align with the South African guidelines for pre-clearance bat monitoring at wind energy facilities.
- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area and is therefore considered insignificant within the landscape context and is unlikely to result in overall habitat fragmentation. However due to the bats roosting preferences for rocky outcrops and cliffs for roosting, there is potential for residual impact which will be monitored to determine if there is a need for adaptive mitigation measures to be implemented.
- **Roost Protection**: Buffer zones will be established around identified or potential roosting sites to ensure that construction activities do not disturb these critical habitats. Habitat restoration efforts will also be implemented in areas disturbed by construction.

Disturbance Mitigation:

- **Construction Timing and Noise Control**: Construction activities will be limited during key active flight periods to reduce noise and human disturbance within the WTG pad and 30m buffer zone, particularly near rocky outcrops and cliffs where the species may roost.
- **Light Pollution Control**: The use of artificial lighting will be minimized and directed away from potential roosting and foraging areas to reduce the impact on nocturnal behavior and minimize disturbance to bats during their active foraging periods.

Residual cumulative impacts

- **Collision Risk**: The residual collision risk for the European Free-tailed Bat remains moderate, particularly at Nukus 2, where the species may use the area for foraging. Despite the implementation of curtailment protocols and bat deterrents, the species' fast and straight flight patterns make it particularly vulnerable to turbine collisions. Ongoing monitoring and adaptive management will be crucial to reducing collision risks over time, with measures applied adaptively if monitoring shows mortality thresholds are breached.
- **Habitat Loss and Fragmentation**: The **residual impact of habitat loss and fragmentation** is expected to be **moderate**, given that the species relies on rocky outcrops and cliffs for roosting. Although pre-construction surveys and habitat restoration efforts aim to mitigate this impact, the reduction in suitable roosting habitats may force the species to relocate to less optimal areas. Continued habitat management and restoration will be necessary to minimize these long-term impacts on the local population.
- **Disturbance from Human Activity**: The **residual disturbance impact** is expected to be **low to moderate**, particularly during the construction phase when noise and human presence are highest. European Free-tailed Bats are sensitive to disturbances near their roosting sites, particularly noise and light pollution. While mitigation measures will minimize these disturbances, some residual impact is expected, particularly during the early stages of construction.
- **Cumulative Impact of Regional Renewables Development**: The **residual cumulative impact** of regional renewable energy developments is **moderate to high**. With the expansion of wind energy infrastructure across Uzbekistan and neighboring countries, the risk of collision, habitat loss, and roost disturbance for the European Free-tailed Bat will increase. The combined effects of multiple projects across the region may lead to a significant cumulative impact on the species, particularly if roosting and foraging habitats continue to be disturbed or degraded by renewable energy developments.

Overall, the **residual cumulative impacts** for the European Free-tailed Bat are considered **moderate to high**, primarily due to the potential risk of collision with turbines, habitat loss, and the cumulative effects of renewable energy projects in the region. Ongoing monitoring, adaptive management, and habitat protection will be essential to mitigating these risks and ensuring the species is not significantly impacted by the project or wider regional developments.

4.2.3 *Rhinolophus ferrumequinum* (Greater Horseshoe Bat)

The **Greater Horseshoe Bat** is a large bat species predominantly found in temperate regions, typically roosting in caves and abandoned buildings. This species is widely distributed across Europe, North Africa, and Asia, including mountainous areas of Uzbekistan. It is a highly echolocating species that forages in open woodlands and farmlands for insects, primarily moths and beetles.

The **IUCN Red List** classifies this species as **Least Concern (LC)** due to its wide range and large population. It is not listed as threatened globally but faces local pressures in parts of its range. For this reason, the specie sis registered in the **Uzbekistan Red Data Book** as **Vulnerable (VU).**

NATIONAL, REGIONAL AND GLOBAL THREATS

The Greater Horseshoe Bat faces numerous threats on local, regional, and global scales:

- **Habitat Loss and Disturbance**: The species is sensitive to the destruction or modification of roosting sites, such as caves, which can occur due to human construction or natural events.
- **Wind Turbine Collisions**: As an aerial insectivore, the *Greater Horseshoe Bat* is at risk of colliding with wind turbines, especially those located in its foraging habitats.
- **Climate Change**: Changing temperature and precipitation patterns could alter insect prey availability, affecting the species' foraging success.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Greater Horseshoe Bat at Nukus 1 Project Site (Baseline Survey Results):

No direct observations of the Greater Horseshoe Bat were made at Nukus 1 during the bat monitoring surveys. However, caves and rocky outcrops in nearby areas could potentially provide suitable roosting habitats for this species. Acoustic monitoring detected no confirmed echolocation calls of this species during the surveys.

Presence of Greater Horseshoe Bat at Nukus 2 Project Site (Baseline Survey Results):

Similar to Nukus 1, no direct sightings or acoustic detections of the Greater Horseshoe Bat were recorded at Nukus 2. However, potential roosting sites, such as caves or rocky areas, were noted within proximity to the project site, indicating that this species could occasionally utilize the area for roosting or foraging.

Direct threats for the Greater Horseshoe Bat include:

1. **Collision with Wind Turbines**:
    - The **Greater Horseshoe Bat** is at risk of collision with operational wind turbines during its nocturnal foraging flights, particularly in open woodland or farmland areas near turbines.
    - As this species is a slow flier, it might not detect the turbine blades quickly enough to avoid a collision, increasing the risk of mortality.
2. **Habitat Loss and Fragmentation**:
    - Construction activities, such as building access roads and turbine sites, could degrade or fragment the species' foraging habitats, reducing prey availability and limiting their ability to forage effectively.

Indirect threats for the Greater Horseshoe Bat include:

1. **Disturbance from Noise and Light Pollution**:
    - Construction noise, as well as artificial lighting from turbines or other infrastructure, could disturb the nocturnal behavior of this species, causing displacement from foraging areas or roosting sites.
2. **Reduction in Prey Availability**:
    - Dust, emissions, and habitat modification may lead to declines in insect populations, which serve as the primary food source for the *Greater Horseshoe Bat*, negatively affecting foraging success.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Greater Horseshoe Bat is known for its slow, deliberate flight patterns and nocturnal foraging behavior, primarily targeting insects such as moths and beetles. Although no direct sightings or acoustic detections were recorded at Nukus 1 or Nukus 2, the nearby caves and rocky outcrops present suitable roosting and foraging habitats for the species. The species is vulnerable to turbine collisions, especially during nocturnal flights when visibility is limited, and its slower flight speed reduces its ability to avoid turbine blades quickly.

- **Nukus 1: No direct observations were made, but potential roosting habitats exist, leading to a low to moderate risk of collision.**

- **Nukus 2: No direct observations were made, but similar suitable habitats near the project site suggest a moderate risk of collision, especially during nocturnal foraging flights**.

Overall, the cumulative collision risk for the Greater Horseshoe Bat across both Nukus 1 and Nukus 2 is considered moderate, given the presence of suitable habitats and foraging grounds near the wind turbines.

Cumulative impacts due to other renewables on the national level and in the region

Regionally, the expansion of renewable energy projects, including wind farms, across Uzbekistan and Central Asia increases the cumulative risk to the Greater Horseshoe Bat. As wind turbines become more prevalent in areas where the species forages, the likelihood of bat-turbine collisions grows. Additionally, the cumulative loss of foraging habitats due to multiple renewable energy developments could further stress local bat populations, particularly in regions where suitable roosting sites are limited.

The destruction or degradation of foraging grounds and the risk of turbine collisions are compounded by the ongoing development of wind energy projects. This cumulative pressure, particularly in areas like rocky outcrops and near caves, may lead to a significant decline in the population of Greater Horseshoe Bats if not carefully managed.

Mitigation implemented

Collision Risk Mitigation:

- **Turbine Curtailment Protocols**: Turbine curtailment applied adaptively during periods of high risk if monitoring shows mortality thresholds are breached.

Habitat Loss and Fragmentation Mitigation:

- **Pre-Construction Surveys**: Bat surveys were undertaken to align with the South African guidelines for pre-clearance bat monitoring at wind energy facilities.
- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area and is therefore considered insignificant within the landscape context and unlikely to result in overall habitat fragmentation. However due to the bats roosting preferences for rocky outcrops and cliffs for roosting, there is potential for residual impact which will be monitored to determine if there is a need for adaptive mitigation measures to be implemented.
-

- **Roost Protection**: Buffer zones will be established around potential or identified roosting sites, preventing construction activities from encroaching on critical habitats. Post-construction habitat restoration will also be implemented in disturbed areas to restore suitable conditions for the species.
- **Habitat Restoration**: Any degraded areas around rocky outcrops and foraging grounds will be restored to ensure the availability of natural habitats for foraging and roosting after construction.

Disturbance Mitigation:

- **Noise and Light Pollution Control**: Construction noise will be minimized near potential roosting sites, and artificial lighting from turbines will be kept to a minimum or directed away from key roosting or foraging habitats to reduce disturbance to nocturnal foraging behavior.
- **Construction Timing**: Construction activities will be limited during critical periods, such as breeding or hibernation seasons, to prevent disruptions to bat colonies in nearby roosting areas.

Residual cumulative impacts

- **Collision Risk**: The residual collision risk for the Greater Horseshoe Bat is expected to remain moderate, particularly due to the species' slower flight and nocturnal foraging habits. Although the implementation of curtailment protocols and bat deterrents will help reduce collisions, some residual risk will likely remain, especially in open areas where turbines are placed near foraging habitats, and will be applied adaptively if monitoring shows mortality thresholds are breached.
- **Habitat Loss and Fragmentation**: The **residual impact of habitat loss and fragmentation** is considered **moderate to high**, given the species' reliance on specific roosting sites in caves and rocky outcrops. Despite mitigation efforts to avoid key habitats and restore degraded areas, the reduction in suitable foraging grounds and potential habitat fragmentation will continue to pose a significant threat to the species.
- **Disturbance from Human Activity**: The **residual disturbance impact** is expected to be **moderate**, particularly during the construction phase. Increased human activity and construction-related noise and light pollution could disturb roosting sites, particularly if activities occur near caves or rocky outcrops. The species is sensitive to disturbances, and although mitigation will minimize this impact, some residual disturbance is expected.

- **Cumulative Impact of Regional Renewables Development**: The **residual cumulative impact** of regional renewable energy development is considered **moderate to high**. The combined effects of habitat loss, fragmentation, and turbine collisions across multiple wind energy projects in the region may lead to a significant decline in the Greater Horseshoe Bat population. The cumulative loss of suitable foraging habitats, combined with ongoing threats from other renewable energy projects, underscores the need for continued monitoring and conservation efforts to protect this species.

Overall, the **residual cumulative impacts** for the Greater Horseshoe Bat are considered **moderate to high**, with the primary concerns being collision risk, habitat loss, and the cumulative effects of wind energy projects in the region. Continued adaptive management, habitat restoration, and monitoring will be essential to minimizing these risks and ensuring the survival of the species in Uzbekistan and across Central Asia.

4.2.4 *Myotis blythii* (Lesser Mouse-eared Bat)

The **Lesser Mouse-eared Bat** is a small bat species primarily found in forested and mountainous regions. It typically roosts in caves, crevices, and abandoned buildings, and forages in open habitats and wooded areas for insects. The species has a widespread distribution across Europe, North Africa, and Asia, including mountainous regions of Uzbekistan. The global population is considered stable, with a wide extent of occurrence (EOO).

According to the **IUCN Red List**, the species is categorized as **Least Concern (LC)**, given its wide range and relatively stable population. In Uzbekistan, it is found in mountainous regions, although its conservation status within the country is not listed in the national **Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Lesser Mouse-eared Bat faces numerous threats on local, regional, and global scales:

- **Habitat Loss and Disturbance**: The destruction of roosting sites due to construction activities, especially caves and old buildings, can cause significant disruption to the species.
- **Wind Turbine Collisions**: Bats, including *Myotis blythii*, are vulnerable to collisions with wind turbines, particularly during their nocturnal foraging flights in open areas.
- **Climate Change**: Changes in climate could alter the availability of insect prey and affect the species' roosting and foraging behavior.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Lesser Mouse-eared Bat at Nukus 1 Project Site (Baseline Survey Results):

No direct observations or acoustic detections of the Lesser Mouse-eared Bat were recorded during the surveys conducted at Nukus 1. However, the site offers suitable roosting habitats, including caves and rocky outcrops that are preferred by the species, suggesting the potential for the species' presence.

Presence of Lesser Mouse-eared Bat at Nukus 2 Project Site (Baseline Survey Results):

Similar to Nukus 1, no confirmed acoustic or visual detections of the Lesser Mouse-eared Bat were made at Nukus 2. However, suitable roosting habitats in the form of caves and rocky areas near the project site suggest that the species might be present occasionally.

Direct threats for the Lesser Mouse-eared Bat include:

1. **Collision with Wind Turbines**:
    - The Lesser Mouse-eared Bat is at risk of collisions with operational wind turbines, particularly during its nocturnal foraging activities in open areas near the project sites. Collision modeling suggests that bats foraging in open areas around turbines face a significant risk of mortality.
2. **Habitat Loss and Fragmentation**:
    - The construction of roads, turbines, and other infrastructure at the project sites will likely result in habitat loss and fragmentation, potentially affecting the bat's roosting and foraging habitats. This could limit the species' ability to find suitable prey and roosting sites, leading to population declines.

Indirect threats for the Lesser Mouse-eared Bat include:

1. **Noise and Light Pollution**:
    - Construction noise and artificial lighting from turbines could disturb the nocturnal behavior of bats, including the Lesser Mouse-eared Bat. This might lead to the displacement of bats from their foraging or roosting sites.
2. **Reduction in Prey Availability**:
    - Dust emissions, pollution, and habitat degradation caused by construction activities may reduce insect populations, which are the primary food source for the Lesser Mouse-eared Bat, negatively impacting its foraging success.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to collision risk of Nukus 1 and Nukus 2

The Lesser Mouse-eared Bat is known for roosting in caves, crevices, and old buildings, and foraging for insects in open areas. While no direct observations or acoustic detections were made during baseline surveys at Nukus 1 or Nukus 2, the presence of suitable roosting habitats suggests the potential for the species to be present in the area. As a nocturnal forager, the species is vulnerable to collisions with wind turbines, particularly during low-altitude foraging flights in open habitats near the project sites.

- **Nukus 1: No direct observations, but suitable habitats suggest a low to moderate risk of collision during nocturnal foraging.**
- **Nukus 2: Similarly, no direct detections, but the presence of caves and open foraging areas suggest a moderate risk of collisions, particularly during foraging at night.**

The cumulative collision risk for the Lesser Mouse-eared Bat at both project sites is considered moderate, especially given the potential for nocturnal foraging in open areas where turbines are present.

Cumulative impacts due to other renewables on the national level and in the region

On a national and regional scale, the expansion of wind energy projects in Uzbekistan and Central Asia may increase the risks to bat populations, including the Lesser Mouse-eared Bat. The cumulative effect of multiple wind farms in the region could lead to increased mortality from turbine collisions, particularly for bats that forage in open areas and fly at low altitudes. Additionally, habitat fragmentation from multiple projects could further reduce the availability of suitable roosting and foraging areas.

The cumulative loss of foraging habitats, combined with the increasing prevalence of wind turbines in key bat habitats, is likely to exert pressure on the regional population of the Lesser Mouse-eared Bat. This is especially concerning in areas with limited alternative roosting sites, such as caves and rocky outcrops.

Mitigation implemented

Collision Risk Mitigation:

- **Turbine Curtailment Protocols**: Turbine curtailment applied adaptively during periods of high risk if monitoring shows mortality thresholds are breached.

Habitat Loss and Fragmentation Mitigation:

- **Pre-Construction Surveys**: Bat surveys were undertaken to align with the South African guidelines for pre-clearance bat monitoring at wind energy facilities.
- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 1.5 % of the overall Project area and is therefore considered insignificant within the landscape context and unlikely to result in overall habitat fragmentation. However due to the bats roosting preferences for rocky outcrops and cliffs for roosting, there is potential for residual impact which will be monitored to determine if there is a need for adaptive mitigation measures to be implemented.
- **Roost Protection**: Buffer zones will be established around critical roosting habitats to prevent disturbance during the construction phase. Post-construction habitat restoration efforts will be implemented to restore areas disturbed by construction, ensuring that foraging and roosting habitats remain available for the species.

Disturbance Mitigation:

- **Noise and Light Pollution Control**: Noise and artificial lighting will be minimized near potential roosting and foraging sites. Lighting will be directed away from sensitive areas to reduce the disturbance to nocturnal foraging and roosting behavior.
- **Construction Timing**: Construction activities near potential roosting areas will be limited during key periods, such as the breeding or hibernation season, to minimize disturbance to bat populations.

Residual cumulative impacts

- **Collision Risk**: The residual collision risk for the Lesser Mouse-eared Bat is expected to remain moderate, even after the implementation of curtailment protocols and bat deterrents. The species' nocturnal foraging behavior in open areas increases the risk of collisions with wind turbines, particularly in areas near suitable roosting habitats. Ongoing monitoring of bat activity will be essential to assess and adapt mitigation measures over time, and these measures will be applied adaptively if monitoring shows mortality thresholds are breached.
- **Habitat Loss and Fragmentation**: The **residual impact of habitat loss and fragmentation** is considered **moderate to high**. Although pre-construction surveys and habitat protection measures will reduce the impact on key roosting areas, the overall reduction of suitable habitats due to infrastructure development may limit the bat's foraging range and affect its ability to find prey. Continued habitat restoration and protection will be necessary to minimize long-term impacts on the species.

- **Disturbance from Human Activity**: The **residual disturbance impact** is expected to be **moderate**, particularly during the construction phase. Increased human activity, noise, and light pollution near roosting and foraging habitats may displace the Lesser Mouse-eared Bat, particularly during critical periods such as breeding or hibernation. While mitigation measures will help reduce these disturbances, some residual impact is likely during the construction and operational phases of the project.
- **Cumulative Impact of Regional Renewables Development**: The **residual cumulative impact** of renewable energy development in the region is considered **moderate to high**. As wind energy infrastructure expands across Uzbekistan and Central Asia, the cumulative effects of habitat loss, fragmentation, and turbine collisions will place additional pressure on bat populations, including the Lesser Mouse-eared Bat. Continued monitoring, adaptive management, and habitat conservation efforts will be essential to mitigating these impacts and ensuring the survival of the species in the region.

Overall, the **residual cumulative impacts** for the Lesser Mouse-eared Bat are considered **moderate to high**, with the primary concerns being collision risk, habitat loss, and disturbance from human activities. Continued monitoring, habitat restoration, and adaptive management will be critical in reducing these risks and protecting the species' population in the Nukus project areas and across the region.

4.3 Mammals

4.3.1 *Vulpes corsac* (Corsac Fox)

The **Corsac Fox** is a small fox species native to the steppes and semi-desert areas of Central Asia, including Uzbekistan. The species is well-adapted to arid and semi-arid environments and is known for its ability to survive in areas with minimal water. It primarily feeds on small mammals, insects, and birds.

The **IUCN Red List** categorizes this species as **Vulnerable (VU)** due to habitat loss, hunting, and decreasing prey availability. Similarly, the **Uzbekistan Red Data Book** also lists the species as **Vulnerable (VU)**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Corsac Fox faces numerous threats on local, regional, and global scales:

- **Habitat Loss and Degradation**: Human encroachment, agriculture, and infrastructure development in the steppes and semi-desert areas reduce the available habitat for the *Corsac Fox*.
- **Hunting and Poaching**: In many regions, the *Corsac Fox* is hunted for its fur, and poaching continues to be a significant threat in some areas.
- **Prey Availability**: Changes in land use and agricultural practices can reduce the population of small mammals and other prey species, negatively impacting the fox's food supply.
- **Climate Change**: Shifting weather patterns and desertification pose long-term threats, altering the availability of prey and leading to increased competition with other species such as the red fox.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Corsac Fox at Nukus 1 Project Site (Baseline Survey Results):

Evidence of the Corsac Fox was recorded in the form of excrement found in shallow, hilly sands at a density of 0.021/km during the Nukus 1 transect surveys. This indicates the species' presence in the area, though no direct sightings of individuals were made.

Presence of Corsac Fox at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, similar to Nukus 1, the Corsac Fox was not directly observed. However, the presence of excrement in several transects suggests that this species is actively using the area for foraging or territorial purposes. No dens were recorded during the surveys, further indicating that the site may serve primarily as a foraging ground rather than a denning area.

Direct threats for the Corsac Fox include:

1. **Habitat Loss and Fragmentation**:
    - The construction of wind turbines, access roads, and transmission lines are unlikely to cause habitat fragmentation, reducing the availability of continuous open land needed by the Corsac Fox for hunting and movement. This is because the existing access for NUKUS 1 will be used for NUKUS 2 and the footprint of the 26 WTGs and BOP for NUKUS 2 is < 1.5% of the overall Project Area (<2.5 % including construction buffers) and is therefore considered unlikely to cause significant fragmentation of habitats, set within a wider natural landscape outside of the project area.

- The creation of access tracks for period maintenance is unlikely to restrict movement or isolate populations.

2. **Disturbance from Human Activity**:

   - Increased human activity during both construction and operation phases will disturb wildlife, including the Corsac Fox, which is highly sensitive to noise and light. This could cause displacement from foraging grounds and lead to increased energy expenditure. However noise will be controlled as per the ESIA construction noise mitigation measures while lighting will be short term and localised to control light spill, glare and skyglow, For operations there will be background noise from the turbines and lighting will be safety aviation lights.

Indirect threats for the Corsac Fox include:

1. **Reduction in Prey Availability**:

   - Habitat degradation caused by dust, emissions, and soil erosion from construction activities could lead to a decline in small mammal populations, the primary prey for the Corsac Fox, impacting their food supply.

2. **Increased Risk of Poaching**:

   - The presence of construction workers and increased human activity in previously remote areas could lead to illegal hunting and poaching of the Corsac Fox, further threatening local populations.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

The Corsac Fox is a terrestrial species, so it is not directly vulnerable to collision risks associated with wind turbines. However, the construction of access roads, transmission lines, and other infrastructure can pose indirect collision risks from vehicles, particularly during the construction and operational phases when there is increased vehicular activity. The fox may also face risks from collisions with vehicles along new access roads as it forages or moves across the landscape.

- **Nukus 1**: **Evidence of Corsac Fox presence was found, and increased vehicular traffic could heighten the risk of vehicle collisions in areas where the species forages.**

- **Nukus 2: Similar to Nukus 1, indirect risks related to increased vehicular traffic from access roads and construction sites exist, with potential for vehicular collisions during the fox's foraging activities**.

Overall, the cumulative impact due to indirect collision risk (vehicle-related) at both Nukus 1 and Nukus 2 is **moderate**, particularly during the construction and early operational phases.

Cumulative impacts due to other projects in the region

At a national and regional level, the expansion of renewable energy projects, including wind farms, across Uzbekistan and Central Asia, contributes to habitat fragmentation and loss for the Corsac Fox. The species relies on large, open landscapes for foraging and movement, and the construction of wind farms, access roads, and other infrastructure may cumulatively reduce the availability of continuous habitats.

In addition, the presence of human activities associated with multiple renewable energy projects increases the risk of disturbance and poaching. The increased development in previously remote areas could further isolate Corsac Fox populations, leading to a greater risk of inbreeding and reducing their ability to find adequate food and shelter.

Mitigation implemented

Collision Risk Mitigation:

- **Speed Limits and Warning Signs**: Speed limits will be enforced along access roads to reduce the risk of vehicle collisions with Corsac Foxes. Signage warning of wildlife crossings will be installed to alert drivers to the presence of foxes and other wildlife, particularly during dawn and dusk when the foxes are most active.
- **Reduced Nighttime Activity**: To minimize disturbance and potential collisions, construction activities will be reduced during nighttime hours when the Corsac Fox is most active.

Habitat Loss and Fragmentation Mitigation:

  - **Habitat Connectivity Measures**: The footprint of the 26 WTGs and permanent access roads is < 2.5% of the overall Project area including construction buffers and is therefore considered insignificant within the landscape context and will not result in habitat fragmentation.
  - The creation of access tracks for period maintenance is unlikely to restrict movement or isolate populations.

-

- **Minimal Infrastructure Footprint**: The footprint of access roads, turbine sites, and transmission lines has been minimized to reduce habitat fragmentation.
- **Revegetation and Restoration**: Areas disturbed during construction will be restored through revegetation efforts, using native plant species to re-establish the natural habitat that supports the prey species of the Corsac Fox.

Disturbance Mitigation:

- **Noise and Light Pollution Control**: Noise from construction activities will be kept to a minimum, particularly in areas near Corsac Fox foraging grounds. Nighttime lighting will be minimized or directed away from foraging areas to prevent disturbance to the species during its most active periods.
- **Poaching Prevention**: Strict access control will be implemented to reduce the risk of illegal hunting and poaching. Construction workers will be educated on the conservation status of the Corsac Fox and the importance of reporting any sightings of poaching activities.

Residual cumulative impacts

- **Collision Risk**: The **residual collision risk** (vehicle-related) for the Corsac Fox is expected to remain **low to moderate**. While speed limits, warning signs, and reduced nighttime activity will mitigate the risk of vehicle collisions, there will still be some residual risk from increased vehicular traffic along access roads, particularly during the construction phase. However, this risk will decrease over time as construction activities wind down.
- **Habitat Loss and Fragmentation**: The **residual impact of habitat loss and fragmentation** is anticipated to be **moderate**, given the reliance of the Corsac Fox on large, open habitats. The cumulative loss of continuous steppe and semi-desert landscapes due to infrastructure development will potentially reduce the available foraging grounds and movement corridors for the species by 2.5 % for NUKUS 2. However, this is unlikely to lead to population isolation and increased competition for limited resources due to overall land take for both NUKUS projects being <5% of the Project area and this being set in a much larger landscape.
- **Disturbance from Human Activity**: The **residual disturbance impact** is expected to be **moderate**, particularly during the construction phase. Increased human activity, noise, and light pollution may disturb the Corsac Fox, leading to temporary displacement from key foraging areas. While mitigation measures will help reduce these impacts,

some residual disturbance is likely during the construction and early operational phases.

- **Cumulative Impact of Regional Renewables Development**: The **residual cumulative impact** of regional renewable energy development is considered **moderate**. The cumulative effects of habitat loss, fragmentation, and increased human activity across multiple renewable energy projects in Central Asia will likely reduce the overall availability of suitable habitats for the Corsac Fox. This could result in population declines and further stress the species, particularly in areas where human encroachment and habitat degradation are already significant issues.

Overall, the **residual cumulative impacts** for the Corsac Fox are considered **moderate**, with the primary concerns being disturbance from human activities. Continued monitoring and habitat restoration efforts will be essential to mitigating these impacts and ensuring the species' survival in the Nukus project areas and across the region.

4.3.2 *Vormela peregusna* (Marbled Polecat)

The **Marbled Polecat** is a small carnivorous mammal known for its distinctive marbled coat pattern. It is primarily found in arid steppes, semi-desert regions, and areas with sparse vegetation across Central Asia, including Uzbekistan. The species is highly adapted to these environments, often preying on small mammals, birds, and invertebrates. The global population is considered vulnerable due to habitat degradation, and its distribution is fragmented.

The **IUCN Red List** classifies the **Marbled Polecat** as **Vulnerable (VU)**, and it is similarly listed in the **Uzbekistan Red Data Book**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Marbled Polecat faces numerous threats on local, regional, and global scales:

- **Habitat Loss and Degradation**: The primary threat to the species is habitat loss due to agricultural expansion and infrastructure development. In Uzbekistan, habitat fragmentation has reduced suitable foraging and breeding areas for the species.
- **Decline in Prey Populations**: Changes in prey availability, particularly small mammals such as rodents, due to habitat alteration or pesticide use pose a significant threat to the species.

- **Poaching**: The species is sometimes illegally hunted or trapped for its fur or in conflict with livestock farming. While this is more prevalent in other regions, it can occur sporadically in Uzbekistan.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Marbled Polecat at Nukus 1 Project Site (Baseline Survey Results):

During the baseline surveys at Nukus 1, the Marbled Polecat was not directly observed, but potential habitats were identified, especially in areas with sparse vegetation and sandy soils. This suggests the species could be using the project area for foraging or as a travel corridor.

Presence of Marbled Polecat at Nukus 2 Project Site (Baseline Survey Results):

The Marbled Polecat was recorded at Nukus 2, particularly in sandy areas where rodent populations were observed to be abundant. Individuals were spotted in the MS7 and MS9 transects during the mammal surveys, indicating a small but established population within the project area.

Direct threats for the Marbled Polecat include:

1. **Habitat Loss and Fragmentation**:
    - The construction of wind turbines and associated infrastructure will lead to habitat loss, particularly in areas where the Marbled Polecat forages. Fragmentation of habitats could isolate individuals and reduce available prey populations, making it harder for the species to survive. However, the footprint of the 26 WTGs and permanent access roads is < 2.5% of the overall Project area and is therefore considered insignificant within the landscape context and is unlikely to result in habitat fragmentation.
    - The creation of access tracks for period maintenance is unlikely to restrict movement or isolate populations. The NUKUS 1 access road will be used for NUKUS 2 to minimise impacts.
2. **Vehicular Collisions**:
    - Increased traffic from construction and maintenance activities poses a direct threat to the Marbled Polecat, which is a low-moving species often found near roads.

Indirect threats for the Marbled Polecat include:

1. **Reduction in Prey Availability**:

- Degradation of natural habitats in agricultural areas by local farmers may lead to a reduction in small mammal populations, which are the primary prey of the Marbled Polecat. This could lead to decreased foraging success for the species.

2. **Disturbance from Human Activity**:
    - Noise and vibration from construction activities, as well as the presence of humans, may cause the Marbled Polecat to avoid certain areas, reducing its foraging range.
3. **Increased Risk of Predation**:
    - The Project will not create open areas around the construction site which could otherwise make the Marbled Polecat more vulnerable to predators such as birds of prey, by removing suitable den locations.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

The Marbled Polecat, as a small ground-dwelling mammal, is not at risk of direct collision with wind turbines. However, the construction of access roads and the increase in vehicular traffic during both the construction and operational phases pose a significant risk of vehicle collisions. The Marbled Polecat's slow movements and tendency to hunt near roads increase its vulnerability to vehicular accidents, particularly during nighttime or early morning when visibility is low.

- **Nukus 1**: Though no direct sightings of the Marbled Polecat were recorded, suitable habitats exist within the project area. The species could be at risk of vehicle collisions, especially in areas where access roads intersect with known rodent populations, the Polecat's primary prey.
- **Nukus 2**: At Nukus 2, the species was recorded in areas with sandy soils, where rodent populations were abundant. This increases the risk of vehicle collisions during both construction and maintenance activities in these sensitive areas.

The cumulative collision risk for the Marbled Polecat due to vehicular activity is considered **moderate**, particularly during the construction phase of the project and early operations.

Cumulative impacts due to other projects in the region

At the national and regional level, the development of renewable energy projects, including wind farms, has contributed to habitat loss and fragmentation in semi-desert and steppe ecosystems where the Marbled Polecat is found. Infrastructure development, including roads, power lines, and wind turbines, has fragmented the species' habitat, reducing its foraging areas and leading to population isolation.

Additionally, the increased accessibility to remote regions due to these projects may exacerbate poaching risks and further disturb prey populations. Habitat degradation from construction, combined with increased human activity, could cumulatively reduce prey populations across the region, further threatening the Marbled Polecat.

Mitigation implemented

Collision Risk Mitigation:

- **Speed Limits and Traffic Control**: Speed limits will be enforced on all access roads to reduce the risk of vehicular collisions. Special care will be taken to limit nighttime traffic in areas where the Marbled Polecat has been detected.

Habitat Loss and Fragmentation Mitigation:

- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 2.5% of the overall Project area and is therefore considered insignificant within the landscape context and will not result in habitat fragmentation. **Restoration of Habitat**: Post-construction habitat restoration will focus on re-establishing vegetative cover and prey populations in temporary areas disturbed by construction. **Prey Availability and Ecosystem Mitigation**:

- **Rodent Conservation**: Efforts will be made to ensure that the populations of small mammals, the primary prey of the Marbled Polecat, remain stable. This will include the restoration of disturbed habitats and prohibiting use of pesticides other than in a controlled procedure inside the plant facilities.

Disturbance Mitigation:

- **Noise and Light Reduction**: Noise and light pollution will be minimized, particularly during nighttime construction activities, to reduce disturbances to nocturnal wildlife like the Marbled Polecat.

- **Restricted Access to Remote Areas**: A Access to WTGs and BOP for routine maintenance during operations will be avoided during sensitive periods (e.g., breeding

seasons) to reduce the risk of disturbance to the Marbled Polecat and other sensitive species.

Residual cumulative impacts

- **Collision Risk**: The **residual risk of vehicular collisions** for the Marbled Polecat is expected to be **low to moderate** following the implementation of traffic warning signs and training. However, some residual risk remains, particularly during the construction phase and in areas where the species is known to forage near access roads.
- **Habitat Loss and Fragmentation**: The **residual impact of habitat loss and fragmentation** is expected to be **low to moderate**. Although efforts will be made to restore disturbed areas, the construction of access roads and wind turbines will result in permanent minor habitat fragmentation accounting for <2.5% of the NUKUS 2 Project area. The species' movement across its territory is unlikely to be restricted, or lead to localized population declines.
    - **Prey Availability and Ecosystem Changes**: The **residual impact on prey availability** is expected to be **low to moderate**. Degradation of natural habitats in agricultural areas by local farmers may lead to a reduction in small mammal populations, which are the primary prey of the Marbled Polecat. This could lead to decreased foraging success for the species.
-
- **Cumulative Impact of Regional Renewables Development**: The **residual cumulative impact** of wind and solar renewable energy development across the region is considered **moderate to high**. The ongoing expansion of renewable energy projects, is likely to contribute to some habitat fragmentation, disturb prey populations, and increase the risk of human encroachment in previously undisturbed areas. In summary, the **residual cumulative impacts** for the Marbled Polecat are considered **moderate**, with the primary concern being disturbance from human activity. Continued monitoring, habitat restoration, and anti-poaching measures will be essential to mitigate these impacts and ensure the species' long-term survival in the project area and beyond.

4.3.3 *Gazella subgutturosa* (Goitered Gazelle)

The **Goitered Gazelle** is a medium-sized ungulate species commonly found in desert and semi-desert areas across Central Asia, including Uzbekistan. It is adapted to arid environments and

primarily feeds on grasses and shrubs. The species' population is declining, and it faces threats from habitat degradation and poaching.

The **IUCN Red List** classifies this species as **Vulnerable (VU)**, and it holds the same status in the **Uzbekistan Red Data Book**. It is also listed in **CITES Appendix II** and **CMS Appendix II**, indicating its importance for conservation.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Goitered Gazelle faces numerous threats on local, regional, and global scales:

- **Poaching**: Illegal hunting for meat and trophies is a significant threat, particularly in Uzbekistan and other parts of Central Asia where wildlife protection is not always adequately enforced.
- **Habitat Loss**: Agricultural expansion, infrastructure development, and overgrazing by livestock degrade the gazelle's natural habitat, reducing the availability of food and shelter.
- **Climate Change**: Increasing desertification and water scarcity, driven by changing climate patterns, could exacerbate habitat loss and food shortages for this species across its range.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Goitered Gazelle at Nukus 1 Project Site (Baseline Survey Results):

Survey results indicated the presence of Goitered Gazelle through traces such as excrement and footprints. The estimated population within the project area ranged between 10-35 individuals, with the highest observations occurring during winter. The gazelle was primarily found in sandy and semi-desert habitats across the survey area.

Presence of Goitered Gazelle at Nukus 2 Project Site (Baseline Survey Results):

Similar findings were recorded at Nukus 2, where traces of the Goitered Gazelle were found in sandy dunes and open plains. The population estimates were consistent with those from Nukus 1, indicating that the project area supports a small population of the species.

Direct threats for the Goitered Gazelle include:

1. **Habitat Loss and Fragmentation**:
    - The footprint of the 26 WTGs and permanent access roads is < 2.5% of the overall Project area and is therefore considered insignificant within the

landscape context and is unlikely to result in habitat fragmentation. The reduction in foraging grounds and shelter for the Goitered Gazelle is not considered to be significant. in terms of the unfenced Project site and their movement and access to resources.

2. **Increased Human Activity**:
    - The presence of workers and machinery during construction poses a short-term disturbance to the species. The Goitered Gazelle, being sensitive to human activity, may avoid the localised construction areas inside the much larger Project area, leading to relatively minor habitat displacement.

Indirect threats for the Goitered Gazelle include:

1. **Reduction in Food Availability**:
    - Habitat degradation due to dust, noise, and the introduction of invasive plant species may lead to a decline in the vegetation that serves as the primary food source for the Goitered Gazelle. Changes in plant communities may reduce the availability of nutritious forage.
2. **Poaching Risk**:
    - Increased access to the area due to new roads may heighten the risk of poaching, as gazelles could become more vulnerable to hunters exploiting the easier accessibility.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

The Goitered Gazelle, as a terrestrial species, is not directly at risk from collisions with wind turbines. However, the development of access roads and increased vehicle activity during both construction and operation phases increases the risk of vehicle collisions. The gazelle's movement across semi-desert areas and its tendency to forage near open plains and roadsides heighten this risk, especially at night when visibility is low.

- **Nukus 1: Traces of Goitered Gazelles were found in sandy and semi-desert habitats within the project area, indicating a small but significant population. The species could be at risk of vehicle collisions, particularly during high-traffic periods in the construction phase.**

- **Nukus 2: Similar to Nukus 1, traces of the species were found in Nukus 2, particularly in sandy dunes and open plains. Increased vehicle traffic associated with the project poses a risk of vehicle-gazelle collisions in these sensitive areas.**

The cumulative collision risk for the Goitered Gazelle from vehicle traffic is considered **moderate**, with a higher risk during construction.

Cumulative impacts due to other projects in the region

The expansion of renewable energy projects, including wind farms across Uzbekistan and Central Asia, is contributing to habitat fragmentation and disturbance for desert-adapted species like the Goitered Gazelle. Infrastructure development, such as access roads, power lines, and wind turbines, is breaking up the continuous habitat required for gazelles to roam freely in search of food and water.

Additionally, the expansion of infrastructure in previously remote areas increases the risk of poaching and human disturbance, compounding the impacts of habitat loss. The combined effect of increased human activity and habitat degradation from multiple projects across the region may lead to a gradual decline in gazelle populations as their movement becomes more restricted.

Mitigation implemented

Collision Risk Mitigation:

- **Speed Limits and Restricted Traffic**: Strict speed limits will be enforced on all access roads, particularly during dusk and dawn when gazelle activity is highest. Nighttime traffic will be minimized to reduce the risk of vehicle collisions.

Habitat Loss and Fragmentation Mitigation:

- **Habitat Loss**: The footprint of the 26 WTGs and permanent access roads is < 2.5% of the overall Project area and is therefore considered insignificant within the landscape context and is unlikely to result in habitat fragmentation. **Habitat Restoration**: Post-construction restoration efforts will focus on rehabilitating disturbed areas by replanting native vegetation and restoring degraded habitat areas to support the species' foraging needs.

Prey and Ecosystem Management:

- **Vegetation Management**: Measures will be taken to ensure that the project does not lead to the degradation of vegetation that serves as the gazelle's primary food source.

Invasive species will be controlled to prevent them from outcompeting native vegetation.

- **Anti-Poaching Enforcement**: In collaboration with local authorities, anti-poaching will be discussed to provide practical measures to report illegal hunting in newly accessible areas created by the project's infrastructure, particularly during operations when there are few vehicles required for routine maintenance.

Disturbance Mitigation:

- **Noise and Light Reduction**: Noise levels will be monitored periodically at the WTG pads (outer point of 30m buffer) during construction, and artificial lighting will be minimized and controlled in accordance with lighting best practice to reduce light spill, glare and sky glow., Nighttime activities will be avoided where possible, particularly during the breeding season. These steps aim to reduce disturbance to the Goitered Gazelle, which is sensitive to human activity.
- **Worker Awareness Programs**: Construction workers will be trained about the presence of gazelles and other wildlife in the area, promoting responsible behaviour to avoid unintentional disturbance or harm to the species.

Residual cumulative impacts

- **Collision Risk**: After the implementation of mitigation measures, the **residual risk of vehicle collisions** with the Goitered Gazelle is expected to be **low to moderate**. While speed limits and traffic control measures will reduce the likelihood of collisions, some risk remains, particularly during peak construction periods or in areas where gazelles are known to forage near roads.
- **Habitat Loss and Fragmentation**: The **residual impact of habitat loss and fragmentation** is expected to be **low**. Although efforts to restore habitats will mitigate some impacts, the construction of access tracks for turbine installation and maintenance and other infrastructure will permanently fragment the semi-desert landscape, this is unlikely to restrict the movement of gazelles across their territory or lead to population declines.
- **Reduction in Food Availability**: The **residual impact on food availability** is expected to be **low**. With appropriate vegetation management and restoration efforts, the decline in plant species consumed by the Goitered Gazelle will be minimized. However, the introduction of invasive species and habitat degradation will be addressed during and post construction.

- **Cumulative Impact of Regional Renewables Development**: The **residual cumulative impact** of renewable energy development at the regional level is considered **moderate**. The continued expansion of infrastructure in desert and semi-desert habitats is likely to contribute towards limited habitat fragmentation but an increased risk of poaching. These impacts, combined with ongoing habitat degradation due to agriculture, could lead to a decline in Goitered Gazelle populations across Central Asia if further mitigation measures are not implemented on a broader scale.

In summary, the **residual cumulative impacts** for the Goitered Gazelle are considered **low to moderate**, with increased risk of poaching and wider human disturbance outside of the Project area being the primary concerns. Continued monitoring, habitat restoration, and enforcement of anti-poaching measures will be crucial in mitigating these impacts and ensuring the long-term survival of the Goitered Gazelle in the project area and surrounding regions.

4.4 Reptiles

4.4.1 *Testudo horsfieldii* (Central Asian Tortoise)

The **Central Asian Tortoise** is a medium-sized tortoise species found in arid environments such as deserts and semi-deserts. It is well-adapted to sandy and clayey soils where it burrows for shelter and forages on a variety of vegetation. This species has a wide distribution in Central Asia, including Uzbekistan, where it is commonly found in the Kyzylkum Desert and adjacent areas. It plays an important ecological role in these ecosystems by controlling vegetation and providing burrows for other species.

The species is listed as **Vulnerable (VU)** on both the **IUCN Red List** and the **Uzbekistan Red Data Book** due to habitat degradation and illegal collection for the pet trade. It is also included in **CITES Appendix II** for its protection from overexploitation.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Central Asian Tortoise faces numerous threats on local, regional, and global scales:

- **Habitat Loss and Fragmentation**: The species' habitat is often destroyed due to agricultural expansion, infrastructure development, and desertification. Habitat fragmentation limits its ability to move and find suitable burrowing sites.
- **Illegal Collection**: It is frequently collected for the pet trade, which significantly reduces wild populations. This is particularly problematic in Central Asia, including Uzbekistan, where demand for the species is high.

- **Climate Change**: Increasing temperatures and changing precipitation patterns could negatively impact the availability of vegetation and suitable habitats for the species.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Central Asian Tortoise at Nukus 1 Project Site (Baseline Survey Results):

The Central Asian Tortoise was widely observed at multiple transects across the Nukus 1 project site, particularly in sandy and clayey desert areas. The highest population densities were recorded in Transect 5 (3.0 individuals/ha) and Transect 7 (3.7 individuals/ha), indicating that these areas provide optimal habitat for the species.

Presence of Central Asian Tortoise at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, the Central Asian Tortoise was also commonly observed, with varying population densities across transects. The species was frequently found near temporary watercourses and gullies, suggesting the project area is important for its conservation due to its relatively undisturbed habitat.

Direct threats for the Central Asian Tortoise include:

1. **Habitat Loss and Fragmentation**:
    - Construction of roads, turbines, and other infrastructure will lead to significant habitat loss, reducing the availability of suitable areas for burrowing and foraging. This fragmentation will isolate local populations and reduce genetic diversity.
2. **Vehicular Collisions**:
    - Slow-moving species like the Central Asian Tortoise are at high risk of vehicular collisions, particularly during the construction phase when traffic increases. The species is especially vulnerable to being run over by construction vehicles.
3. **Noise and Vibration**:
    - Heavy machinery and construction activities will produce significant noise and vibrations, which can disturb the species and even collapse its burrows, posing a direct threat to its survival in the project area.

Indirect threats for the Central Asian Tortoise include:

1. **Reduction in Food Availability**:

- Dust emissions and habitat degradation from construction may reduce vegetation health, which in turn affects the tortoise's foraging success. Reduced food availability may lead to a decline in tortoise populations.

2. **Climate Change and Altered Hydrology**:
    - Construction activities could alter the local hydrology, affecting the availability of watercourses and moisture levels, which are important for the tortoise during certain seasons.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

The Central Asian Tortoise, as a terrestrial reptile, does not face a direct risk from wind turbine collisions. However, the species is highly vulnerable to **vehicular collisions** during the construction and operational phases of both Nukus 1 and Nukus 2. Increased vehicle traffic from **construction activities** poses a significant threat to the tortoise due to its **slow movement** and the tendency to cross roads and open areas, particularly during its active periods in spring and early summer.

At both project sites, the **cumulative risk of vehicular collisions** is high due to the increased movement of construction vehicles in areas with relatively high tortoise population densities. Given the observed populations at both **Nukus 1 and Nukus 2**, the tortoise's **collision risk** remains a critical concern.

Cumulative impacts due to other projects in the region

At the national level, the expansion of **renewable energy infrastructure**, including **wind farms** and **solar projects**, across **Uzbekistan** poses cumulative risks to the Central Asian Tortoise. Large-scale habitat loss due to infrastructure development, including road networks and energy facilities, is fragmenting the species' natural habitat. This fragmentation limits the tortoise's ability to move between suitable foraging and burrowing habitats, leading to increased isolation of local populations and decreased genetic diversity.

The **cumulative effect** of multiple **renewable projects** in **desert and semi-desert areas** further exacerbates habitat degradation, leading to increased risks from **human encroachment** and **illegal collection** for the pet trade, which is already a significant problem for the species.

Mitigation implemented

Minimizing Habitat Fragmentation:

- **Infrastructure Design:** Efforts will be made to limit access roads and other infrastructure footprints in areas where tortoises are present, minimizing habitat disturbance and maintaining local habitat functionality.

Construction Management: Sensitive tortoise areas will be demarcated, with pre-construction surveys ensuring tortoise presence is known, and individuals are relocated prior to construction. (Upfront Mitigation)

Vehicular Collision Prevention:

- **Speed Limits:** Speed limits will be enforced on all roads, especially during the active season (spring and early summer), to reduce the risk of collisions.

Daily Site Inspections: Workers will conduct daily inspections of trenches, machinery, and access areas to ensure no tortoises are trapped or harmed. (Upfront Mitigation)

Burrow Protection:

- **No-Construction Buffer Zones:** Identified burrows will be protected with no-construction buffers to prevent collapse from machinery and heavy equipment vibrations.
- **Temporary Fenced Enclosures:** Tortoises relocated from construction areas will be temporarily held in fenced enclosures to ensure safety during active construction phases. **(Upfront Mitigation)**

Monitoring and Relocation:

- **Tortoise Monitoring Program:** Continuous monitoring of tortoise activity throughout construction will guide adaptive mitigation strategies.
- **Relocation Program:** Any individuals found during monitoring will be relocated to nearby suitable habitats, following the CHA's guidelines for tortoise rescue and relocation. **(Adaptive Mitigation)**

Residual cumulative impacts

- **Habitat Loss and Fragmentation:** Despite efforts to limit infrastructure footprints, habitat fragmentation will persist, especially in high-density areas (e.g., Transect 5 and Transect 7 at Nukus 1). This may isolate populations, limiting genetic exchange and impacting long-term population viability. (Moderate to High Impact)
- **Vehicular Collision Risk:** Residual collision risk remains moderate due to ongoing road use during maintenance. Speed limits and inspections will reduce but not eliminate this risk, given the tortoise's slow movement and cryptic behavior.

- **Reduction in Food Availability:** Dust emissions, habitat degradation, and potential invasive plant introduction could reduce foraging success, creating moderate residual impacts on food availability.
- **Impact of Climate Change:** Shifting precipitation patterns and increased desertification pose additional stress to tortoise populations but are beyond the project's control. (External Residual Impact)

Increased Risk of Illegal Collection: Infrastructure development may increase human access, raising the risk of illegal collection for the pet trade. Surveillance, enforcement, and worker training will mitigate this risk. (Moderate Impact)

In summary, the residual cumulative impacts on the **Central Asian Tortoise** are moderate to high. The most significant concerns include **habitat fragmentation**, **vehicular collisions**, and **reduced food availability** due to habitat degradation and potential invasive plant species. Continuous monitoring, pre-construction surveys, and **adaptive relocation efforts** will be essential to mitigate impacts during construction. In addition, **enforcement of speed limits, daily inspections, and surveillance** will help reduce the risk of collisions and illegal collection. **Worker training and enforcement of wildlife protection laws** will further safeguard the population from human-related risks. Despite these efforts, the cumulative impacts of infrastructure development, combined with external stressors such as climate change, will require **ongoing adaptive management** to support the long-term viability of the species.

4.4.2 *Eremias velox* (Rapid Racerunner)

The **Rapid Racerunner** is a small, fast-moving lizard species that is widely distributed in arid and semi-arid regions across Central Asia. It thrives in loose sandy soils with sparse vegetation, making it highly adaptable to desert environments. The species forages for insects and small invertebrates.

According to the **IUCN Red List**, the Rapid Racerunner is categorized as **Least Concern (LC)** due to its broad distribution and stable population.

NATIONAL, REGIONAL AND GLOBAL THREATS

The *Rapid Racerunner* faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: The development of infrastructure and agriculture, along with desertification, can reduce the availability of suitable habitats.

- **Predation and Competition**: Increased human activity in desert areas can lead to predation pressure from invasive species, and competition from other reptiles for food and habitat space.
- **Climate Change**: Shifting climate patterns may alter the availability of water and food resources, affecting the species' survival.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Rapid Racerunner at Nukus 1 Project Site (Baseline Survey Results):

The Rapid Racerunner was not specifically mentioned in baseline surveys at Nukus 1, but the habitat characteristics of the area (sandy soils with sparse vegetation) suggest that the site may provide suitable foraging and habitat for this species.

Presence of Rapid Racerunner at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, *Eremias velox* was found to be widely distributed across the project area. It was primarily recorded in sandy plains and along the edges of clayey soils, particularly in areas with high sun exposure, which is favorable for basking behavior. The highest density of the species was observed in Transect 3 with a population density of 6.3 individuals/ha, indicating ideal habitat conditions. Lower densities were recorded in Transect 5 (1.0 individuals/ha) and Transect 10 (1.6 individuals/ha), likely due to less favorable habitat or increased competition.

Direct threats for the Rapid Racerunner include:

1. **Habitat Loss and Fragmentation**:
    - The construction of wind turbines, access roads, and transmission lines will result in habitat loss and fragmentation. The reduction in continuous open areas is likely to decrease the species' ability to find suitable basking and foraging sites.
2. **Disturbance from Human Activity**:
    - Increased human activity and construction noise can disturb the species' behavior, especially during critical foraging and basking times. Additionally, vehicular movement across the site may lead to direct mortality through collisions.

Indirect threats for the Rapid Racerunner include:

1. **Reduction in Prey Availability**:

- The degradation of vegetation and changes in local ecosystems due to construction may reduce the availability of insect prey, which is the primary food source for *Eremias velox*.

2. **Soil Erosion**:
    - Soil disturbance from heavy machinery may lead to erosion, degrading the quality of the habitat and potentially affecting the species' burrowing and foraging activities.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

As a ground-dwelling species, the **collision risk** with wind turbines is not relevant for the Rapid Racerunner. However, the risk of **vehicular collisions** during construction and operational activities presents a cumulative threat. Increased movement of vehicles in the project area may result in mortality for individuals crossing roads or disturbed areas.

Cumulative impacts due to other projects in the region

At the **national level**, the cumulative effects of renewable energy projects, especially in desert and semi-desert habitats, lead to significant **habitat fragmentation**. For a species like the Rapid Racerunner, which relies on continuous sandy or loose soil habitats, this fragmentation can reduce suitable basking and foraging areas. Additionally, other developments such as agriculture or energy infrastructure in the region may intensify competition with other reptile species and increase predation pressure from invasive species, further compounding the stress on Rapid Racerunner populations.

Mitigation implemented

Habitat Protection and Restoration

- **Post-Construction Restoration:** Restoration efforts will focus on re-establishing native vegetation and reducing soil erosion to improve habitat quality for the Rapid Racerunner. **(Adaptive Mitigation)**

Traffic and Movement Management

- **Speed Limits:** Speed limits will be enforced to reduce the risk of vehicular collisions, particularly during the species' active periods. **(Upfront Mitigation)**
- **Designated Routes:** Designated routes for construction vehicles will be used to minimize habitat fragmentation and reduce disturbance in sensitive areas. **(Upfront Mitigation)**

Soil and Vegetation Management

- **Erosion Control:** Erosion control measures will include limiting soil disturbance and installing erosion barriers to prevent habitat degradation and maintain suitable burrowing and foraging conditions. **(Upfront Mitigation)**

Noise and Light Pollution Reduction

- **Noise Mitigation:** Operational noise will be minimized, and construction activities will be scheduled during periods of low reptile activity to reduce disturbance to the species. **(Adaptive Mitigation)**
- **Light Management:** Light pollution will be minimized to prevent disruption of the species' nocturnal behavior and foraging patterns. **(Upfront Mitigation)**

Residual Cumulative Impacts

- **Habitat Loss and Fragmentation:** Despite mitigation efforts, moderate residual cumulative impacts are expected due to habitat loss from turbine, road, and infrastructure development. Some suitable foraging and basking areas will be permanently lost, potentially reducing local population densities.
- **Vehicular Collisions:** Residual risk from vehicular collisions remains moderate. Despite speed limits and designated routes, the species' active movement during foraging may still expose it to some risk from construction and operational traffic.
- **Soil Erosion:** Residual impacts from soil disturbance are expected to be low. Erosion control will mitigate most habitat degradation, though minor disturbances to sandy soils may affect burrowing sites in some areas.
- **Reduction in Prey Availability:** The impact on prey availability is expected to be low. While minor reductions in insect populations may occur due to habitat changes, the species' adaptability to desert conditions will buffer these impacts.
- **Disturbance from Human Activity:** Residual disturbance from human activity is expected to be low to moderate. Although noise reduction measures will minimize some disruption, the presence of workers and machinery during foraging and basking periods will still cause behavioral disturbances.

In conclusion, the residual cumulative impacts on the **Rapid Racerunner** are expected to be moderate, with habitat fragmentation and vehicular collisions being the primary concerns.

Ongoing habitat management, monitoring, and adaptive mitigation will be essential to minimize these impacts and support the species' long-term viability.

4.4.3 *Trapelus sanguinolentus* (Steppe Agama)

The **Steppe Agama** is a medium-sized lizard found across steppe and desert zones in Central Asia, including Uzbekistan. It prefers open, dry habitats, where it forages on insects and small invertebrates. The species has a wide range and is commonly found in steppes and semi-deserts.

The **IUCN Red List** classifies this species as **Least Concern (LC)** due to its broad distribution and stable population. In the **Uzbekistan Red Data Book** the species is also registered as **Least Concern (LC)**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The *Steppe Agama* faces numerous threats on local, regional, and global scales:

- **Habitat Loss**: Conversion of steppe regions into agricultural lands and urban areas poses a major threat, as it leads to habitat fragmentation and degradation.
- **Climate Change**: Shifts in temperature and precipitation patterns may impact the arid and semi-arid environments this species inhabits, affecting its habitat and food resources.
- **Human Activity**: Increased agricultural and industrial activities, including overgrazing and infrastructure development, can degrade or disturb the Steppe Agama's natural habitat.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Steppe Agama at Nukus 1 Project Site (Baseline Survey Results):

During the surveys at Nukus 1, several Steppe Agamas were observed near open desert areas, particularly during the spring and summer 2020-2021 field surveys. The species was noted to be abundant, suggesting that the habitat provides adequate conditions for foraging and breeding.

Presence of Steppe Agama at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, Steppe Agamas were also commonly observed during the baseline herpetological surveys, with sightings near rocky outcrops and sandy patches. The species appears to thrive in both project sites, likely using the open habitats for foraging and basking.

Direct threats for the Steppe Agama include:

1. **Habitat Loss**:
    - The construction of wind turbines, roads, and associated infrastructure could result in the loss of suitable foraging and nesting habitats for the Steppe Agama, especially in open desert zones.
2. **Vehicular Collisions**:
    - Increased vehicular traffic during the construction phase poses a risk of direct mortality for slow-moving reptiles like the Steppe Agama.

Indirect threats for the Steppe Agama include:

1. **Disturbance from Human Activity**:
    - Noise, vibrations, and human movement during both construction and operation phases may disturb Steppe Agamas, displacing them from preferred foraging or basking areas.
2. **Reduction in Prey Availability**:
    - Habitat degradation due to construction activities could lead to a reduction in insect populations, the primary food source for the Steppe Agama, potentially impacting its foraging success.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

The **collision risk** is minimal for the Steppe Agama since it is a ground-dwelling species. However, indirect cumulative impacts such as **vehicular collisions** during construction activities can pose a risk to individuals crossing roads or disturbed areas within the project sites.

Cumulative impacts due to other projects in the region

At the **national level**, renewable energy projects, particularly wind farms and associated infrastructure, contribute to **habitat fragmentation** in desert and steppe zones. The Steppe Agama, which relies on continuous open habitats, may face reduced availability of foraging and basking areas due to widespread developments in its range. These impacts are compounded by other activities such as agriculture and urbanization, which further degrade the natural steppe environment. Additionally, climate change may exacerbate habitat degradation across the region, potentially reducing habitat suitability over time.

Mitigation implemented

Habitat Protection

- **Sensitive Habitat Preservation:** Efforts will focus on preserving the identified foraging and nesting areas critical to the Steppe Agama. **(Upfront Mitigation)**

Traffic and Movement Management

- **Speed Limits:** Speed limits will be enforced on access roads to reduce the risk of vehicular collisions with Steppe Agamas during both construction and operational phases. **(Upfront Mitigation)**
- **Restricted Access Routes:** Restricted traffic routes will be developed to minimize the disturbance footprint in sensitive areas, protecting key habitats from unnecessary traffic impacts. **(Upfront Mitigation)**

Restoration of Impacted Areas

- **Post-Construction Restoration:** Restoration efforts will focus on re-establishing natural vegetation, mitigating soil compaction, and ensuring that restored areas are suitable for basking and foraging. **(Adaptive Mitigation)**

Residual Cumulative Impacts

- **Habitat Loss and Fragmentation:** Residual cumulative impacts from habitat loss and fragmentation are expected to be moderate. Infrastructure development, such as wind turbines, access roads, and other facilities, will permanently alter some areas, reducing the availability of open spaces required for basking and foraging.
- **Vehicular Collisions:** Despite traffic management measures like speed limits and restricted access routes, the residual risk of collisions will remain low to moderate, especially during the construction phase when traffic activity is highest.
- **Reduction in Prey Availability:** Residual impacts on prey availability are expected to be low to moderate. While habitat restoration and dust control measures will help reduce the impact, localized insect population declines may still affect foraging success.
- **Disturbance from Human Activity:** Residual disturbance from human activities is anticipated to remain low to moderate. Although exclusion zones and noise reduction measures will limit disruptions, ongoing operations and maintenance may still displace Steppe Agamas from certain areas.

In conclusion, the residual cumulative impacts on the **Steppe Agama** are expected to be moderate, particularly due to habitat fragmentation and potential reductions in prey availability. **Continued monitoring and adaptive management** will be necessary to minimize long-term impacts and ensure the protection of this species.

4.4.4 *Platyceps karelini* (Spotted Desert Racer)

The **Spotted Desert Racer** is a slender and agile snake, common in arid and semi-arid regions. It primarily inhabits sandy deserts and steppes, where it preys on small mammals, lizards, and insects. It is well adapted to hot climates and is often found in regions with sparse vegetation.

The **IUCN Red List** classifies this species as **Least Concern (LC)** due to its wide distribution and stable populations in Central Asia. In the **Uzbekistan Red Data Book**, the species is also registered **as Least Concern (LC)**.

NATIONAL, REGIONAL AND GLOBAL THREATS

The Spotted Desert Racer faces numerous threats on local, regional, and global scales:

- **Habitat Degradation**: Human activities such as agriculture, grazing, and infrastructure development have caused habitat fragmentation, which affects the species' foraging and burrowing behaviors.
- **Climate Change**: Changes in temperature and rainfall patterns can negatively affect its habitat, especially in desert and semi-desert regions.
- **Predation and Human Disturbance**: The species is sometimes vulnerable to predation by birds and larger mammals, as well as human-induced mortality from vehicular collisions and accidental killings.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Spotted Desert Racer at Nukus 1 Project Site (Baseline Survey Results):

During the baseline surveys at Nukus 1, the Spotted Desert Racer was rarely observed, with a few sightings near open desert zones. The species appears to prefer the less disturbed sandy regions for foraging and burrowing.

Presence of Spotted Desert Racer at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, the species was more commonly observed, particularly in Transect 8, an area characterized by rolling sandy dunes. The density of the species in this region was recorded at 3.1 individuals per hectare, indicating the site provides suitable habitat for this racer.

Direct threats for the Spotted Desert Racer include:

1. **Habitat Loss and Fragmentation**:
    - The construction of wind turbines, access roads, and associated infrastructure could lead to the loss and fragmentation of the racer's habitat, particularly in sandy areas where it burrows and forages.
2. **Vehicular Collisions**:
    - The movement of construction vehicles poses a risk of direct mortality for the Spotted Desert Racer, as the species often moves across open terrain.

Indirect threats for the Spotted Desert Racer include:

1. **Disturbance from Human Activity**:
    - Noise, vibrations, and human presence during construction and operation phases may disturb the Spotted Desert Racer, potentially displacing it from key foraging and resting sites.
2. **Reduced Prey Availability**:
    - Habitat degradation caused by construction activities could result in a decrease in the availability of prey species (e.g., small mammals and lizards), affecting the racer's foraging success.
3. **Introduction of Invasive Species**:
    - Construction activities may introduce invasive plant species that could alter the habitat structure, making it less suitable for the Spotted Desert Racer to forage and shelter.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

For the **Spotted Desert Racer**, the risk of collision is primarily associated with **vehicular traffic** rather than turbine operation, as it is a ground-dwelling species. Increased vehicle movement during construction, particularly in sandy areas, poses a **moderate risk** of roadkill. This risk is expected to contribute to cumulative impacts across both project sites, especially during peak activity periods.

Cumulative impacts due to other projects in the region

Across **Central Asia**, renewable energy projects, especially wind farms, contribute to **habitat fragmentation** in steppe and desert areas. For the Spotted Desert Racer, these impacts are amplified when combined with **agricultural expansion** and **urbanization**, which further degrade and fragment suitable habitats. At the **national level**, the reduction of continuous open sandy habitats is a growing concern for species like the Spotted Desert Racer, which relies on these environments for foraging and burrowing.

Mitigation implemented

Traffic Management

- **Speed Limits:** Speed limits will be enforced on access roads to reduce the risk of vehicular collisions with Spotted Desert Racers during construction and operational phases. **(Upfront Mitigation)**
- **Restricted Access Routes:** Restricted routes will be implemented to limit traffic through sensitive habitats, reducing disturbance and habitat fragmentation. **(Upfront Mitigation)**

Habitat Restoration

- **Post-Construction Restoration:** Restoration efforts will aim to minimize soil compaction and restore native vegetation, ensuring that the habitat remains suitable for foraging and burrowing activities. **(Adaptive Mitigation)**

Residual Cumulative Impacts

- **Habitat Loss and Fragmentation:** Despite mitigation efforts, residual cumulative impacts from habitat loss and fragmentation are expected to be moderate. Wind turbines, access roads, and transmission lines will permanently alter portions of the racer's habitat, especially sandy regions critical for burrowing and foraging.
- **Vehicular Collisions:** The residual risk of vehicular collisions will remain low to moderate, as the species' ground-dwelling behavior and frequent movement across open terrain make occasional fatalities likely.
- **Disturbance from Human Activity:** Residual disturbance from human activity is expected to be low to moderate. Controlled construction activities and operational management will reduce some disturbances, but the presence of humans, noise, and vibrations may still displace individuals from preferred habitats.

- **Reduction in Prey Availability:** Residual impacts on prey availability are expected to be moderate. Construction-related habitat degradation may reduce populations of small mammals and lizards, potentially affecting the racer's foraging success.

In summary, the residual cumulative impacts on the **Spotted Desert Racer** are expected to be moderate, primarily due to habitat fragmentation and potential reductions in prey availability. **Ongoing monitoring and adaptive management** will be essential to mitigate long-term effects and ensure the species' long-term viability.

4.5 Flora

The flora in the following sections are listed in the Uzbekistan Red Data Book and as a minimum should be avoided within the footprint of the project facilities including temporary laydown areas. This should be confirmed by undertaking a pre-clearance survey of sites with suitable habitats, by an experienced botanist, to confirm that they are absent. If they are found within the footprint of a temporary facility there should be consideration of moving to a less sensitive location. Where this is not possible then translocation of the rare plants should be undertaken in association with an ecologist from the Ministry in accordance with Uzbekistan laws.

4.5.1 *Lepidium subcordatum* (Brassicaceae)

Lepidium subcordatum is an endemic plant species restricted to the Kyzylkum Desert and the Ustyurt Plateau. It grows primarily in gravelly and stony hill habitats, particularly along the northern slopes of these regions. The species has a low overall population but is locally abundant in specific areas.

This species is classified as **Rare, Endangered (Category 2)** in the **Uzbekistan Red Data Book** but does not have a listing on the **IUCN Red List**.

NATIONAL, REGIONAL AND GLOBAL THREATS

Lepidium subcordatum faces numerous threats on local, regional, and global scales:

- **Habitat Degradation**: The species is highly sensitive to changes in its gravelly habitat, which is vulnerable to degradation from human activities such as road construction and grazing.
- **Limited Range**: Its restricted distribution to specific regions makes it particularly susceptible to habitat fragmentation.

- **Climate Change**: Changes in precipitation and temperature regimes in arid regions may further reduce its available habitat and hinder its reproductive success.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Lepidium subcordatum* at Nukus 1 Project Site (Baseline Survey Results):

Nukus 1 does not include any recorded populations of *Lepidium subcordatum* during the botanical surveys.

Presence of *Lepidium subcordatum* at Nukus 2 Project Site (Baseline Survey Results):

- At Nukus 2, several populations of *Lepidium subcordatum* were identified:
    - **Turbine T06**: 6 specimens were found on a gravelly hill.
    - **Turbine T07**: 7 specimens on a stony-gravelly hill.
    - **Turbine T08**: 6 specimens were recorded.
    - **Turbine T18**: 8 specimens were found.
    - **OTHL Kokraly**: 4 specimens were recorded near the well.

Direct Threats for *Lepidium subcordatum* Include:

1. **Habitat Loss and Fragmentation**:
    - The construction of wind turbines and associated infrastructure at Nukus 2 will directly impact the populations of *Lepidium subcordatum*, causing habitat destruction and fragmentation.
    - Infrastructure development in its limited habitat could reduce population numbers by isolating or destroying local populations.
2. **Soil Compaction and Disturbance**:
    - The construction process, particularly the movement of heavy machinery, may lead to soil compaction in areas where the species is found, disrupting the delicate gravelly substrate in which it thrives.

Indirect Threats for *Lepidium subcordatum* Include:

1. **Dust Deposition**:

- Dust generated during construction may smother nearby populations, limiting photosynthesis and potentially leading to the death of plants in areas downwind from construction sites.

2. **Introduction of Invasive Species**:

   - Construction activities, particularly the movement of soil and equipment, may introduce invasive species that outcompete *Lepidium subcordatum* for resources, further threatening its small populations.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

While **no populations were recorded at Nukus 1**, several populations of **Lepidium subcordatum** were found in **Nukus 2** near turbine sites and along the Overhead Transmission Line (OTHL) route. The construction of turbines and related infrastructure will lead to **cumulative habitat loss** in the gravelly hill regions where the species is located. **Soil compaction and disturbance** from construction activities will exacerbate the loss of these critical habitats, causing a **reduction in suitable areas for plant growth**.

Cumulative impacts due to other projects in the region

On a national scale, the development of **renewable energy projects**, such as wind farms and solar installations, is leading to a **reduction in arid and semi-arid ecosystems**. For endemic species like *Lepidium subcordatum*, which are already restricted to specific habitats in the Kyzylkum Desert and Ustyurt Plateau, **cumulative impacts from other infrastructure developments** across Uzbekistan further fragment and degrade these sensitive environments. Overgrazing and road construction also contribute to habitat fragmentation, increasing the vulnerability of this rare species.

Mitigation implemented

Dust Suppression: **Dust control measures** such as water spraying during construction will minimize the deposition of dust on nearby populations of *Lepidium subcordatum*, helping to protect plants from being smothered.

Soil Stabilization: Measures to prevent **soil compaction** and maintain the integrity of gravelly substrates will be implemented to preserve the species' habitat.

Invasive Species Control: **Invasive species monitoring** will be carried out, and rapid response protocols will be developed to prevent the introduction and spread of invasive species that could outcompete *Lepidium subcordatum*.

Residual cumulative impacts

- **Habitat Loss and Fragmentation**: Despite mitigation efforts, **residual cumulative impacts on habitat loss and fragmentation** are expected to remain **moderate to high**. The construction of wind turbines and infrastructure will permanently alter portions of the species' limited habitat, reducing available areas for future growth and reproduction.
- **Soil Compaction**: Even with soil stabilization measures, **residual soil compaction** could affect areas adjacent to construction zones, reducing the species' ability to establish new populations in the region.
- **Dust Deposition**: **Residual impacts from dust deposition** are anticipated to be **low to moderate**. Dust control measures will reduce but not completely eliminate the risk of smothering nearby plants, particularly during prolonged construction phases.
- **Introduction of Invasive Species**: While **monitoring and control measures** will be in place, **residual risks of invasive species introduction** will persist, particularly in disturbed soils that may create opportunities for non-native species to establish.

In summary, the **residual cumulative impacts** on *Lepidium subcordatum* are expected to be **moderate to high**, particularly due to habitat loss, soil compaction, and fragmentation. Ongoing monitoring and adaptive management will be critical to mitigating long-term effects on the species' populations.

4.5.2 *Astragalus centralis.* (Fabaceae)

Astragalus centralis *is a perennial plant species that is native to the arid and semi-arid regions of Uzbekistan, particularly in the Kyzylkum Desert. This species is part of the Fabaceae family and contributes to local biodiversity by stabilizing soils and supporting ecological networks in the region. While Astragalus centralis is not listed on the IUCN Red List globally, it is recognized for its rarity and vulnerability in the Uzbekistan Red Data Book, where it is categorized as Rare, Endangered (Category 2).*

NATIONAL, REGIONAL AND GLOBAL THREATS

Astragalus centralis *faces numerous threats, particularly within its localized range:*

- ***Habitat Loss and Fragmentation****: Agricultural expansion and increasing desertification in the Kyzylkum Desert threaten the natural habitats of this species. Overgrazing, particularly in desert ecosystems, exacerbates this problem.*

- ***Overgrazing**: Livestock grazing is a significant threat, as it causes soil erosion and trampling, making it difficult for new plants to establish, thereby limiting the species' natural regeneration.*
- ***Climate Change**: Changes in precipitation patterns and increasing temperatures pose additional challenges by further stressing its already fragile habitat. The shifting climate could reduce the areas where this species can thrive.*

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Astragalus centralis* at Nukus 1 Project Site (Baseline Survey Results):

Astragalus centralis was observed in small numbers during the baseline botanical surveys at Nukus 1, particularly on stony and skeletal slopes. These habitats are typically found in the semi-arid zones of the project area, where the species is associated with xerophytic shrubs. Though it was not abundant, its presence indicates that this species utilizes the project area. Ongoing monitoring is necessary to assess the impact of project activities on this species' population and habitat.

Presence of *Astragalus centralis* at Nukus 2 Project Site (Baseline Survey Results):

At Nukus 2, *Astragalus centralis* was observed in small numbers, particularly on stony and skeletal slopes of the Sultan Uvays range. Its presence was recorded in association with xerophytic shrubs and desert vegetation. Although the species appears to be uncommon, ongoing monitoring is recommended to ensure the project activities do not negatively impact its population or habitat.

Direct threats for Astragalus centralis include:

1. **Habitat Destruction**:
2. The construction of wind turbines, roads, and infrastructure at both Nukus 1 and Nukus 2 project sites could directly lead to the destruction of existing populations of *Astragalus centralis*, especially if its semi-desert habitats are disturbed.
3. **Soil Compaction**:

Construction activities involving heavy machinery may lead to soil compaction, reducing the plant's ability to establish new seedlings and contributing to further population declines.

Indirect threats for Astragalus centralis include:

1. **Disturbance from Human Activity**:

2. Increased human presence and vehicle traffic could disturb the plant's habitat, leading to habitat fragmentation and reduced reproductive success.

3. **Soil Erosion**:

THE REMOVAL OF VEGETATION DUE TO CONSTRUCTION ACTIVITIES COULD LEAD TO INCREASED SOIL EROSION, FURTHER DEGRADING THE DELICATE HABITAT OF *ASTRAGALUS CENTRALIS*.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Astragalus centralis was observed at both Nukus 1 and Nukus 2 project sites. The species' potential habitat overlaps with semi-desert areas affected by construction activities. The development of infrastructure, roads, and turbines in these semi-desert regions will contribute to habitat loss and fragmentation, reducing suitable areas for *Astragalus centralis* s. Soil compaction from machinery use will exacerbate cumulative impacts on habitat quality, limiting the species' ability to regenerate in the affected areas.

Cumulative impacts due to other projects in the region

Agricultural expansion, overgrazing, and other infrastructure developments across the Kyzylkum region are contributing to habitat degradation. These activities further fragment the already restricted distribution of *Astragalus centralis*, making it vulnerable to extinction. Additionally, climate change, with more extreme temperature fluctuations and shifts in precipitation patterns, could intensify the degradation of suitable habitats for this species.

Mitigation implemented

Soil Compaction Mitigation: Implementing soil stabilization techniques and restricting heavy machinery to designated pathways will help preserve the delicate soil structure necessary for *Astragalus centralis* to thrive and regenerate.

Erosion Control: Measures such as vegetation barriers and other soil stabilization methods will be implemented to control soil erosion and protect adjacent habitats that support *Astragalus centralis* These measures are critical to maintaining habitat integrity.

Monitoring and Surveys: Ongoing monitoring of known and potential habitats for *Astragalus centralis* will be conducted to ensure populations are not adversely impacted during the construction phase. Regular surveys will track any changes in population or habitat conditions.

Residual cumulative impacts

- **Habitat Loss and Fragmentation**: Despite mitigation measures, residual impacts from habitat loss and fragmentation are expected to remain moderate. Construction will alter portions of the semi-desert habitat, which may affect the species' ability to recover and regenerate over the long term due to habitat degradation.
- **Soil Compaction**: Even with soil stabilization measures, residual soil compaction may persist in some areas near construction zones, limiting seedling establishment and reducing the regeneration potential for *Astragalus centralis*.
- **Soil Erosion**: Although erosion control measures will be implemented, residual impacts from erosion could continue to degrade marginal habitats, making them less suitable for *Astragalus centralis* to establish and thrive.
- **Disturbance from Human Activity**: Residual impacts from increased human activity and infrastructure presence are likely to lead to continued habitat disturbance and fragmentation. While mitigation efforts will reduce these impacts, some moderate effects on the habitat will remain.

In summary, the residual cumulative impacts on *Astragalus centralis* are expected to be moderate, primarily due to habitat loss, fragmentation, soil compaction, and disturbance from human activities. Continued monitoring and adaptive management will be essential to mitigate long-term effects on populations of this species.

.

4.5.3 *Ferula kyzylkumica* (Apiaceae)

Ferula kyzylkumica is a perennial herbaceous plant endemic to the Kyzylkum and Nuratau Mountain regions of Uzbekistan. As part of the Apiaceae family, this species is adapted to arid and semi-arid habitats, where it plays a role in stabilizing soils and supporting local biodiversity. The plant is a rare component of its native ecosystems, often found in rocky or gravelly soils in mountainous and desert areas (endemic to Kyzylkum and Nuratau Mountains). Despite its limited range, the species is not evaluated on the IUCN Red List.

Classified as **Vulnerable (Category 3)** in the **Uzbekistan Red Data Book**, the species is primarily threatened by habitat loss and environmental degradation due to human activities.

NATIONAL, REGIONAL AND GLOBAL THREATS

Ferula kyzylkumica faces numerous threats on local and regional scales:

- **Habitat Degradation**: Agricultural development and grazing in its limited habitat, particularly in desert and mountain areas, contribute to the degradation of the plant's environment.

- **Overgrazing**: Livestock grazing in the region poses a significant threat by damaging plant populations and preventing regeneration through trampling and soil compaction.
- **Climate Change**: Changing weather patterns, such as increased temperatures and altered precipitation, could further reduce suitable habitats for the species, putting additional pressure on already vulnerable populations.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Ferula kyzylkumica* at Nukus 1 Project Site (Baseline Survey Results):

No direct observations of *Ferula kyzylkumica* were recorded during the baseline botanical surveys at Nukus 1. However, suitable habitats, such as rocky or gravelly soils, exist near the project site, and further surveys are recommended to confirm the presence of the species.

Presence of *Ferula kyzylkumica* at Nukus 2 Project Site (Baseline Survey Results):

Similar to Nukus 1, no confirmed observations of *Ferula kyzylkumica* were made during the surveys at Nukus 2. However, the mountainous and semi-arid conditions of the region provide potential habitats, warranting further investigation.

Direct threats for *Ferula kyzylkumica* include:

1. **Habitat Destruction**:
    - The construction of wind turbines, access roads, and other infrastructure could lead to the destruction of suitable habitats for *Ferula kyzylkumica*, particularly in the mountainous areas where it is most likely to occur.
2. **Soil Compaction**:
    - The use of heavy machinery for construction activities could lead to soil compaction, reducing the plant's ability to regenerate and thrive in its natural environment.

Indirect threats for Ferula kyzylkumica include:

1. **Disturbance from Human Activity**:
    - Increased human activity during both construction and operation could lead to disturbance in areas where *Ferula kyzylkumica* grows, potentially resulting in habitat fragmentation and population decline.
2. **Soil Erosion**:

- Vegetation removal and soil disturbance caused by construction may lead to increased erosion, further degrading the habitat of *Ferula kyzylkumica*, limiting its ability to regenerate and sustain populations.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Although *Ferula kyzylkumica* was not directly observed during baseline surveys at either Nukus 1 or Nukus 2, the semi-arid and mountainous regions near the project sites may provide suitable habitats for this species. The construction of wind turbines, roads, and infrastructure in these areas will lead to cumulative habitat loss, particularly in rocky or gravelly soils where the species thrives. Soil compaction from heavy machinery use will exacerbate the degradation of its delicate habitat, further reducing the chances for *Ferula kyzylkumica* to regenerate in the affected areas. Over time, the combined effects of habitat loss and reduced soil quality will limit the availability of suitable areas for the species to establish new populations.

Cumulative impacts due to other projects in the region

The Kyzylkum and Nuratau Mountain regions are increasingly impacted by agricultural expansion, grazing, and other forms of land use. These activities are contributing to the ongoing degradation and fragmentation of habitats that support *Ferula kyzylkumica*. The species' vulnerability is further compounded by the effects of climate change, including rising temperatures and altered precipitation patterns, which are expected to reduce the availability of suitable habitats. As these pressures increase, *Ferula kyzylkumica* populations are likely to face greater risks of extinction.

Mitigation implemented

Soil Compaction Mitigation: Restricting the movement of heavy machinery and implementing soil stabilization techniques will help reduce soil compaction, preserving the conditions necessary for the species' regeneration.

Erosion Control: Implementing erosion control measures, such as re-vegetation and physical barriers, will help stabilize soil and prevent further habitat degradation in mountainous areas.

Monitoring and Surveys: Continued monitoring of potential habitats for *Ferula kyzylkumica* will ensure that any populations are identified and protected throughout the project lifecycle.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite the mitigation measures, residual habitat loss and degradation are expected to remain moderate to high. The construction of

infrastructure in semi-arid and mountainous areas will permanently alter portions of the species' natural habitat, reducing available areas for population recovery.

- **Soil Compaction**: Even with soil stabilization efforts, residual soil compaction may persist in areas adjacent to construction zones, limiting the regeneration of *Ferula kyzylkumica* and reducing its long-term survival prospects.
- **Soil Erosion**: Residual impacts from soil erosion are anticipated, particularly in areas where vegetation removal has occurred, further degrading the habitat and reducing its suitability for *Ferula kyzylkumica*.
- **Disturbance from Human Activity**: Increased human presence during both construction and operational phases will continue to fragment the habitat, leading to residual impacts on the species' ability to regenerate and sustain populations over time.

In summary, the **residual cumulative impacts** on *Ferula kyzylkumica* are expected to be **moderate to high**, particularly due to habitat loss, soil compaction, and habitat fragmentation. Ongoing monitoring and adaptive management will be necessary to mitigate long-term impacts on this vulnerable species.

4.5.4 *Lagochilus vvedenskyi* (Lamiaceae)

Lagochilus vvedenskyi is a perennial plant endemic to the Kyzylkum region of Uzbekistan. It belongs to the Lamiaceae family and is well-adapted to the arid and semi-arid conditions typical of the desert landscape. The plant is known for its medicinal properties and plays a role in the local flora by stabilizing soils in sandy and rocky environments. Despite its restricted range, the species has not been evaluated for global conservation status by the IUCN Red List.

Classified as **Vulnerable (Category 3)** in the **Uzbekistan Red Data Book**, the species is primarily threatened by habitat degradation, overgrazing, and human activities in its native range.

NATIONAL, REGIONAL AND GLOBAL THREATS

Lagochilus vvedenskyi faces numerous threats on local and regional scales:

- **Habitat Loss and Degradation**: The expansion of agriculture and infrastructure development, such as road building, is contributing to the degradation of the plant's native desert habitat.
- **Overgrazing**: Livestock grazing in the Kyzylkum region, where this species is endemic, leads to soil erosion and damage to plant populations, reducing the chances of regeneration.

- **Climate Change**: Increased temperatures and reduced rainfall due to climate change may further restrict the habitat of this species, increasing its vulnerability.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Lagochilus vvedenskyi* at Nukus 1 Project Site (Baseline Survey Results):

No direct observations of *Lagochilus vvedenskyi* were recorded at Nukus 1 during the baseline botanical surveys. However, the semi-desert habitat in and around the project site provides a suitable environment for the species. Further targeted surveys are recommended to confirm its presence.

Presence of *Lagochilus vvedenskyi* at Nukus 2 Project Site (Baseline Survey Results):

Similar to Nukus 1, no confirmed sightings of *Lagochilus vvedenskyi* were made during the surveys at Nukus 2. However, the surrounding environment, which includes arid and semi-arid areas, is suitable for the species, suggesting further monitoring may be necessary.

Direct threats for *Lagochilus vvedenskyi* include:

1. **Habitat Destruction**:
    - The construction of wind turbines, roads, and associated infrastructure could directly destroy potential habitats for *Lagochilus vvedenskyi*, particularly in areas where the desert vegetation is already under pressure from human activity.
2. **Soil Compaction**:
    - Heavy machinery and construction activities may lead to soil compaction, reducing the plant's ability to grow and reproduce, further endangering already vulnerable populations.

Indirect threats for *Lagochilus vvedenskyi* include:

1. **Disturbance from Human Activity**:
    - Increased human activity during the construction and operational phases of the project could disturb the habitats of *Lagochilus vvedenskyi*, causing further fragmentation of its already limited range.
2. **Soil Erosion**:

- Removal of vegetation and soil disturbance during construction activities could lead to soil erosion, which would degrade the species' habitat and reduce its chances of survival.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Although *Lagochilus vvedenskyi* was not directly observed during baseline surveys at Nukus 1 or Nukus 2, the semi-desert and arid conditions near the project sites provide potential habitats for this species. The construction of wind turbines, access roads, and infrastructure will contribute to cumulative habitat loss, particularly in areas where desert vegetation is already under pressure from human activities. Soil compaction caused by the use of heavy machinery will exacerbate the degradation of these fragile habitats, limiting the ability of *Lagochilus vvedenskyi* to regenerate. Over time, these cumulative impacts will reduce the availability of suitable habitats for the species and fragment its already restricted range.

Cumulative impacts due to other projects in the region

The Kyzylkum region faces increasing pressure from agricultural development, overgrazing, and infrastructure expansion, all of which contribute to the degradation of habitats that support *Lagochilus vvedenskyi*. These activities are leading to further habitat fragmentation, reducing the species' ability to thrive. Additionally, climate change, characterized by rising temperatures and reduced rainfall, is likely to exacerbate these impacts, further shrinking the already limited habitats suitable for this species.

Mitigation implemented

Soil Compaction Mitigation: Restricting the movement of heavy machinery and implementing soil stabilization techniques will help to reduce soil compaction, preserving the conditions necessary for the species to regenerate.

Erosion Control: Erosion control measures, including re-vegetation and physical barriers, will reduce soil degradation and help protect the species' fragile desert habitat.

Monitoring and Surveys: Continued monitoring of potential habitats for *Lagochilus vvedenskyi* will ensure that any populations are identified and protected throughout the project lifecycle.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite mitigation efforts, residual habitat loss and degradation are expected to remain moderate. The construction of infrastructure in

arid and semi-arid environments will permanently alter portions of the species' natural habitat, reducing the available areas for regeneration.

- **Soil Compaction**: Residual soil compaction may persist in some areas despite mitigation measures, limiting the establishment of new plants and reducing the species' regeneration capacity.
- **Soil Erosion**: Residual impacts from soil erosion may continue to degrade adjacent habitats, further reducing their suitability for *Lagochilus vvedenskyi*.
- **Disturbance from Human Activity**: Increased human presence during both the construction and operational phases is likely to result in residual habitat fragmentation and disturbance, reducing the species' ability to recover and sustain populations over time.

In summary, the **residual cumulative impacts** on *Lagochilus vvedenskyi* are expected to be **moderate** due to habitat loss, soil compaction, and habitat fragmentation. Ongoing monitoring and adaptive management will be essential to mitigate long-term impacts on this vulnerable species.

4.5.5 *Lappula aktaviensis* (Boraginaceae)

Lappula aktaviensis is a critically endangered plant species endemic to the Kyzylkum region in Uzbekistan. It belongs to the Boraginaceae family and thrives in arid, rocky environments, where it plays a role in maintaining local biodiversity. This plant is adapted to the harsh conditions of desert landscapes but is highly vulnerable due to its restricted range. The species has no conservation status on the IUCN Red List.

Listed as **Critically Endangered (Category 1)** in the **Uzbekistan Red Data Book**, the species faces immediate risks of extinction due to habitat loss and environmental degradation.

NATIONAL, REGIONAL AND GLOBAL THREATS

Lappula aktaviensis faces numerous threats on local and regional scales:

- **Habitat Loss**: Expansion of agriculture and infrastructure development in the Kyzylkum region contributes to the destruction and fragmentation of habitats essential for the survival of this species.
- **Overgrazing**: Intensive grazing in the region results in soil erosion and direct damage to plant populations, limiting the species' ability to regenerate.

- **Climate Change**: Shifts in precipitation and temperature, common in desert environments, further exacerbate the fragility of *Lappula aktaviensis*' habitat, reducing its ability to survive and reproduce.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Lappula aktaviensis* at Nukus 1 Project Site (Baseline Survey Results):

No observations of *Lappula aktaviensis* were made during the baseline botanical surveys at Nukus 1. However, the presence of arid, rocky environments in the area suggests potential habitats. Further targeted surveys are needed to confirm its presence and assess its population.

Presence of *Lappula aktaviensis* at Nukus 2 Project Site (Baseline Survey Results):

Similarly, no sightings of *Lappula aktaviensis* were recorded at Nukus 2. Despite this, the semi-arid conditions in the area may offer a suitable habitat for the species, making further monitoring important.

Direct threats for *Lappula aktaviensis* include:

1. **Habitat Destruction**:
    - The construction of wind turbines, access roads, and other infrastructure at both project sites may lead to the destruction of potential habitats for *Lappula aktaviensis*, particularly in rocky and semi-desert areas where it is likely to occur.
2. **Soil Compaction**:
    - The use of heavy machinery during construction could lead to soil compaction, affecting the plant's ability to grow and regenerate, further threatening its already limited population.

Indirect threats for *Lappula aktaviensis* include:

1. **Disturbance from Human Activity**:
    - Increased human activity in areas near potential habitats could cause habitat fragmentation and reduce the likelihood of the plant's survival. Construction activities, in particular, could disrupt sensitive ecosystems where the species is found.
2. **Soil Erosion**:

- Vegetation removal and soil disturbance during construction may lead to soil erosion, further degrading the fragile habitat of *Lappula aktaviensis*, making it difficult for the species to re-establish itself.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

While *Lappula aktaviensis* was not directly observed during baseline surveys at Nukus 1 or Nukus 2, the arid and rocky conditions at both sites are potential habitats for this critically endangered species. The construction of wind turbines, access roads, and infrastructure will lead to cumulative habitat destruction and fragmentation in these fragile environments. Soil compaction caused by heavy machinery will further degrade the quality of the rocky soils, limiting the regeneration potential of *Lappula aktaviensis*. These impacts will exacerbate the already precarious status of the species, reducing the availability of suitable habitats and isolating any potential populations.

Cumulative impacts due to other projects in the region

The Kyzylkum region is undergoing significant transformation due to agricultural development, overgrazing, and infrastructure expansion. These activities are contributing to widespread habitat degradation and fragmentation, further threatening *Lappula aktaviensis*. The impacts of climate change, including shifts in precipitation patterns and increased temperatures, are likely to exacerbate these challenges, further reducing the availability of suitable habitats. As more of the species' limited habitat is lost, the cumulative effects of human activities and climate change will push *Lappula aktaviensis* closer to extinction.

Mitigation implemented

Soil Compaction Mitigation: Implementing soil stabilization techniques and restricting the movement of heavy machinery will help to reduce soil compaction, preserving the fragile rocky soils that support the species.

Erosion Control: Erosion control measures, such as re-vegetation and the use of physical barriers, will help to protect the fragile habitats of *Lappula aktaviensis* from further degradation.

Monitoring and Surveys: Ongoing monitoring of potential habitats will ensure that any populations of *Lappula aktaviensis* are identified and protected during construction and operational phases.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite the implementation of mitigation measures, residual habitat loss and degradation are expected to remain high. The construction of infrastructure in arid and rocky environments will permanently alter key portions of the species' habitat, reducing the available areas for regeneration and population recovery.
- **Soil Compaction**: Residual soil compaction may persist in some areas despite mitigation efforts, limiting the establishment of new plants and further reducing the species' ability to regenerate in its already limited habitat.
- **Soil Erosion**: Residual impacts from soil erosion are anticipated, particularly in areas where vegetation removal has occurred. This will further degrade the fragile habitat of *Lappula aktaviensis* and hinder its long-term survival.
- **Disturbance from Human Activity**: Increased human presence during both the construction and operational phases is likely to result in habitat fragmentation and further disturbance, affecting the long-term survival of the species.

In summary, the **residual cumulative impacts** on *Lappula aktaviensis* are expected to be **high** due to habitat loss, soil compaction, and habitat fragmentation. Ongoing monitoring and adaptive management will be crucial to mitigate the long-term effects on this critically endangered species.

4.5.6 *Lappula parvula* (Boraginaceae)

Lappula parvula is a rare plant species endemic to the Sultan Uvays Mountains in Uzbekistan. Belonging to the **Boraginaceae** family, it is adapted to arid and rocky environments. This species is of particular interest due to its limited distribution and unique adaptation to the semi-arid conditions of the region. It has not been assessed by the IUCN Red List.

Listed as **Rare, Endangered (Category 2)** in the **Uzbekistan Red Data Book**, the species is threatened by habitat loss and environmental degradation, particularly in its limited range within the Sultan Uvays Mountains.

NATIONAL, REGIONAL AND GLOBAL THREATS

Lappula parvula faces numerous threats on local and regional scales:

- **Habitat Loss and Fragmentation**: Infrastructure development and agricultural expansion in the Sultan Uvays Mountains pose significant threats by reducing and fragmenting the species' natural habitat.
- **Overgrazing**: Livestock grazing contributes to soil erosion and direct damage to plant populations, reducing the ability of the species to regenerate and survive.
- **Climate Change**: Changes in temperature and precipitation patterns can lead to further habitat degradation, making the species more vulnerable to extinction.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of Lappula parvula at Nukus 1 Project Site (Baseline Survey Results):

Lappula parvula was not observed during baseline botanical surveys at Nukus 1, and no confirmed populations were recorded. However, the semi-desert habitats may be suitable for the species, and additional surveys are recommended to confirm its presence.

Presence of *Lappula parvula* at Nukus 2 Project Site (Baseline Survey Results):

Similarly, *Lappula parvula* was not observed at Nukus 2 during the surveys. However, further monitoring may be needed, as the environmental conditions in the region could potentially support this species.

Direct threats for *Lappula parvula* include:

1. **Habitat Destruction**:
    - The construction of wind turbines, roads, and other infrastructure could lead to the destruction of potential habitats for *Lappula parvula*, particularly in the arid and rocky areas it inhabits.
2. **Soil Compaction**:
    - Heavy machinery used during construction may lead to soil compaction, reducing the ability of the species to regenerate in disturbed areas.

Indirect threats for *Lappula parvula* include:

1. **Disturbance from Human Activity**:
    - Increased human activity near sensitive habitats could fragment the limited populations of *Lappula parvula*, reducing their chances of survival and further fragmenting their already small range.

2. **Soil Erosion**:

    - Vegetation loss and soil disturbance during construction activities could increase erosion, degrading the fragile habitat of *Lappula parvula* and limiting its ability to thrive.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Although *Lappula parvula* was not observed during baseline surveys at either Nukus 1 or Nukus 2, the arid and rocky conditions present at the project sites may provide suitable habitats for the species. The construction of wind turbines, access roads, and other infrastructure will lead to cumulative habitat loss and degradation in these semi-arid environments. Soil compaction caused by heavy machinery during construction will further deteriorate the quality of the soil, restricting the ability of *Lappula parvula* to regenerate. These cumulative impacts are likely to fragment potential populations and reduce available habitats for the species, which is already vulnerable due to its limited range in the Sultan Uvays Mountains.

Cumulative impacts due to other projects in the region

The Sultan Uvays Mountains, where *Lappula parvula* is endemic, are increasingly affected by infrastructure development, agricultural expansion, and overgrazing. These activities contribute to habitat fragmentation and degradation, further reducing the areas where the species can thrive. Additionally, climate change, characterized by rising temperatures and changing precipitation patterns, is expected to exacerbate these threats, further shrinking the species' already limited range. The combined impacts of human activities and climate change will likely push *Lappula parvula* closer to extinction if not adequately mitigated.

Mitigation implemented

Soil Compaction Mitigation: Implementing soil stabilization techniques and restricting the movement of heavy machinery will reduce soil compaction, preserving the fragile arid soils necessary for the species' regeneration.

Erosion Control: Erosion control measures, such as re-vegetation and physical barriers, will help prevent further habitat degradation and support the recovery of any impacted areas.

Monitoring and Surveys: Ongoing monitoring of potential habitats for *Lappula parvula* will ensure that any populations are identified and protected during both the construction and operational phases.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite the implementation of mitigation measures, residual habitat loss and degradation are expected to remain moderate to high. The construction of infrastructure in arid and rocky environments will permanently alter portions of the species' habitat, reducing the availability of areas where *Lappula parvula* can survive.
- **Soil Compaction**: Residual soil compaction may persist in some areas, limiting the establishment of new plants and reducing the species' ability to regenerate, despite efforts to mitigate this issue.
- **Soil Erosion**: Residual impacts from soil erosion are anticipated, particularly in areas where vegetation removal has occurred, further degrading the fragile habitats of *Lappula parvula* and hindering its long-term survival.
- **Disturbance from Human Activity**: Increased human presence during both the construction and operational phases will likely result in further habitat fragmentation, reducing the species' already restricted range and its chances of survival.

In summary, the **residual cumulative impacts** on *Lappula parvula* are expected to be **moderate to high**, primarily due to habitat loss, soil compaction, and habitat fragmentation. Continued monitoring and adaptive management will be essential to mitigate the long-term impacts on this rare and endangered species.

4.5.7 *Scorzonera bungei* (Asteraceae)

Scorzonera bungei is a rare perennial herb species from the Asteraceae family, endemic to the Sultan Uvays Mountains and the Ustyurt Plateau in Uzbekistan. This species is adapted to the arid and semi-arid conditions of these mountainous regions, thriving in rocky soils and contributing to the ecological stability of the area. Despite its importance in local ecosystems, the species does not have a global conservation status on the IUCN Red List.

Listed as **Rare, Endangered (Category 2)** in the **Uzbekistan Red Data Book**, the species is at risk from habitat destruction and human activity in its limited range.

NATIONAL, REGIONAL AND GLOBAL THREATS

Scorzonera bungei faces numerous threats on local and regional scales:

- **Habitat Loss and Fragmentation**: Agricultural expansion, overgrazing, and infrastructure projects are the primary threats, contributing to the fragmentation of the species' habitat in the Sultan Uvays Mountains and Ustyurt Plateau.

- **Overgrazing**: Livestock grazing leads to soil erosion and the direct destruction of plant populations, making it difficult for *Scorzonera bungei* to regenerate.
- **Climate Change**: Changes in precipitation and temperature patterns may further limit the available suitable habitat for this species, exacerbating its vulnerability.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Scorzonera bungei* at Nukus 1 Project Site (Baseline Survey Results):

No observations of *Scorzonera bungei* were made during the baseline botanical surveys at Nukus 1. However, the environmental conditions of the project site, with its rocky and semi-arid terrain, suggest that suitable habitat for the species could exist. Further surveys are recommended to confirm its presence.

Presence of Scorzonera bungei at Nukus 2 Project Site (Baseline Survey Results):

Similar to Nukus 1, *Scorzonera bungei* was not observed at Nukus 2 during the surveys. The surrounding semi-arid landscape, however, may provide appropriate habitat for this species, and additional targeted surveys should be conducted.

Direct threats for *Scorzonera bungei* include:

1. **Habitat Destruction**:
    - The construction of wind turbines, roads, and other infrastructure at both project sites could result in the destruction of habitats where *Scorzonera bungei* may occur, especially in the semi-arid, rocky areas it prefers.
2. **Soil Compaction**:
    - Construction activities involving heavy machinery could compact the soil, making it difficult for *Scorzonera bungei* to grow and regenerate.

Indirect threats for *Scorzonera bungei* include:

1. **Disturbance from Human Activity**:
    - Increased human activity during both construction and operation phases may fragment the habitat of *Scorzonera bungei*, reducing its ability to survive and reproduce.
2. **Soil Erosion**:

- The removal of vegetation and disturbance of the soil during construction activities may lead to soil erosion, further degrading the fragile habitat of *Scorzonera bungei* and making it harder for the species to establish and maintain stable populations.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Although *Scorzonera bungei* was not directly observed during baseline surveys at Nukus 1 or Nukus 2, the semi-arid and rocky habitats at both sites may provide suitable conditions for this species. The construction of wind turbines, roads, and infrastructure in these areas will contribute to cumulative habitat loss and fragmentation, particularly in the rocky soils where *Scorzonera bungei* thrives. Soil compaction caused by heavy machinery will further reduce the quality of the habitat, inhibiting the regeneration and growth of this rare species. These impacts are likely to exacerbate the fragmentation of any existing populations and reduce available habitat for *Scorzonera bungei* in the Sultan Uvays Mountains and Ustyurt Plateau, where it is already under threat.

Cumulative impacts due to other projects in the region

The Sultan Uvays Mountains and Ustyurt Plateau are experiencing habitat fragmentation and degradation from agricultural development, overgrazing, and other infrastructure projects. These activities are reducing the availability of suitable habitats for *Scorzonera bungei*, making the species more vulnerable to extinction. Additionally, climate change, with rising temperatures and changes in precipitation patterns, is expected to further exacerbate these pressures, reducing the species' already limited range. The cumulative impacts of human activity and climate change will likely diminish the species' chances of survival unless carefully managed.

Mitigation implemented

Soil Compaction Mitigation: Implementing soil stabilization techniques and limiting the movement of heavy machinery will reduce soil compaction and preserve the habitat's ability to support *Scorzonera bungei*.

Erosion Control: Erosion control measures, including re-vegetation and physical barriers, will prevent further habitat degradation and help stabilize the rocky soils that *Scorzonera bungei* relies on.

Monitoring and Surveys: Continued monitoring of potential habitats for *Scorzonera bungei* will ensure that any populations are identified and protected throughout both the construction and operational phases.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite mitigation efforts, residual habitat loss and degradation are expected to remain moderate to high. The construction of infrastructure in semi-arid and rocky environments will permanently alter portions of the species' habitat, reducing available areas for regeneration and population growth.
- **Soil Compaction**: Residual soil compaction is likely to persist in some areas, limiting the establishment of new plants and reducing the species' ability to regenerate, even with mitigation measures in place.
- **Soil Erosion**: Residual impacts from soil erosion are anticipated, particularly in areas where vegetation has been removed. This will further degrade the habitat of *Scorzonera bungei* and reduce its ability to survive in its already restricted range.
- **Disturbance from Human Activity**: Increased human presence during both construction and operational phases will likely fragment the habitat and disturb any existing populations of *Scorzonera bungei*, reducing their long-term survival prospects.

In summary, the **residual cumulative impacts** on *Scorzonera bungei* are expected to be **moderate to high** due to habitat loss, soil compaction, and habitat fragmentation. Ongoing monitoring and adaptive management will be essential to mitigate the long-term impacts on this rare and endangered species.

4.5.8 *Silene tomentella* (Caryophyllaceae)

Silene tomentella is a rare, perennial plant species from the Caryophyllaceae family. It is endemic to the Kyzylkum Mountains in Uzbekistan, where it thrives in arid, rocky, and semi-desert environments. The plant is adapted to the harsh conditions of this mountainous region, playing a role in maintaining the ecological balance by stabilizing soils. This species is not listed on the IUCN Red List, though it is considered highly vulnerable within Uzbekistan.

Listed as **Rare, Endangered (Category 2)** in the **Uzbekistan Red Data Book**, the species faces significant threats from habitat loss, degradation, and human disturbances in its limited range within the Kyzylkum Mountains.

NATIONAL, REGIONAL AND GLOBAL THREATS

Silene tomentella faces numerous threats on local and regional scales:

- **Habitat Loss and Fragmentation**: The primary threats to this species are infrastructure development, agricultural expansion, and overgrazing, which lead to the degradation and fragmentation of its native habitat.
- **Overgrazing**: Livestock grazing in the Kyzylkum Mountains leads to soil compaction and erosion, damaging populations of this plant and reducing its ability to regenerate.
- **Climate Change**: Shifts in precipitation and temperature patterns may reduce the available habitat for this species, increasing its vulnerability.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Silene tomentella* at Nukus 1 Project Site (Baseline Survey Results):

No observations of *Silene tomentella* were made during the baseline botanical surveys at Nukus 1. However, the semi-arid, rocky terrain within the project area could potentially support this species. Additional surveys are recommended to confirm its presence.

Presence of *Silene tomentella* at Nukus 2 Project Site (Baseline Survey Results):

Similarly, *Silene tomentella* was not observed during baseline surveys at Nukus 2, but the suitable habitat in the surrounding region suggests the possibility of its presence. Further monitoring is required to assess its occurrence.

Direct threats for *Silene tomentella* include:

1. **Habitat Destruction**:
    - The construction of wind turbines, access roads, and other infrastructure may lead to habitat loss for *Silene tomentella*, particularly in the rocky and semi-arid areas it inhabits.
2. **Soil Compaction**:
    - The use of heavy machinery during construction could lead to soil compaction, making it difficult for this species to regenerate, potentially leading to population declines in the affected areas.

Indirect threats for *Silene tomentella* include:

1. **Disturbance from Human Activity**:

- Increased human activity during construction and operational phases may fragment the limited habitat of *Silene tomentella*, reducing its chances of survival and reproduction.

2. **Soil Erosion**:

   - Construction activities may disturb the soil and remove vegetation, leading to soil erosion, which would further degrade the already fragile habitat of *Silene tomentella*.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Although *Silene tomentella* was not observed during baseline surveys at either Nukus 1 or Nukus 2, the semi-arid and rocky terrain in these regions may provide suitable habitats for the species. The construction of wind turbines, access roads, and associated infrastructure will contribute to cumulative habitat loss and fragmentation, particularly in the rocky and semi-arid areas where *Silene tomentella* may occur. Soil compaction from heavy machinery will degrade the habitat further, making it difficult for the species to regenerate. Over time, these impacts will reduce the availability of suitable habitats for the species and increase the fragmentation of any potential populations in the Kyzylkum Mountains, where it already faces significant threats.

Cumulative impacts due to other projects in the region

The Kyzylkum Mountains are under increasing pressure from agricultural expansion, overgrazing, and infrastructure development. These activities are contributing to habitat degradation and fragmentation, further limiting the available habitat for *Silene tomentella*. The impacts of climate change, including shifts in precipitation patterns and rising temperatures, are likely to exacerbate these pressures, further reducing the species' already limited range. The cumulative effects of human activities and climate change will heighten the vulnerability of *Silene tomentella*, potentially pushing it closer to extinction.

Mitigation implemented

Soil Compaction Mitigation: Implementing soil stabilization techniques and restricting the movement of heavy machinery will help to reduce soil compaction, preserving the conditions necessary for the species' regeneration.

Erosion Control: Erosion control measures, such as re-vegetation and physical barriers, will help prevent further habitat degradation in the species' fragile rocky environment.

Monitoring and Surveys: Continued monitoring of potential habitats for *Silene tomentella* will ensure that any populations are identified and protected during the construction and operational phases.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite mitigation efforts, residual habitat loss and degradation are expected to remain moderate to high. The construction of infrastructure in semi-arid and rocky environments will permanently alter portions of the species' habitat, reducing available areas for population recovery.
- **Soil Compaction**: Residual soil compaction is likely to persist in some areas, limiting the establishment of new plants and reducing the species' regeneration capacity, even with soil stabilization efforts.
- **Soil Erosion**: Residual impacts from soil erosion are anticipated, particularly in areas where vegetation removal has occurred, further degrading the fragile habitats of *Silene tomentella*.
- **Disturbance from Human Activity**: Increased human presence during both the construction and operational phases will likely result in habitat fragmentation and disturbance, reducing the species' ability to survive and reproduce in its already limited range.

In summary, the residual cumulative impacts on *Silene tomentella* are expected to be **moderate to high** due to habitat loss, soil compaction, and habitat fragmentation. Ongoing monitoring and adaptive management will be essential to mitigate long-term impacts on this rare and endangered species.

4.5.9 *Stipa aktauensis* (Poaceae)

Stipa aktauensis is a rare grass species from the Poaceae family, endemic to the Kyzylkum Mountains in Uzbekistan. It is adapted to the arid and semi-arid environments of this mountainous region, thriving in rocky and dry soils. This grass species is important for maintaining soil stability and contributing to the biodiversity of the region's fragile ecosystem. The species has not been assessed for global conservation status on the IUCN Red List, but it is recognized as endangered in Uzbekistan.

Listed as **Rare, Endangered (Category 2)** in the **Uzbekistan Red Data Book**, the species faces threats from habitat degradation, human activities, and environmental changes in the Kyzylkum Mountains.

NATIONAL, REGIONAL AND GLOBAL THREATS

Stipa aktauensis faces numerous threats on local and regional scales:

- **Habitat Loss and Fragmentation**: Infrastructure development, agricultural activities, and overgrazing are the primary threats to this species, leading to the degradation and fragmentation of its habitat in the Kyzylkum Mountains.
- **Overgrazing**: Intensive grazing by livestock in this region leads to soil erosion, trampling, and damage to plant populations, making it difficult for the species to regenerate and maintain stable populations.
- **Climate Change**: Shifting weather patterns, such as changes in rainfall and temperature, may further threaten the already limited habitat of *Stipa aktauensis*.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Stipa aktauensis* at Nukus 1 Project Site (Baseline Survey Results):

No direct observations of *Stipa aktauensis* were recorded at Nukus 1 during the baseline botanical surveys. However, the rocky and semi-arid conditions in the area suggest that suitable habitat may exist for this species. Further surveys are recommended to confirm its presence.

Presence of *Stipa aktauensis* at Nukus 2 Project Site (Baseline Survey Results):

Similar to Nukus 1, *Stipa aktauensis* was not observed at Nukus 2 during baseline surveys. However, the surrounding rocky and semi-arid landscapes may provide suitable habitat for the species, and additional targeted surveys should be conducted.

Direct threats for *Stipa aktauensis* include:

1. **Habitat Destruction**:
    - The construction of infrastructure, including wind turbines and access roads, could lead to the destruction of potential habitats for *Stipa aktauensis*, particularly in rocky and arid environments where the species may occur.
2. **Soil Compaction**:
    - Construction activities involving heavy machinery may compact the soil, making it difficult for *Stipa aktauensis* to grow and regenerate, potentially leading to population declines.

Indirect threats for *Stipa aktauensis* include:

1. **Disturbance from Human Activity**:
    - Increased human activity during the construction and operation phases of the project could disturb the habitats of *Stipa aktauensis*, leading to habitat fragmentation and a reduction in the species' ability to survive and reproduce.
2. **Soil Erosion**:
    - The removal of vegetation and soil disturbance caused by construction may increase soil erosion, further degrading the fragile habitat of Stipa aktauensis and making it difficult for the species to thrive.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Although *Stipa aktauensis* was not directly observed during baseline surveys at Nukus 1 or Nukus 2, the rocky and semi-arid conditions at both sites provide suitable habitats for the species. The construction of wind turbines, access roads, and related infrastructure in these areas will contribute to cumulative habitat loss and degradation, particularly in the fragile arid environments where *Stipa aktauensis* thrives. Soil compaction caused by the movement of heavy machinery will further degrade the habitat, making it difficult for the species to regenerate and maintain stable populations. Over time, these cumulative impacts will reduce the availability of suitable habitats and fragment any potential populations of *Stipa aktauensis*, which is already at risk from habitat degradation in the Kyzylkum Mountains.

Cumulative impacts due to other projects in the region

The Kyzylkum Mountains are facing increasing pressure from infrastructure development, agricultural activities, and overgrazing, all of which contribute to the degradation and fragmentation of habitats that support *Stipa aktauensis*. These activities are further compounded by climate change, which brings changes in rainfall and temperature, threatening the already limited habitat of the species. As more habitat is lost or fragmented, the species' ability to survive and regenerate in the region will be significantly reduced.

Mitigation implemented

Soil Compaction Mitigation: Soil stabilization techniques and restricting the movement of heavy machinery will help reduce soil compaction, preserving the soil structure necessary for the species' regeneration.

Erosion Control: Erosion control measures, such as re-vegetation and physical barriers, will help prevent further habitat degradation in the rocky and semi-arid environments where *Stipa aktauensis* is found.

Monitoring and Surveys: Continued monitoring of potential habitats for *Stipa aktauensis* will ensure that any populations are identified and protected during construction and operational phases.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite mitigation efforts, residual habitat loss and degradation are expected to remain moderate to high. The construction of infrastructure in rocky and semi-arid environments will permanently alter portions of the species' habitat, reducing available areas for regeneration and population growth.
- **Soil Compaction**: Residual soil compaction is likely to persist in some areas despite mitigation efforts, limiting the establishment of new plants and reducing the species' ability to regenerate in the region.
- **Soil Erosion**: Residual impacts from soil erosion are anticipated, particularly in areas where vegetation removal has occurred, further degrading the habitat of *Stipa aktauensis* and making it more difficult for the species to thrive.
- **Disturbance from Human Activity**: Increased human presence during both the construction and operational phases will likely fragment the habitat further, reducing the species' already limited range and making it more difficult for *Stipa aktauensis* to survive and reproduce.

In summary, the **residual cumulative impacts** on *Stipa aktauensis* are expected to be **moderate to high** due to habitat loss, soil compaction, and habitat fragmentation. Ongoing monitoring and adaptive management will be crucial to mitigate the long-term impacts on this rare and endangered species.

4.5.10 *Xylosalsola chiwensis* (Amaranthaceae)

Xylosalsola chiwensis is a rare plant species from the Amaranthaceae family, endemic to the arid regions of Uzbekistan, specifically found in the Sultan Uvays and Ustyurt Plateau. This species is adapted to the harsh desert environment, thriving in dry, saline soils. It plays a role in stabilizing soil and supporting the local desert ecosystem. The species has not been assessed for global conservation status on the IUCN Red List.

Listed **as Rare, Endangered (Category 2)** in the **Uzbekistan Red Data Book**, the species faces threats from habitat degradation and environmental changes in its arid habitat.

NATIONAL, REGIONAL AND GLOBAL THREATS

Xylosalsola chiwensis faces numerous threats on local and regional scales:

- **Habitat Loss and Fragmentation:** Expansion of agricultural activities and infrastructure development in the desert regions threatens the stability of its habitat.
- **Overgrazing:** Heavy grazing by livestock can lead to soil degradation and damage to plant populations, which adversely affects *Xylosalsola chiwensis*.
- **Climate Change:** Variations in temperature and precipitation patterns may further stress the already limited habitat of *Xylosalsola chiwensis*.

BASELINE FINDINGS AND MAJOR THREATS DUE TO THE PROJECT

Presence of *Xylosalsola chiwensis* at Nukus 1 Project Site (Baseline Survey Results):

No direct observations of *Xylosalsola chiwensis* were recorded at Nukus 1 during the baseline botanical surveys. Given the arid conditions, suitable habitat may be present, and further surveys are recommended to confirm its presence.

Presence of *Xylosalsola chiwensis* at Nukus 2 Project Site (Baseline Survey Results):

Similarly, *Xylosalsola chiwensis* was not observed at Nukus 2 during baseline surveys. However, the surrounding arid landscape could potentially provide suitable habitat for this species, warranting additional targeted surveys.

Direct threats for *Xylosalsola chiwensis* include:

1. **Habitat Destruction:**
    - Construction of infrastructure, including access roads and project facilities, may lead to the destruction of potential habitats for *Xylosalsola chiwensis* in the arid regions.
2. **Soil Compaction:**
    - Activities involving heavy machinery could compact the soil, disrupting the growth and regeneration of *Xylosalsola chiwensis* and potentially causing population declines.

Indirect threats for *Xylosalsola chiwensis* include:

1. **Disturbance from Human Activity:**
    - Increased human activity during the construction and operation phases of the project could lead to habitat fragmentation and disturbance, reducing the species' ability to survive and reproduce.
2. **Soil Erosion:**
    - Construction activities may lead to soil erosion, further degrading the fragile habitat of *Xylosalsola chiwensis* and making it difficult for the species to thrive.

CUMULATIVE AND RESIDUAL CUMULATIVE IMPACTS OF NUKUS 1 & 2

Cumulative impacts due to Nukus 1 and Nukus 2

Although *Xylosalsola chiwensis* was not observed during baseline surveys at Nukus 1 or Nukus 2, the arid and saline soils of the region may provide suitable habitats for the species. The construction of infrastructure, such as access roads and wind turbines, will lead to cumulative habitat loss and degradation in these fragile environments. Soil compaction from the movement of heavy machinery will further degrade the habitat, making it difficult for *Xylosalsola chiwensis* to regenerate and maintain stable populations. Over time, these cumulative impacts will reduce the availability of suitable habitats and fragment any potential populations, increasing the risk to this rare and endangered species in the desert regions of the Sultan Uvays and Ustyurt Plateau.

Cumulative impacts due to other projects in the region

The desert regions of Uzbekistan, including the Sultan Uvays and Ustyurt Plateau, are increasingly affected by agricultural expansion, infrastructure development, and overgrazing. These activities contribute to the degradation and fragmentation of habitats essential for *Xylosalsola chiwensis*. The effects of climate change, including rising temperatures and shifts in precipitation patterns, are expected to exacerbate these challenges, further stressing the species' already limited habitat. The cumulative impacts of human activities and environmental changes will increase the vulnerability of *Xylosalsola chiwensis*, making its long-term survival more precarious.

Mitigation implemented

Soil Compaction Mitigation: Soil stabilization techniques and restricting the movement of heavy machinery will reduce soil compaction, preserving the conditions necessary for the species to regenerate.

Erosion Control: Implementing erosion control measures, such as re-vegetation and physical barriers, will help prevent further habitat degradation and support the recovery of impacted areas.

Monitoring and Surveys: Ongoing monitoring of potential habitats for *Xylosalsola chiwensis* will ensure that any populations are identified and protected during construction and operational phases.

Residual cumulative impacts

- **Habitat Loss and Degradation**: Despite mitigation measures, residual habitat loss and degradation are expected to remain moderate to high. The construction of infrastructure in arid and saline environments will permanently alter portions of the species' habitat, reducing available areas for population growth and recovery.
- **Soil Compaction**: Residual soil compaction may persist in some areas, limiting the establishment of new plants and reducing the species' ability to regenerate, despite mitigation efforts.
- **Soil Erosion**: Residual impacts from soil erosion are anticipated, particularly in areas where vegetation removal has occurred, further degrading the habitat of *Xylosalsola chiwensis* and making it more difficult for the species to thrive.
- **Disturbance from Human Activity**: Increased human presence during both construction and operational phases is likely to result in habitat fragmentation and disturbance, further reducing the species' ability to survive and reproduce.

In summary, the **residual cumulative impacts** on *Xylosalsola chiwensis* are expected to be **moderate to high** due to habitat loss, soil compaction, and habitat fragmentation. Ongoing monitoring and adaptive management will be essential to mitigate the long-term impacts on this rare and endangered species.

5 RENEWABLES: REGIONAL CUMULATIVE IMPACTS

5.1 Introduction

A combination of Uzbekistan's rapidly growing demand for energy, the inefficiency of existing power generation facilities and a global shift towards sustainability has led to a recent expansion in renewable energy projects across the region (Bahrami et al 2019). Uzbekistan has set substantial targets to develop 7 GW of solar and 5 GW of wind capacity by 2030. However, despite the indisputable benefits of increased renewable energy, concerns have been raised regarding the potential environmental impacts of increasing renewable projects across the region to this extent. Uzbekistan's position at the intersection between European, Middle Eastern, and Asian biogeographical regions, its varied geography and diverse range of habitats make it a biodiversity hotspot. The region also plays a key role in supporting migratory routes for many species. Understanding and addressing the cumulative impacts of wind energy developments is crucial to ensure that energy goals do not come at the expense of biodiversity.

5.2 Renewable Energy Expansion in Uzbekistan

Uzbekistan has a high potential for wind and solar energy due to large areas of flat or baren land, a high number of sunny days and high average wind speeds particularly in the North-west and South-west.

The Zarafshan Wind Farm site in Navoiy, was the first site windfarm project to be constructed in Uzbekistan. Two other projects – Bash and Dzankeldy Windfarms in Bukhara are under construction, whilst two 100 MW projects in Karakalpakstan and Karatau have been approved for financing as well as the expansion of Bash. Many other sites are planned and/or seeking financial support.

A total of 10 Solar Projects are currently operational, under-construction or planned for development in Uzbekistan. These projects are as follows (IEA, 2022).

- Karmana, Navoi region 100MW
- Samarkand region 100MW
- Nurata, Navoi region 200MW
- Samarkand region 220MW

- Jizzakh region 220MW
- Sherabad, Surkhandarya region 457MW
- Guzar, Kashkadarya region 300MW
- Xorazm region 100MW
- Namangan region 150MW
- Bukhara region 200MW

5.3 Summary of cumulative impacts of windfarms

Whilst the impacts of wind farms are increasingly being studied and understood, in regions such as Uzbekistan where renewable energy is seeing rapid expansion, these impacts do not necessarily occur in isolation. Each additional windfarm site will have its own specific impacts unique to the habitat at a micro-scale but also cumulative impacts on the taxa and ecosystems at a macro-scale.

5.3.1 Collision Risk

The most direct threat to species is collision with turbine blades, which can lead to mortality in both bats and birds. Avian species that are most susceptible to direct mortality from bird strikes with turbines include large soaring birds and 'poor fliers' with low manoeuvrability, migratory individuals and raptors which have restricted forward field of view. Uzbekistan supports a rich diversity of avian species and acts as a key migratory corridor. These migrating species, particularly those that are globally or regionally threatened, are at increased risk from the cumulative impacts of rapid windfarm expansion. Several important raptor species are known to migrate through Uzbekistan including the globally Endangered Steppe Eagle and Pallas's Fish Eagle. Many large wetlands can be found across Uzbekistan, where their proximity to vast desert and mountain ranges offers an 'oasis' supporting a host of globally threatened waterbirds including the White-headed Duck, Marbled Teal and Dalmatian Pelican. Sociable Lapwings are classified as Critically Endangered. Recent satellite tracking showed a major migratory route through Uzbekistan (Donald et al. 2021) and one reservoir in particular (Talimarzhan) acts as a key autumn stop over site, estimated to support 26% of the global population. The additive risks of collision across numerous wind farms poses a significant threat to the high volumes of migratory birds, particularly those threatened species.

Similarly to birds, bat species that make long distance, seasonal migrations seem to be the most susceptible to wind turbine collisions with mortalities peaking around key periods of

migration (Kunz et al. 2007, Arnett et al 2008 Rydell et al 2010). Bats are a relatively understudied group in the region however several migratory species are known to inhabit Uzbekistan including the Particoloured Bat, Common Noctule and European Free-tailed Bat, the latter also recognised as Vulnerable in the Uzbekistan Red Data Book (Dietz, Kierer, 2016; Roemer et al, 2017).

The Biodiversity CIA assessing the risks from NUKUS 1 and NUKUS 2 wind farm projects have identified through baseline surveys and collision risk modelling that mortality risks for large raptors is much lower than has been identified for other sites such as Bash 500MW wind farm which will have Identiflight camera system installed to provide protection of these endangered raptors through the use of shut-down-on-demand (mostly during the spring and autumn migration seasons). However this is not required for NUKUS windfarms due to much lower risk although the risks for smaller raptors such as common kestrel have been highlighted and will require adaptive management if mortality thresholds are exceeded. Both avifauna and bat mortality will be monitored for 3 years as part of the Post Construction Fatality Monitoring Plan to determine the actual mortality rates and to apply adaptive mitigation where needed.

5.3.2 Habitat Loss and Fragmentation

Some habitat-specific species may be particularly sensitive to habitat loss. For example, Steppe grasslands in Uzbekistan are key habitats for several sensitive species such as Asian Houbara, Great Bustard and Central Asian Tortoise, and whilst species may be resilient to some habitat degradation, habitat loss at multiples sites and repeated displacement of associated species could have significant impacts on regional populations. Similarly, the Kyzylkum Desert and Ustyurt Plateau are important for breeding Saker Falcons, Egyptian Vultures and Lesser Kestrels while mountain ranges are nesting sites for a range of birds of prey including Cinereous and Griffon Vultures, Saker Falcons and Golden Eagles. The loss and overall disturbance of key breeding sites can have significant impacts on populations, especially endemic, rare and threatened species. These impacts are again amplified if occurring repeatedly across numerous locations.

The presence of several threatened bat species, including The Bukhara Mouse-eared Bat (UzRDB CR), Hemprich's Long-eared Bat (UzRDB VU) and the Long-fingered Bat (IUCN VU) are currently known from just single observations or restricted localities. Whilst this is likely a result of a lack of survey effort, habitat loss at even a single site could have significant implications for these species.

Habitat loss and fragmentation is <2.5% of the Project area for NUKUS 2 including construction buffers and even less for NUKUS 1, which suggest that loss of habitat for foraging and

fragmentation due to WTGs and access roads is unlikely to be significant for these locations. All temporary loss of habitat will be restored post construction when human disturbance will also be reduced to a minimum during operations as a result of routine maintenance. Operational planning will also be optimised to minimise travel to WGs during sensitive periods such as breeding.

5.3.3 Displacement and Behavioural Changes

Wind farms can cause displacement of species from their natural habitats, forcing them to seek less suitable areas, which can lead to increased competition and reduced survival rates. There is an associated cost in the form of increased energy expenditure when individuals must alter their flight patterns around windfarms. This is known as a barrier effect. The impacts of this vary from site to site and species to species, however it has been suggested that these impacts are more threatening than collision for birds (Kuvlesky et al. 2007) and whilst the cost of avoidance is likely small for individual wind turbines, there is an additive effect of avoiding multiple turbines and certainly multiple windfarm sites in a region (Masden et al 2009).

The potential for avoidance of the project areas due to the presence of the WTGs has not been assessed in Uzbekistan and this requires further research to determine if this could be significant at the NUKUS sites although the restoration of natural habitats post construction will ensure that no construction areas remain in a degraded site and all areas are optimised for prey species and both resident and migrating raptors.

5.4 Quantitatively Assessing Cumulative Impacts

Truly assessing the cumulative impacts of renewable projects should ideally utilise quantitative data from each individual project to generate additive impacts. Quantitative data on the impacts of renewable projects in Uzbekistan is limited, and data is generally available only for windfarm sites where collision risk modelling (CRM) provides estimates of annual collisions for high-risk bird species. To date, the only projects with publicly available data on this are Zarafshan Wind Farm and Bash 500MW Wind Farm. Collision risk for sensitive species at each of these wind farms was relatively low and neither analysis flagged alarming results. However, given the projected increase in wind energy developments, this may change significantly when cumulative collision risk is assessed.

5.5 Cumulative Impacts of Regional Renewable Projects

The expansion of renewable projects is not limited to windfarms and the true collective impacts must include consideration of Solar PV Sites and all associated infrastructure.

Perhaps the most significant impact of Solar sites and substations is habitat loss. These impacts for the region will be similar to those discussed above for windfarm sites where habitat-specific species, particularly those requiring certain environments for breeding, are at greatest risk. Currently, research into the interactions between wildlife and Solar PV facilities are in their infancy. A so-called 'lake effect' has been identified where smooth dark panels mimic waterbodies which attract water-feeding birds looking to hunt (Kagan et al 2014) or bat species attempting to drink (Greif and Siemers 2010). It is thought that this lake-effect may cause collisions and increased mortality. Given the number of water-obligate species in the region, several of which are threatened, the impacts of this could be significant especially if solar sites are placed near wetlands which are regularly utilised by birds. However, research is still unclear on the legitimacy of this phenomenon. Other suggested risks include; electrocution on energized portions of the project and PV panels acting as 'mirrors' that elicit aggressive responses of birds motivated to defend territory (Hager and Craig 2014, Kahle et al 2016).

Overhead power transmission lines present potential electrocution risk to birds (Lehman et al. 2007; Jenkins et al. 2010; Dwyer et al. 2014). The risk of electrocution is highest for larger-bodied birds which tend to prefer perching at high altitudes such as raptors, including eagles and vultures, as larger wingspans have the potential to bridge between energized and ground components of power lines. Further compounding the impact is the fact that many of these species are K-selected with low reproductive rates, so additive mortality is of significance. Given the number of large raptors that reside, migrate or breed in the region, an increase in OHTLs will no doubt have consequences for these populations.

5.6 Discussion

The rapid expansion of wind energy projects across Uzbekistan presents both opportunities and challenges, particularly with regard to the cumulative impacts on biodiversity. As the country continues its drive to meet renewable energy targets, the need to carefully manage and mitigate these impacts becomes increasingly important. The following points summarize key discussions relevant to the cumulative assessment of wind energy projects in the region:

5.6.1 Collision Risk to Birds and Bats

- **Avifauna:** Uzbekistan serves as a key migratory corridor for numerous globally and regionally threatened bird species, particularly large soaring raptors such as the Steppe Eagle, Golden Eagle, and Cinereous Vulture. The White-headed Duck and Sociable Lapwing, both listed as critically endangered, also rely on stopover sites in the region during migration. The cumulative risk of collision increases with the proliferation of wind farms, especially as these projects are located in areas that overlap with migratory routes and key habitats. Several studies indicate that collision risks are highest for species with low manoeuvrability and limited forward vision, such as large raptors and migratory waterbirds.
- **Bats:** Migratory bats, such as the European Free-tailed Bat and the Particolored Bat, are also vulnerable to wind turbine collisions, particularly during peak migration periods. Cumulative impacts on bats are often understudied in the region, but existing data suggests that fatalities increase significantly in areas with dense wind farm networks. The risk is compounded by the lack of comprehensive surveys for bat populations in Uzbekistan, leaving potential gaps in the understanding of species-specific vulnerabilities.

5.6.2 Habitat Loss and Fragmentation

- **Key Habitats:** Wind farm developments contribute to habitat fragmentation, which can disrupt the breeding, foraging, and roosting patterns of sensitive species. The steppe grasslands, deserts, and mountain ranges of Uzbekistan are home to several endemic and threatened species, including the Asian Houbara Bustard, Great Bustard, and Central Asian Tortoise. The cumulative effects of habitat fragmentation from multiple wind farms, especially in areas like the Kyzylkum Desert and Ustyurt Plateau, could have long-lasting impacts on these populations. Similarly, the loss of breeding sites for species such as the Saker Falcon and Lesser Kestrel could reduce reproductive success and alter population dynamics.
- **Indirect Impacts:** In addition to direct habitat loss, wind farm construction and associated infrastructure (e.g., access roads, overhead power transmission lines) contribute to the disturbance of natural habitats. This can lead to increased human presence, soil compaction, and vegetation clearing, further amplifying the impacts on local wildlife.

5.6.3 Displacement and Behavioural Changes

- **Barrier Effects:** Wind turbines can act as barriers to flight for birds and bats, forcing them to alter their migration or foraging routes. This displacement leads to increased energy expenditure and reduced access to critical habitats. While the impact of displacement varies by species, studies suggest that for some species, such as large raptors, the cumulative barrier effects from multiple wind farms can be more significant than collision risks. For bats, changes in flight behavior around turbines can increase their vulnerability to predators or reduce their access to foraging grounds.
- **Behavioral Disruption:** The presence of wind farms can also cause stress and behavioral changes in wildlife. Birds may avoid areas near turbines, leading to the abandonment of nesting or roosting sites. For species like the Cinereous Vulture and Eurasian Griffon, which depend on stable nesting environments in mountainous areas, this displacement can have significant consequences for population stability.

5.6.4 Lack of Comprehensive Data

The ability to quantitatively assess cumulative impacts is limited by the lack of available data for many of the species and habitats in Uzbekistan. Collision risk modelling and long-term monitoring data are only available for a few wind projects, such as the Zarafshan and Bash Wind Farms. This lack of data hinders the ability to fully understand the additive impacts of multiple projects, especially when considering species with limited distribution or data gaps, such as certain bat species. Therefore, there is a pressing need for improved baseline data collection, ongoing monitoring, and regional-scale environmental assessments.

5.6.5 Mitigation Measures

- **Collision Risk Mitigation:** To address the cumulative risks to birds and bats, it is essential to implement advanced mitigation measures, such as turbine curtailment during peak migration periods and radar-based detection systems. These measures have shown success in reducing mortality rates at other wind farms globally, and should be incorporated into future projects in Uzbekistan and will be applied adaptively if monitoring shows mortality thresholds are breached.
- **Habitat Restoration:** Efforts to minimize habitat loss should include restoration projects for degraded areas, as well as the creation of habitat corridors to maintain connectivity between key ecosystems. These measures will help reduce the impacts of fragmentation and provide alternative habitats for displaced species.
- **Monitoring and Adaptive Management:** Continuous monitoring of species' populations and the effectiveness of mitigation measures is crucial for adaptive management.

Wind farms should be required to establish comprehensive biodiversity monitoring programs to track the long-term effects of cumulative impacts and make necessary adjustments to operational practices.

5.7 Conclusion

The expansion of wind energy in Uzbekistan holds immense potential for reducing the country's reliance on fossil fuels and meeting its renewable energy goals. However, the cumulative impacts on biodiversity, particularly for sensitive species and habitats, require careful consideration and management. By implementing robust mitigation measures, enhancing data collection, and promoting regional-scale environmental planning, Uzbekistan can balance its energy needs with the conservation of its unique natural heritage.

6 REFERENCES

7 Arnett EB, Baerwald EF. 2013. Impacts of wind energy development on bats: implications for conservation Pages 435–456 in Adams RA, Scott SC, editors. Bat Evolution, Ecology, and Conservation. Springer, New York.

8 Arnett EB, Brown WK, Erickson WP, Fiedler JK, Hamilton BL, Henry TH, Jain A, Johnson GD, Kerns J, Koford RR, Nicholson CP, O'Connell TJ, Piorkowski MD, Tankersley RD Jr.. 2008. Patterns of bat fatalities at wind energy facilities in North America. Journal of Wildlife Management 72:61–78.

9 BirdLife International (2023). *Species factsheets*. Available at: https://datazone.birdlife.org/ (Accessed: 25 September 2024).

10 BirdLife International 2024, *Bird species distribution maps of the world*, BirdLife International, Cambridge, UK, viewed 30 September 2024, https://datazone.birdlife.org.

11 BirdLife International, 2023. Species factsheet: *Aegypius monachus*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 23 September 2023].

12 BirdLife International, 2023. Species factsheet: *Aquila chrysaetos*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 22 September 2023].

13 BirdLife International, 2023. Species factsheet: *Aquila heliaca*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 22 September 2023].

14 BirdLife International, 2023. Species factsheet: *Aquila nipalensis*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 22 September 2023].

15 BirdLife International, 2023. Species factsheet: *Chlamydotis macqueenii*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 23 September 2023].

16 BirdLife International, 2023. Species factsheet: *Circus cyaneus*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 23 September 2023].

17 BirdLife International, 2023. Species factsheet: *Falco cherrug*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 22 September 2023].

18 BirdLife International, 2023. Species factsheet: *Falco vespertinus*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 22 September 2023].

19 BirdLife International, 2023. Species factsheet: *Grus grus*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 23 September 2023].

20 BirdLife International, 2023. Species factsheet: *Haliaeetus albicilla*. BirdLife Data Zone. Available at: http://datazone.birdlife.org [Accessed 23 September 2023].

21 *Birds of the World Online* 2024, *BirdLife International species factsheets*, viewed 30 September 2024, https://birdsoftheworld.org.

22 Brinkmann R (2006) Survey of possible operational impacts on bats bywind facilities in southern Germany. A rep ordered by Adm Dist Freibgdep 56 Conserv Landsc Manag, 63 pp

23 Central Asian Species List (2023). *Endangered and Vulnerable Species in Central Asia*. Data retrieved from national biodiversity databases and conservation projects.

24 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (2024) Appendices I, II, and III. Available at: https://www.cites.org/eng/app/index.php Accessed on 27 September, 2024.

25 Cryan PM, Gorresen PM, Hein C D, Schirmacher MR, Diehl RH, HusoMM, Hayman DTS, Fricker PD, Bonaccorso FJ, Johnson DH, Heist K, Dalton DC (2014) Behaviour of bats at wind turbines. Proc Natl Acad Sci 111(42):15126–15131

26 Dwyer JF, Harness RE, Donohue K. 2014. Predictive model of avian electro- cution risk on overhead power lines. Conservation Biology 28: 159-168.

27 Fernández, N. (1993) 'The impact of Viral Haemorrhagic Disease on rabbit populations in the Mediterranean region and its consequences on predators', *Conservation Biology*, 7(1), pp. 46-55. doi:10.1046/j.1523-1739.1993.07010046.x.

28 Greif, S. and B. M. Siemers. 2010. Innate recognition of water bodies in echolocating bats. Nature Communications 1: 107.

29 Hager, S. B, and M. E. Craig. 2014. Bird-window collisions in the summer breeding season. PeerJ2:e460.

30 IUCN (2023). *The IUCN Red List of Threatened Species*. Version 2023-2. Available at: https://www.iucnredlist.org (Accessed: 25 September 2024).

31 IUCN (International Union for Conservation of Nature) 2024, *The IUCN Red List of Threatened Species*, IUCN, Gland, Switzerland, viewed 30 September 2024, https://www.iucnredlist.org.

32 IUCN, 2023. *Accipiter nisus* (Eurasian Sparrowhawk). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].

33 IUCN, 2023. *Aegypius monachus* (Cinereous Vulture). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].

34 IUCN, 2023. *Aquila chrysaetos* (Golden Eagle). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 22 September 2023].

35 IUCN, 2023. *Aquila heliaca* (Imperial Eagle). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 22 September 2023].

36 IUCN, 2023. *Aquila nipalensis* (Steppe Eagle). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 22 September 2023].

37 IUCN, 2023. *Athene noctua* (Little Owl). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
38 IUCN, 2023. *Buteo rufinus* (Long-legged Buzzard). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
39 IUCN, 2023. *Caracal caracal* (Caracal). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
40 IUCN, 2023. *Cervus hanglu bactrianus* (Bactrian Red Deer). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
41 IUCN, 2023. *Chlamydotis macqueenii* (Asian Houbara Bustard). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
42 IUCN, 2023. *Circus aeruginosus* (Eurasian Marsh Harrier). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
43 IUCN, 2023. *Circus cyaneus* (Hen Harrier). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
44 IUCN, 2023. *Eremias velox* (Rapid Racerunner). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
45 IUCN, 2023. *Eryx miliaris* (Desert Sand Boa). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
46 IUCN, 2023. *Falco cherrug* (Saker Falcon). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 22 September 2023].
47 IUCN, 2023. *Falco tinnunculus* (Common Kestrel). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
48 IUCN, 2023. *Falco vespertinus* (Red-footed Falcon). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 22 September 2023].
49 IUCN, 2023. *Gazella subgutturosa* (Goitered Gazelle). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
50 IUCN, 2023. *Grus grus* (Common Crane). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
51 IUCN, 2023. *Gyps fulvus* (Eurasian Griffon Vulture). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
52 IUCN, 2023. *Haliaeetus albicilla* (White-tailed Sea Eagle). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
53 IUCN, 2023. *Lepus tolai* (Tolai Hare). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].

54 IUCN, 2023. *Myotis blythii* (Lesser Mouse-eared Bat). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
55 IUCN, 2023. *Myotis bucharensis* (Bucharest Bat). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
56 IUCN, 2023. *Otonycteris leucophaea* (Desert Long-eared Bat). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
57 IUCN, 2023. *Phrynocephalus interscapularis* (Lichtenstein's Toadhead Agama). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
58 IUCN, 2023. *Phrynocephalus rossikowi* (Uzbekistan Toad-Headed Agama). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
59 IUCN, 2023. Platyceps karelini (Spotted Desert Racer). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
60 IUCN, 2023. *Rhinolophus ferrumequinum* (Greater Horseshoe Bat). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
61 IUCN, 2023. *Rhinolophus hipposideros* (Lesser Horseshoe Bat). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
62 IUCN, 2023. *Tadarida teniotis* (European Free-tailed Bat). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
63 IUCN, 2023. *Testudo horsfieldii* (Central Asian Tortoise). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
64 IUCN, 2023. *Trapelus sanguinolentus* (Steppe Agama). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
65 IUCN, 2023. *Varanus griseus caspius* (Caspian Monitor). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 24 September 2023].
66 IUCN, 2023. *Vormela peregusna* (Marbled Polecat). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
67 IUCN, 2023. *Vulpes corsac* (Corsac Fox). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].
68 IUCN, 2023. *Vulpes vulpes* (Red Fox). The IUCN Red List of Threatened Species 2023. Available at: https://www.iucnredlist.org [Accessed 23 September 2023].

69 Jenkins AR, Smallie JJ, Diamond M. 2010. Avian collisions with power lines: a global review of causes and mitigation with a South African perspec- tive. Bird Conserv. Int. 20:263–278.

70 Kagan, R. A., T. C. Viner, P. W. Trail, and E. O. Espinoza. 2014. Avian mortality at solar energy facilities in Southern California: a preliminary analysis. National Fish and Wildlife Forensics Laboratory, Ashland, Oregon, USA.

71 Kahle, L. Q., M. E. Flannery, and J. P. Dumbacher. 2016. Bird-window collisions at a west-coast urban park museum: analyses of bird biology and window attributes from Golden Gate Park, San Francisco. PLoS ONE11(1):e144600.

72 Katzner, T.E., Nelson, D.M., and Braham, M.A. (2012) 'Wind energy developments and potential impacts on raptors in North America', *Journal of Wildlife Management*, 76(3), pp. 575-582. doi:10.1002/jwmg.299.

73 Kunz TH, Arnett EB, Cooper BM, Erickson WP, Larkin RP, Mabee T, Morrison ML, Strickland MD, Szewczak JM. 2007. Assessing impacts of wind-energy development on nocturnally active birds and bats: a guidance document. Journal of Wildlife Management 71:2449–2486.

74 Kuvlesky W P, Brennan LA, Morrison ML et al (2007) Wind energy development and wildlife conservation: challenges and opportunities. J Wildl Manag 71(8): 2487–2498

75 Lehman RN, Kennedy PL, Savidge JA. 2007. The state of the art in raptor electrocution research: a global review. Biological Conservation 136: 159-174.

76 Masden EA, Haydon DT, Fox AD, Furness RW, Bullman R, Desholm M(2009) Barriers to movement: impacts of wind farms on migrating birds. ICES J Mar Sci 66(4):746–753.

77 Niedringhaus, K.D., Bryant, S.M., Schuler, K.L., and Cooley, T.M. (2021) 'Anticoagulant rodenticide exposure in raptors across the United States', *Journal of Wildlife Diseases*, 57(4), pp. 765-775. doi:10.7589/JWD-D-20-00217.

78 Rydell, J, Bach, L, Dubourg-Savage, M.J., Green, M., Rodrigues, L. and Hedenström, A. 2010 Mortality of bats at wind turbines links to nocturnal insect migration? European Journal of Wildlife Research, 56(6), 823-827

79 Uzbekistan Red Data Book (2022) Astragalus centralis species profile. Tashkent: Uzbekistan Government Press.

80 Uzbekistan Red Data Book (2022) Astragalus holargyreus species profile. Tashkent: Uzbekistan Government Press.

81 Uzbekistan Red Data Book (2022) Astragalus unifoliolatus species profile. Tashkent: Uzbekistan Government Press.

82 Uzbekistan Red Data Book (2022) Astragalus villosissimus species profile. Tashkent: Uzbekistan Government Press.

83 Uzbekistan Red Data Book (2022) Ferula foetida species profile. Tashkent: Uzbekistan Government Press.
84 Uzbekistan Red Data Book (2022) Ferula kyzylkumica species profile. Tashkent: Uzbekistan Government Press.
85 Uzbekistan Red Data Book (2022) Lagochilus vvedenskyi species profile. Tashkent: Uzbekistan Government Press.
86 Uzbekistan Red Data Book (2022) Lappula aktaviensis species profile. Tashkent: Uzbekistan Government Press.
87 Uzbekistan Red Data Book (2022) Lappula parvula species profile. Tashkent: Uzbekistan Government Press.
88 Uzbekistan Red Data Book (2022) Scorzonera bungei species profile. Tashkent: Uzbekistan Government Press.
89 Uzbekistan Red Data Book (2022) Silene tomentella species profile. Tashkent: Uzbekistan Government Press.
90 Uzbekistan Red Data Book (2022) Stipa aktauensis species profile. Tashkent: Uzbekistan Government Press.
91 Uzbekistan Red Data Book (2022) Xylosalsola chiwensis species profile. Tashkent: Uzbekistan Government Press.
92 Uzbekistan Red Data Book (2022). *National Conservation Status and Categories*. Published by the Uzbekistan Ministry of Ecology and Environmental Protection.
93 Watson, J. (2010) *The Golden Eagle*. London: Bloomsbury Publishing.