



**UzAssystem**

# **SURKHANDARYA (1600 MW) CCPP PROJECT**

## **Non-Technical Summary**

**ASE-UZA-571-REP-NTS-0003-02**

<b>Rev</b>	<b>Date</b>	<b>Purpose of issue</b>	<b>Issuer</b>	<b>Checker</b>	<b>Approver</b>
<b>0</b>	<b>25/07/2022</b>	<b>Initial issuance</b>	<b>B.KADIOĞLU M.ACIRLI</b>	<b>H.BEKAR</b>	<b>A. PONSARDIN</b>
<b>1</b>	<b>16/09/2022</b>	<b>Initial issuance</b>	<b>B.KADIOĞLU M.ACIRLI</b>	<b>H.BEKAR</b>	<b>A. PONSARDIN</b>
<b>2</b>	<b>02/05/2023</b>	<b>Revised as per the Lenders' and Client's comments</b>	<b>A.HELLAÇ</b>	<b>B.KADIOĞLU</b>	<b>A. PONSARDIN</b>

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## Abbreviations & Definitions

<b>%</b>	<b>Percent</b>
<b>°C</b>	Centigrade Degree
<b>AAS</b>	Atomic Absorption Spectrometry
<b>ACC</b>	Air-Cooled Condenser
<b>AEL</b>	Air Emission Limits
<b>AIIB</b>	Asian Infrastructure Investment Bank
<b>AQMS</b>	Air Quality Monitoring Station
<b>BREFs</b>	Eu Best Available Techniques Reference Documents
<b>BWO</b>	Basin Water Office
<b>CAREC</b>	Central Asia Regional Economic Cooperation
<b>CCGT</b>	Combined Cycle Gas Turbine
<b>CCCP</b>	Combined Cycle Power Plant
<b>CE</b>	Critically Endangered
<b>CH<sub>4</sub></b>	Methane
<b>CITES</b>	Convention On International Trade In Endangered Species Of Wild Fauna And Flora
<b>CR</b>	Critical
<b>dB</b>	Decibel
<b>DCS</b>	Distributed Control System
<b>dm</b>	Decimeter
<b>E</b>	East
<b>E&amp;S</b>	Environmental And Social
<b>EHS</b>	Environmental Health And Safety
<b>EIA</b>	Environmental Impact Assessment
<b>EBRD</b>	European Bank of Reconstruction and Development
<b>EP</b>	Equator Principles
<b>ESIA</b>	Environmental And Social Impact Assessment
<b>ESMS</b>	Environmental And Social Management System
<b>ESP</b>	Environmental and Social Policy
<b>ESS</b>	Environmental and Social Standards
<b>EU</b>	European Union
<b>EU BAT</b>	European Union Best Available Techniques
<b>EW</b>	Extinct In The Wild
<b>EX</b>	Extinct



<b>F</b>	Fluoride
<b>FGD</b>	Focus Group Discussions
<b>g</b>	Gram
<b>GBV</b>	Gender-Based Violation
<b>GDP</b>	Gross Domestic Product
<b>GIIP</b>	Good International Industry Practice
<b>GN</b>	Guidance Notes
<b>GOST</b>	Gosudarstvennyy Standart
<b>GOU</b>	Government Of The Republic Of Uzbekistan
<b>GSE</b>	General Secondary Education
<b>GT</b>	Gas Turbine
<b>HAZMAT</b>	Hazardous Material
<b>Hg</b>	Mercury
<b>HRSG</b>	Heat Recovery Steam Generator
<b>Hz</b>	Hertz
<b>IBA</b>	International Bird Area
<b>ICWC</b>	Interstate Coordination Water Commission Of Central Asia
<b>IEC</b>	International Electrotechnical Comity
<b>IFC-PS's</b>	International Finance Corporation Project Standards
<b>IFI</b>	International Financial Institutions
<b>ILO</b>	International Labor Organization
<b>IPCC</b>	Intergovernmental Panel On Climate Change
<b>ISO</b>	International Organization for Standardization It Is a Worldwide Federation of National Standards Bodies (ISO Member Bodies). The Work Of Preparing International Standards Is Normally Carried Out Through ISO Technical Committees.
<b>IT</b>	Information Technology
<b>IUCN</b>	International Union For Conservation Of Nature
<b>KBA</b>	Key Biodiversity Area
<b>kg</b>	Kilogram
<b>Khokim</b>	The Heads Of Local District, City And Regional Administrator Appointed By The Central Government (Governor Of Region)
<b>LA<sub>eq</sub></b>	Equivalent Continuous Sound Level
<b>LA<sub>max</sub></b>	Maximum Equivalent Continuous Sound Level
<b>LC</b>	Least Concern
<b>LCP</b>	Large Combustion Plant
<b>LRP</b>	Livelihood Restoration Plan



<b>MW</b>	Megawatt Watt Is A Unit Of Power In The International System Of Units (1 MW = 106 Watt)
<b>NEGU</b>	National Electric Grid of Uzbekistan
<b>N<sub>2</sub>O</b>	Nitrous Oxide
<b>NO<sub>3</sub>-N</b>	Nitrate Nitrogen
<b>NTS</b>	Non-Technical Summary
<b>NW</b>	Northwest
<b>O'z DSt</b>	Uzbekistan State Standard
<b>O'z O'U</b>	Uzbekistan O'lchov Uslubiyati
<b>O<sub>2</sub></b>	Oxygen
<b>OHL</b>	Overhead Transmission Line
<b>OHSAS</b>	Occupational Health And Safety Assessment Series
<b>OHS</b>	Occupational Health and Safety
<b>OM</b>	Oliy Majlis Supreme Assembly Of Parliament Of Uzbekistan
<b>OVOS</b>	OVOS National Acronym For EIA
<b>P</b>	Phosphorus
<b>PZVOS</b>	National Acronym Of The Concept Statement On Environmental Impact
<b>RUz</b>	Republic of Uzbekistan
<b>SanPin</b>	Sanitary Norms And Regulations Of The Russian Federation
<b>SC</b>	State Committee
<b>SCEEP</b>	The State Committee on Ecology and Environmental Protection
<b>SCNP</b>	The Main Governmental Organization Responsible For Nature Protection In Uzbekistan
<b>SEC</b>	Statement on Environmental Consequences
<b>SEE</b>	State Environmental Expertise
<b>SEP</b>	Stakeholder Engagement Plan
<b>SIA</b>	Social Impact Assessment
<b>SO<sub>2</sub></b>	Sulfur Dioxide
<b>SPT</b>	Standard Test Method for Standard Penetration Test
<b>ST</b>	Steam Turbine
<b>UNDP</b>	United Nations Development Programme
<b>UNECE</b>	United Nations Economic Commission For Europe
<b>UNFCCC</b>	United Nations Framework Convention On Climate Change
<b>UNGP</b>	United Nations Guiding Principles On Business And Human Rights
<b>UzRDB</b>	Uzbekistan Red Data Book
<b>Viloyat</b>	Region
<b>VOC</b>	Volatile Organic Compounds



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<b>VR</b>	Vulnerable
<b>VU</b>	Vulnerable
<b>W</b>	West
<b>WBG</b>	World Bank Group
<b>ZEP</b>	National Acronym Of The Statement On Environmental Consequences
<b>ZVOS</b>	National Acronym Of The Statement On Environmental Impact

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# 1. Background

## 1.1 Introduction

The Government of the Republic of Uzbekistan aims to modernize and increase electricity production in the country to foster economic growth. In addition, Uzbekistan is actively involved in energy trading with neighboring countries and is an active participant in the Central Asia Regional Economic Cooperation (CAREC). In 2008, the CAREC countries defined their long-term strategy for developing the region's energy sector as "to ensure energy security through the balanced development of the region's energy infrastructure and economic growth through energy trade." Uzbekistan would like to increase the amount of gas exported to the region, and so any reduction in domestic gas consumption means that there is more gas available for export.

In line with the national energy strategy, the Ministry of Energy has signed an agreement with Stone City Energy for designing, financing, building, commissioning, operating, and managing the 1,600MW power plant for 25 years.

Stone City Energy (hereinafter referred as the Project Company) B.V. is a special purpose company, which operates in the fields of electricity generation and distribution. The company was formed in May 2019 in the Netherlands with the headquarters in Rotterdam to serve as a base for the consortium that will finance, project, construct and operate combined cycle gas turbine power plants and distribution in Uzbekistan. The launch is scheduled for the end of 2026. The project will introduce the latest technologies, including advanced HL class steam-gas units of the HL class (manufactured by Siemens Energy).

The CCPP (Combined Cycle Power Plant) that will be built in Surkhandarya is using the latest technologies and innovations and operates with an efficiency of 63%. In addition, it will allow saving 1.1 billion cubic meters of natural gas against an annual consumption of 2.2 billion cubic meters. The Surkhandarya CCPP is a stand-alone project that does not serve any specific industry but will increase the efficiency of the power generation sector in Uzbekistan, ensure grid stability and reliable power supply.

## 1.2 Land Ownership Status

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 rayon and oblast administrations. The official letter of the Surkhandarya Region Khokin, dated 30 August 2021, the Project area is allocated for the construction of a CCPP with the capacity of 1600 MW. The decision was published on the official website of the regional administration (surkhandaryo.uz).



## 1.3 E&S Studies

The Surkhandarya CCCP 1600 MW Project is considered as Category I of environmental impact with a high risk according to the Law "On Environmental Expertise" and the Decree of the Cabinet of Ministers of 07.09.2020 No541 on "further improvement of the mechanism of environmental impact assessment". Hence, first stage of the Environmental Impact Assessment report (national acronym - PZVOS) was developed for this facility and a positive Conclusion of the State Environmental Expertise of the Republic of Uzbekistan No.04-01/10-08-1655 dated September 29, 2021 was obtained. As the Stage III of national EIA process the 'Statement on Environmental Consequences' ('ZEP' is the national acronym) represents the final stage of national EIA process and it will be conducted before the project is commissioned.

UzAssystem has been appointed by the Project Company in June 2021 to undertake an Environmental and Social Impact Assessment Report (ESIA) in compliance with the Asian Infrastructure Investment Bank (AIIB) Environmental and Social Policy (ESP) and International Finance Corporation (IFC) Standards for the Project.

In line with the international standards the Project is considered as "Category A" and the ESIA study has included following deliverables:

- Scoping Report
- ESIA Disclosure Package including:
  - ESIA Report including Environmental and Social Management Plan
  - This Non-Technical Summary (NTS)
  - Stakeholder Engagement Plan (SEP)

The ESIA Disclosure Package will be disclosed to public by the Project Company and the Lenders for a period 60 days. The NTS and SEP will be translated into Uzbek as per the relevant requirements of the international standards.

The ESIA Report has been prepared by Uzassystem based on the outcomes of the Scoping Report (finalized in July 2021), technical Project documentation provided by the Project Company, publicly available information, outcomes of the stakeholder consultations, findings of the baseline studies performed in 2021 - 2022 and assessment of Project's likely impacts and/or risks in accordance with internationally accepted methodologies as part of the ESIA process.

As part of the ESIA study, a stand-alone Stakeholder Engagement Plan is developed.

The Project Company will be responsible to implement described measures to mitigate the potential impacts in the ESIA Report. In addition, the Project Company is in charge to comply with the relevant national legislation, IFC PSs and AIIB Environmental and Social Policy and to ensure that all contractors that provide services to the Project Company duly follow these requirements throughout the project life.



## 1.4 Baseline Studies

The ESIA has been prepared by a review of relevant desktop information as well as a series of physical site surveys which have been summarized in the relevant environmental and social impact assessment Sections of this report. The environmental and social baseline surveys carried out as part of the ESIA included is given in Table 1.

Table 1: Environmental and Social Baseline Surveys

Site Surveys	Period
<b>Terrestrial Ecology Surveys</b>	17 <sup>th</sup> July 2021
<b>Irrigation Reservoir(lake)</b>	15 <sup>th</sup> July 2021
<b>Soil Survey</b>	15 <sup>th</sup> July 2021
<b>Groundwater and surface water sampling</b>	9-16 <sup>th</sup> July 2021
<b>Sediment and lake sampling</b>	13 <sup>th</sup> July 2021
<b>Zooplankton and phytoplankton sampling</b>	13 <sup>th</sup> July 2021
<b>Socio-economic Data Collection</b>	28 <sup>th</sup> July 2021
<b>Stakeholder Consultations</b>	This has been completed with different stakeholders on July 2021 through official letters, calls and public consultation meetings conducted.
<b>Livelihood Restoration Surveys</b>	15 <sup>th</sup> October 2021
<b>Terrestrial Flora and Fauna Survey</b>	April 2022
<b>Air Quality Monitoring Survey</b>	20 <sup>th</sup> July 2022-20 <sup>th</sup> August 2022
<b>Noise Monitoring Survey</b>	20 <sup>th</sup> to 23 <sup>rd</sup> August 2022
<b>Socio Economic Data Collection</b>	July 2022-August 2022
<b>Terrestrial Flora and Fauna Survey</b>	September 2022
<b>Aquatic Survey</b>	September 2022

The Final ESIA Report was submitted in May 2023, which presents the outcomes of the surveys listed in Table 1.



## 2. Project Information

### 2.1 Project Location

The Project site is located in the Angor district of the Surkhandarya region of the Republic of Uzbekistan, on the northeastern coast of the Uchkizil Reservoir, which is an off-stream reservoir type used for irrigation. The earth dam type Uchkizil reservoir is in operation since 1957.

Distance of the Project area to the regional center of Uchkizil village is approximately 2.0 km, and 14 km to Termez city centre.



Figure 1: Project Location (Regional Context)



The Site is at an average elevation of 337 m above sea level whereas the level of the Uchkizil Reservoir reserve is 318 m above sea level.

The project area can be considered as a flat terrain and there is no agricultural and/or economic activity within the project area. Project area consists mainly typical representatives of the flora of sandy and saline deserts of the southern part of Central Asia. Photos showing the project site are presented below.



Figure 2: Project Area – General View (July, 2022)

The nearest residential buildings are located in the south (Uchkizil Village, ~1.4 km) and the west (Kattakum Village, ~1.0 km) (see Figure 3).





Figure 3: Project Location



## 2.2 Project Characteristics

The proposed Project is a Combined Cycle Power Plant (CCPP) project. The CCP consists of two combine cycle gas turbines and a steam turbine (one unit). The baseload capacity of the Project is 1,600 MWe. The fuel to be used at the plant is natural gas and it will be supplied from a pipeline to be constructed by the Government. The electrical high voltage system of the plant will have a 500 kV grid connection with an air-insulated switchyard to be constructed in the Project area. The plant will have two transformers (600 MVA), two auxiliary transformers (27/44 MVA), and various auxiliary transformers.

The main features of the power plant is presented Table 2 and the simplified project layout is presented in Figure 4.

Table 2: Main characteristics of the designed combined cycle power plant

Feature	Description
<b>Type of technology</b>	Combined Cycle Power Plant
<b>The total area of the allocated land for construction</b>	73.4 hectares.
<b>Number of units of combined cycle plants</b>	2
<b>Power Generation</b>	1600 MW
<b>Capacity of each unit</b>	Gas Turbine – 551 MW Gas Turbine – 551 MW Steam Turbine – 538 MW
<b>Configuration</b>	2 Gas Turbines + 2 Heat Recovery Steam Generators + 1 Steam turbine
<b>CCGT type</b>	Siemens
<b>CCGT efficiency</b>	60%
<b>Working hours per year</b>	8000 h
<b>Fuel</b>	Natural gas
<b>Natural gas consumption per hour</b>	283.000 m <sup>3</sup> /h
<b>Annual consumption of natural gas</b>	283.000 m <sup>3</sup> /h x 8.000 h per year = 2.264.000.000 m <sup>3</sup> /year
<b>Condenser cooling type</b>	Water cooled
<b>Cooling tower type</b>	Dry cooler system
<b>Source water - cooling water</b>	Source water comes from the lake Uchkizil Reservoir
<b>Initial water</b>	Uchkizil Reservoir
<b>Source of Raw Water</b>	Uchkizil Reservoir



Feature	Description
<b>Process water - for boilers</b>	Process demineralized water will be supplied from our own demineralization plant through a connection to the demineralized water system
<b>Stack height</b>	65 m
<b>Stack diameter</b>	8,24 m
<b>Auxiliary equipment</b>	<ul style="list-style-type: none"> <li>- Feed Water and Steam System</li> <li>- Fuel Gas System Incl. Gas Compressor Station</li> <li>- Dry Cooler System</li> <li>- Closed Condenser System</li> <li>- Water Treatment System</li> <li>- Waste Water System</li> <li>- Sampling System</li> <li>- Dosing System</li> <li>- Firefighting System</li> <li>- Lifting System</li> <li>- Electrical System</li> <li>- Standby Diesel Generator</li> <li>- C&amp;I System</li> <li>- Civil Works System</li> </ul>
<b>Number and type of transformers</b>	2 transformers 600 MVA, 2 auxiliaries 27/44 MVA, various auxiliary transformers

The overall electrical efficiency of the proposed CCGT unit is ~ 60%. The proposed CCGT unit belongs to a relatively new type of power plant operating on natural gas. Combined-cycle power plants are designed to obtain the maximum (primary and secondary from hot exhaust gases) amount of electricity.

The following elements of the plant will also be part of the Project:

- Site entrance and security building;
- Administration building, offices and amenities;
- Central Control Room;
- HVAC system;
- Electrical Systems;
- Laboratory;
- Workshops;
- Warehouse and stores;
- Emergency Diesel Generator;
- Fire-fighting system; and
- Other mobile plant and vehicles.





A dedicated firefighting team will be based on-site during operations. A simplified version of the project layout is presented in Figure 4.

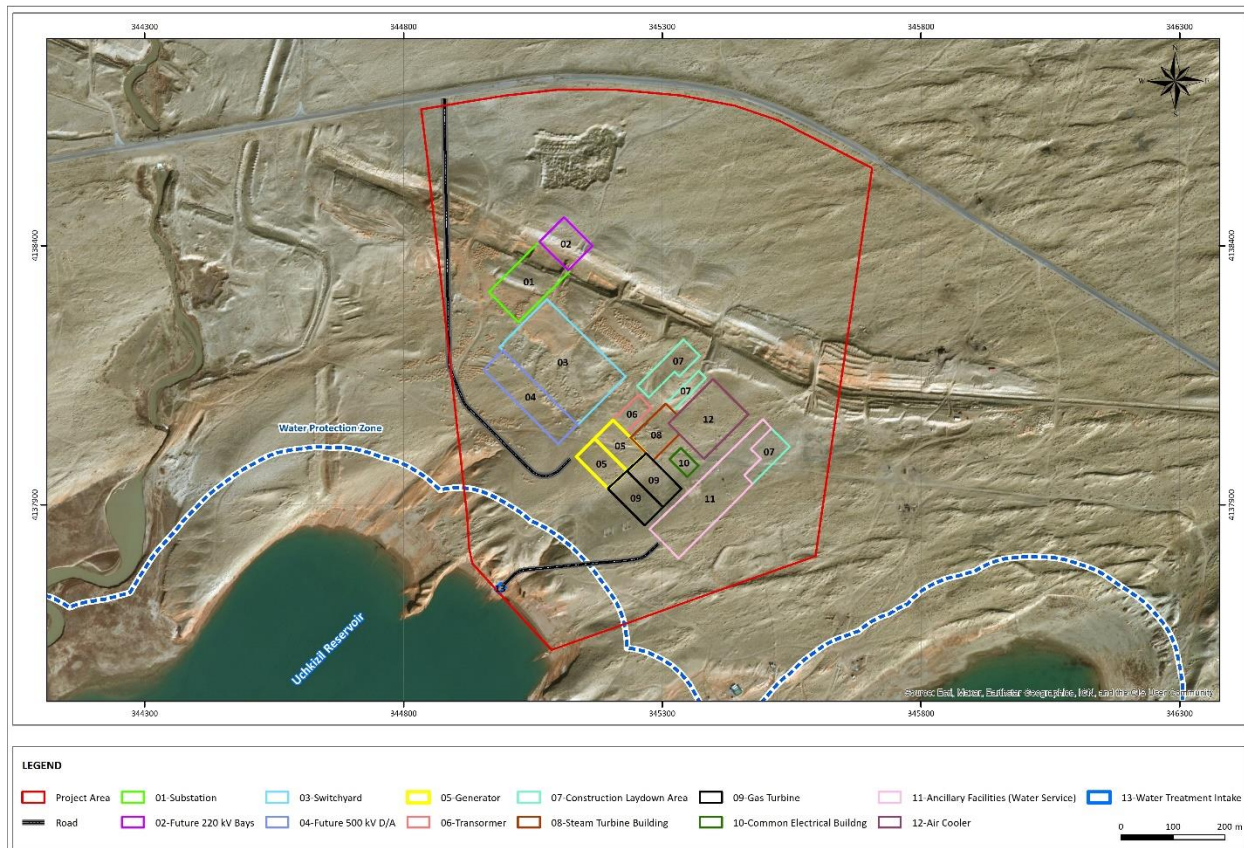


Figure 4 Simplified Version of the Project Layout

## 2.3 Workforce Requirements

It is expected the number of construction workers will be around 2050 during the peak period of the construction. It is expected that approximately 30 % of the workforce could be available to unskilled staff whereas the rest will require technical qualifications. It is foreseen that the ratio of foreign workers will be close to the number of local people to be employed. It is anticipated that the EPC Contractor will have approximately 130 people and the Project Company will have 10-15 permanent staff at the site during the construction stage.

During the operation phase of the proposed project, it is anticipated that the number of the workforce will be around 300 staff.

It should be noted that the given number of the workforce may change depending on Project needs during the construction and operation activities.



## 2.4 Accommodation and Logistics

It is planned that there will not be any accommodation facilities within the construction area. Based on the previous experiences in similar projects, it is expected the EPC contractor will arrange accommodation off-site and will use the existing housing compounds located in Uchkizil. Since the EPC contractor has not been awarded yet, the location of such accommodation is not readily determined. However, it will be ensured that the Project Company will specify the standards of facilities for worker accommodation in line with the IFC/EBRD Worker Accommodation Guidelines.

The EPC contractor will provide the transfer of the workers to the construction site and will perform a Traffic and Logistics Study to assess roads and determine access requirements via other modes of transport. It is foreseen that the existing M-39 main road will be adequate during the construction activities and no additional access road will be opened to reach the project site

## 2.5 Project Schedule

It is anticipated that the construction activities of the project will start in end of second quarter of 2023 and commissioning and testing of the power plant will be in February 2025. The key milestones of project timeline are given below.

Table 3 Key Milestones

Milestones	Date
Notice to Proceed	June 2023
Site Preparation and Mobilization	July 2023
GT 1 Erection and Commissioning	February 2025
GT 2 Erection and Commissioning	September 2025
Scheduled Project Commercial Operation Date	December 2026

## 2.6 Project Alternatives

The project forms part of the Ministry of Energy's plan to increase and modernize electricity production in the country.

The project also forms part of the Strategy of Action for the Five Priority Development Areas of Uzbekistan (2017 -2021) to introduce new technologies for generating thermal energy as the Project is being implemented as heat recovery in order to generate electricity.

In 2018, Uzbekistan ratified the Paris Agreement and adopted a national commitment to reduce GHG emissions per unit of GDP by 10% of the 2010 level by 2030. In addition, In 2020, the Ministry of Energy published its plans for the Power capacity development in Uzbekistan for the 2020-2030 period in a document called "Concept note for ensuring electricity supply in Uzbekistan in 2020-2030". The document talks in length about Uzbekistan's plans to rebuild its existing power plants, invite private power developers to take part in the power sector development to increase the power production capacity, lays out the plans for reforms, etc. The Concept Note states that "*Construction of a 1300MW TPP utilizing*



*CCGT technology is planned in Kashkadarya or **Surkhandarya** regions to be commissioned in 2025-2026."*

Taking into consideration of Uzbekistan's national electricity strategy, "Do-Nothing scenario" is considered as not applicable alternative, since it does not align with objectives of the Ministry of Energy. Besides, the project will lead decommissioning of inefficient existing thermal power plants and will contribute to the effective use of natural gas resources that will result in decreasing CO<sub>2</sub>/kWh intensity. The Project Company will meet the requirements described in the EU Best Available Techniques Reference Document prepared for Large Combustion Plants, 2017. The project will use most advanced technologies that are currently available to reduce environmental impacts.

## 2.7 Associated Facilities

The ESIA study evaluated the scope of the associated facilities in line with the AIIB Environmental and Social Policy. There are three facilities that are considered in the assessment.

- Air insulated substation, wherein the electric power will be evacuated from the Project.
- 9 km overhead transmission lines (OHL) connecting between the substation and the existing grid facilities.
- Gas pipelines and the gas distribution station that feeds the gas to the Project.

The substation will be built within the project area, hence impacts and mitigations measures associated with the substation are included in the ESIA study. However, the Project Company will not have any control or influence on the overhead transmission line and natural gas pipeline. Therefore, these two facilities are not considered under the scope of this ESIA Study. However, a brief explanation on likely impacts of the overhead electricity transmission lines and natural gas pipeline are summarized in the ESIA study. Requirements in accordance with the national environmental legislation should be followed during the construction and operation of these facilities and relevant impact assessment studies are conducted.



## 3. Assessment and Management of E&S Impacts

### 3.1 Air Quality

During construction phase, local ambient air quality may potentially be affected by increased dust, particularly during the site preparation stage (site clearance and earthworks etc.) and by the exhaust gas of construction vehicles, equipment and temporary power generators. The typical air emissions resulting from these activities include nitrogen oxides (NO<sub>x</sub>), sulphur dioxides (SO<sub>2</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), volatile organic compounds (VOC), particulates and benzene, toluene, ethylbenzene and xylene (BTEX).

- Sources of air emissions during construction phase are,
- Excavations and earthworks (dust),
- Vehicle movements on unpaved, or compacted roads and surfaces (dust),
- Particulate matter dispersion from uncovered truckloads;
- Vehicle and construction equipment emissions (e.g. NO<sub>x</sub>, SO<sub>x</sub> and CO, CO<sub>2</sub>, VOCs, particulates and BTEX) and particulates from vehicles, generators and other mechanical equipment,
- Stored VOCs and other volatile hazardous materials (VOCs), and
- Odour from temporary wastewater facilities, or containment.

Excavations and earthworks cause dust which typically comprises large diameter particles, settle rapidly and close to the source. In addition to vehicle movements on unpaved surfaces, dust generation from truck movements and particulate dispersion from truckloads would only occur where mitigation measures are not effectively implemented at the site, or by contractors bringing materials to the site.

Uncontained and/or un-sheeted trucks may be subject to losses of material where the containment is not effective (e.g. spills), or where wind or other air turbulence may disturb the contents and result in dispersion of materials. Such impacts have the potential to degrade local air quality in the immediate area of such movements.

The operation of construction vehicles and fuel consuming construction equipment will be the only sources of gaseous emissions during construction phase

Dusty material stockpiles (i.e. any fine powders and sand) dust generating activities will be to be located away from the site boundaries and be contained to avoid dust dispersion during storage or use. Exhaust fumes and particulates emitted from trucks and vehicles will be minimized by ensuring the use of good condition vehicles (e.g. compliant to vehicle emission requirements).

Activities associated with the operational phase of the Project will result in the emissions of gaseous pollutants from the operation of the CCGT power blocks. These emissions will occur under combined cycle operating modes using natural gas fuel only. Impacts from the CCGT are likely to be associated with emissions from the two main stacks associated with the HRSG.





The key pollutants arising from natural gas combustion and emitted via the stacks will be oxides of nitrogen (NO and NO<sub>2</sub>) and carbon monoxide (CO). The use of natural gas is generally accepted as being preferred over fuel oils or other solid fuels and there will be no (or negligible) emissions content of SO<sub>2</sub> and no particulates.

A detailed air quality dispersion modelling assessment has been undertaken to determine impacts associated with the proposed Project. The key pollutants considered in this assessment are NO<sub>2</sub> and CO which are the key pollutants emitted from combustion of natural gas that may potentially lead to exceedances of any relevant standards. Predicted concentrations are compared with the most stringent applicable standards and guidelines incorporated into Uzbekistan law and also the European Union (EU) standards, the International Finance Corporation (IFC) guidelines and the World Health Organisation (WHO) Guidelines.

According to modelling results for NO<sub>2</sub>, and CO , for all periods highest level concentration values are under both National Ambient Air Quality Standards, IFC/WB EHS Guideline Fundamental Principles and EU Environmental Standards.

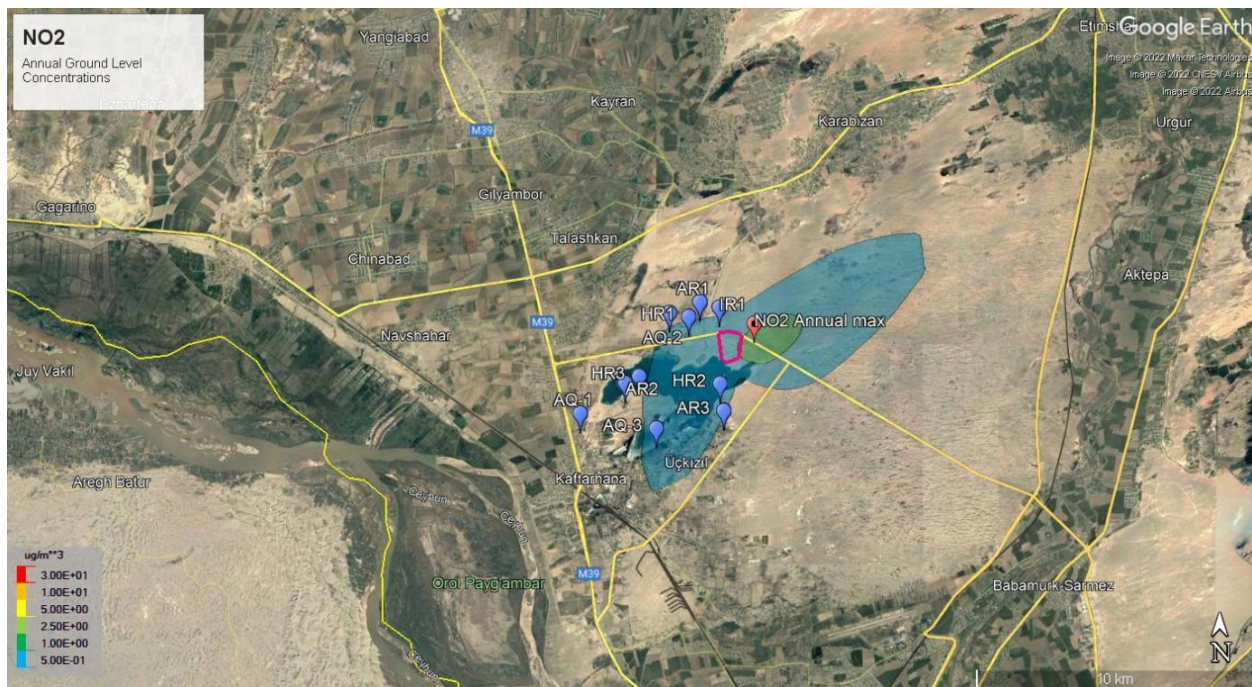


Figure 5: Maximum Annual NO<sub>2</sub> Dispersion Map

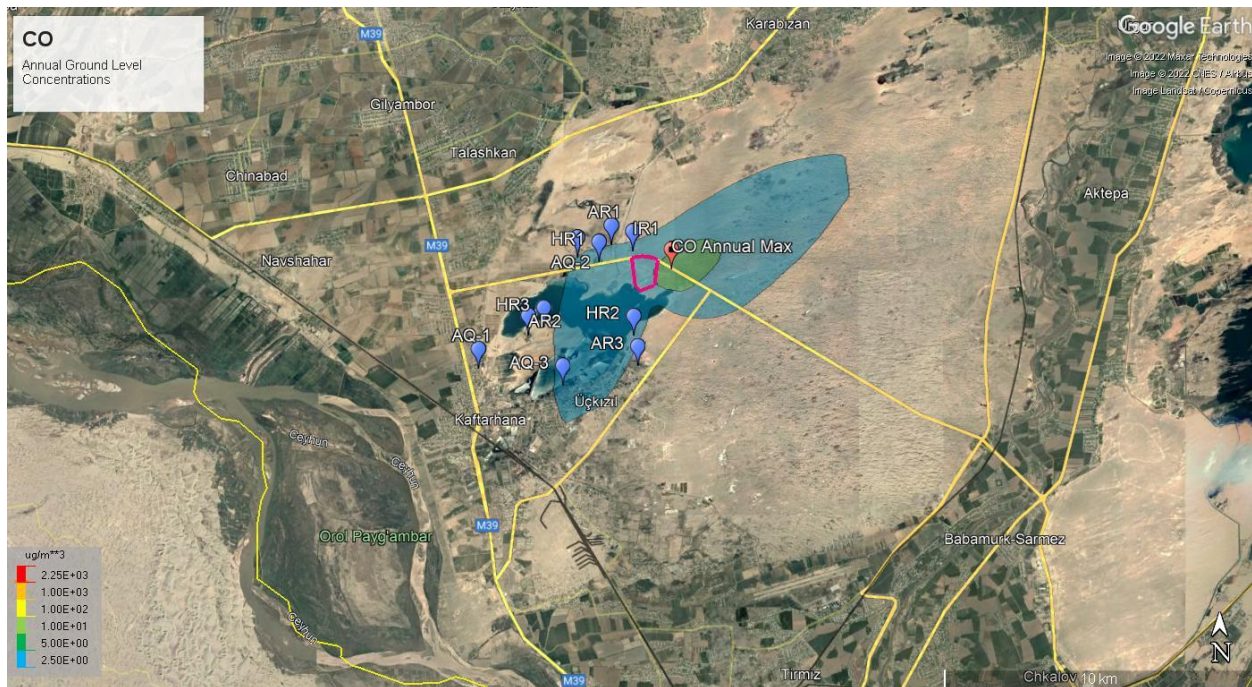


Figure 6: Maximum Annual CO Dispersion Map

During commissioning, the stack emissions will be tested for NO, NO<sub>2</sub>, CO to ensure that the control systems are operating correctly and that emission values comply with applicable standards and guidelines.

During operation there will be continuous emission monitoring system (CEMS) of stack emissions of NO, NO<sub>2</sub> and CO to ensure compliant conditions are maintained through appropriate process controls.

### 3.2 GHG Emissions and Climate Change

During the construction and operation phases, significant amount of direct and indirect GHG gases (namely CH<sub>4</sub>, CO<sub>2</sub>, N<sub>2</sub>O, SF<sub>6</sub>, HFCs, PFCs and NF<sub>3</sub>) are released due to earthworks, cement and steel use, maintenance activities, stationary combustion of natural gas, vehicles and equipment that works with diesel fuel. Greenhouse gases of the project through its life cycle calculated by establishing a system boundary with cradle to gate approach. Having considered only on-site emissions, all GHG emission estimations are calculated in CO<sub>2</sub> equivalent with conversion factors of EPA by using existing data.



Table 4: Summary of GHG emissions estimated for construction phase

Item	Estimated GHG in tons of CO2 equivalent (for 1-year activity)
<b>Scope 1 – combustion of fuel</b>	244.5
<b>Scope 2 – purchased electricity</b>	1573
<b>Scope 3 – water supply</b>	4.3
<b>Annual Total</b>	<b>1822 tons of CO2 equivalent</b>

The total estimated GHG emission for operation phase is summarized in the table below.

Item	Estimated GHG in tons of CO2 equivalent (for 1-year activity)
<b>Scope 1 – combustion of fuel</b>	<b>4.63 x10<sup>6</sup></b>
<b>Scope 2 – purchased electricity</b>	<b>230.6</b>
<b>Scope 3 – natural gas supply</b>	<b>826,182</b>
<b>Scope 3 – water supply</b>	<b>89.4</b>
<b>Annual Total</b>	<b>5.46 x 10<sup>6</sup> tons of CO2/year</b>
<b>Total Emission during operation phase (25 years)*</b>	<b>5.46 x 10<sup>6</sup> x 25 = 136.5 x 10<sup>6</sup> tons = 0.136 Gigatons</b>

### 3.3 Noise and Vibration

The main noise sources during construction phase are the heavy machineries to be used in construction activities. Construction activities in relation to noise and vibration are likely to include:

- Site Preparation
- Civil Works
- Construction and mechanical Installation;
- Internal Road Paving/Compacting; and
- Works at associated facilities; and
- Movement of vehicles (on and off-site)

Four receptors were selected in regards to assessment of noise generated during the construction and operation of the projects. Three of these receptors are residential areas in the vicinity of the project area whereas the remaining one is the waste processing facility approximately 250 m away from the project area.





Based on the calculations, noise levels during construction phase of the project is under the limit values specified for the day and night time in both national and international limits. In addition to this, it is stated in IFC's EHS Guidelines that noise levels should not result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site and the calculations revealed that there is no any increase in background levels of 3 dB.

In regards to operation, the design of the project includes selection of state-of-art technologies to have low noise level equipment to prioritise the reduction of noise at the source. Where noise levels exceed 80 dB(A), additional mitigation measures will be taken to reduce noise at source. Additionally, noise protection devices will be provided to personnel on-site and the area marked as a high-noise zone where ear protection is mandatory.

### 3.4 Water Resources and Wastewater Management

During construction, the main activities that could negatively impact the aquatic life and water quality can be listed as follows:

- Laying of the outfall and water intake pipelines to the reservoir;
- Water usage for construction and domestic purposes;
- Groundwater dewatering discharge on the reservoir banks from the construction activities on site;
- Habitat fragmentation as a result of construction of the intake and outfall;
- Discharge of wastewater due to construction;
- Erosion due to soil movement in case unappropriated management of top soil, surplus soil, dumpsites and borrow pits.

At the construction stage of the Plant, water is mainly needed to prepare mortars, as well as to irrigate the territory in order to reduce dusting on the construction site. In addition, household and drinking water needs will consist of drinking needs, showers, and cooking. The water needs during construction phase will be supplied from the nearby districts via trucks. The drinking water will be supplied by bottled water from the market.

Therefore, no water is planned to be supplied from both Uchkizil reservoir and groundwater during the construction phase of the Project. On the other hand, the water will be supplied from the Uchkizil Reservoir during the commissioning phase.

The total water consumption during the construction is calculated as 412.073 m<sup>3</sup>/day (111,521.28 m<sup>3</sup>/year), of which for; production needs - 8.773 m<sup>3</sup>/day. or 3,202.5 m<sup>3</sup>/year; household and drinking needs - 256.5 m<sup>3</sup>/day (93,638.78 m<sup>3</sup>/year), irrigation of the territory - 146.8 m<sup>3</sup>/day (53,582 m<sup>3</sup>/year).

Total water consumption for commissioning phase is approximately 93,000 m<sup>3</sup> in total.

Termez wastewater treatment plant has a capacity of 25,000 m<sup>3</sup>/ day as of 2020. Domestic wastewater emerged from the construction phase of Project will only occupy 13% of Termez Wastewater treatment capacity.





Table 5: Water consumption and wastewater generation during construction and commissioning phases

Type	Amount	Source/Disposal
<b>Water Consumption – Construction Phase</b>		
<b>Construction</b>	8.773 m <sup>3</sup> /day	From nearby district via trucks
<b>Household and Drinking</b>	256.5 m <sup>3</sup> /day	Household - from nearby districts Drinking – from bottled water (market)
<b>Irrigation of the Territory</b>	146.8 m <sup>3</sup> /day	From nearby districts via trucks
<b>Water Consumption – Commissioning</b>		
<b>Commissioning</b>	93,000 m <sup>3</sup>	From Uchkizil Reservoir
<b>Wastewater Generation</b>		
Domestic Wastewater	256.5 m <sup>3</sup> /day	Deposition – water proof septic tank Discharge – WWTP in Termez

Mitigation measures to reduce impacts on water quality for construction phase are given below:

- The Project will consult with the Uchkizil Reservoir to confirm the need and applicability for water discharge permits/licenses necessary for the successful construction of the Project. Such discharge permits/licenses will be associated with effluent discharges (including stormwater). The Special Terms and Conditions associated with each Water Use Permit will be followed, and adherence to such will be monitored and confirmed through routine inspections and/or audits;
- Method Statements detailing spill emergency response and clean-up procedures for spills will be developed including process, responsibilities, training and drill needs.
- Training regarding proper methods for transporting, transferring and handling hazardous substances that have the potential to impact surface and groundwater resources will be undertaken.
- Areas where spillage of soil contaminants occurs will be excavated (to the depth of contamination) and suitably rehabilitated. If any other minor spillage occurs, the spillage will be cleaned immediately and the contaminated area will be rehabilitated. All contaminated material will be suitably disposed of.
- The washing of Project vehicles in and around any surface water bodies will be prohibited. All Project vehicles will be washed at designated wash bays on site. These wash bays should include oil/grease and sediment traps for grey water.
- The ad hoc maintenance of vehicles in and around the construction area will be prevented. All vehicles will be maintained at a designated workshop. The workshop should include containment berms and an oil/grease trap.



- All construction areas and associated facilities will be maintained in a good and tidy condition; debris and wastes will be contained in such a way that they cannot become entrained in surface run off during periods of heavy rain.
- Where practical, exposed surfaces and friable materials will be covered / sheeted.
- Construction activities will be conducted > 150 m away from water bodies as defined in "Regulation on procedure of establishing water protection zones and sanitary protection zones for water bodies".
- Sufficient toilets at active work areas will be provided for site staff and workers and these will be serviced regularly by a competent and suitably qualified person.
- Domestic wastewater generated during construction is planned to be directed to a temporarily installed storage tank (a waterproof cesspool) with subsequent removal to the nearest treatment facilities in the city of Termez.
- All wastewater which may be contaminated with oily substances will be managed in accordance with an approved Waste Management Plan, and no hydrocarbon-contaminated water will be released into the environment.
- Fixed fuel storage infrastructure will be on flat, impermeable surface and surrounded by a bund with a volume of 110 percent of the volume of the storage tank(s), and fuel transfer at fixed stations will be performed on a concrete surface draining to a mechanical oil separator.
- Chemicals storage and dispensing areas will be located as far as possible from surface water bodies, and in no instance should they be located drained on an irrigation channel. Storage will be on flat, impermeable surface and surrounded by a bund or enclosed storage. To avoid siltation of rivers and other surface water bodies, soil stockpile will be located away from surface water bodies.

The water intake structure will be at a sufficient depth below minimum water level to avoid collisions with boats and intake of warm surface water and at sufficient distance from the bed of the reservoir to avoid the intake of sediments and sludge. The water intake velocity will be limited with 0.15 m/s and a bubble curtain shall be applied to prevent fish and fauna to enter the intake.

The discharge point will be at a sufficient distance from the shore to promote mixing with the main water body. Following the detailed design together with performing performing a bathymetry, hydraulic and nearshore topography survey, the exact locations will be determined and necessary relevant permits will be obtained from the national authorities.

Total hourly amount of water consumption will be 15.75 m<sup>3</sup>. The breakdown is given below.

- 18.5 m<sup>3</sup>/h of the extracted water (2.75 m<sup>3</sup>/h of which comes from Sludge Treatment System) will be sent to Raw Water Pretreatment System to supply water for industrial needs.
- 16.644 m<sup>3</sup>/h of total extracted amount (18.5 m<sup>3</sup>/h) is diverted to Clarified Water Pond.
- 24.674 m<sup>3</sup>/h of the water (8.03 m<sup>3</sup>/h of which coming from Blow Down Pit) is diverted to Gravel Filter Recovery (~98%).



Adjustment of water consumption rates will be carried out after determining all the characteristics of the equipment before putting the Project into operation.

### 3.5 Soil, Geology, and Groundwater

Soil contamination during construction work is possible with the spill of oil products used as fuel for mobile vehicles and construction equipment. However, the pollution will be minor and localized. Due to poor solubility, oil products will have a low migration capacity and will not pose a hazard to groundwater. The likelihood of a fire occurring due to fuel spills is also low. In general, during the construction period, soils and groundwater contaminated with oil products will have a minor risk to the environment and personnel safety.

The presence and use of such dangerous and hazardous chemicals increase the probability of accidental spills or releases of minor quantities of these materials into the receiving hydrological environments. Further, site preparation activities and associated construction of infrastructure can result in increased sediment loads in reservoir. Any leaks/damage to the soil and groundwater will be prevented through appropriately designed storage options. Any leaks/damage to the soil and groundwater will be prevented through appropriately designed storage options.

### 3.6 Waste Management

During construction, waste will be generated during earthworks, construction of the fences, paths and buildings.

Typical construction wastes include concrete, asphalt, scrap steel, glass, plastic, wood, packaging materials and domestic waste from construction workers (i.e. relating to food consumption). Concrete may be found in two forms on the construction site; structural elements containing reinforced concrete, while foundations (such as surface level concrete slabs) have mass non-reinforced concrete.

Household wastewater generated during construction is planned to be directed to a temporarily installed storage tank (a waterproof cesspool) with subsequent removal to the nearest treatment facilities in the city of Termez. The EPC Contractor will also seek other options such as establishment of package (small-scale) wastewater treatment plant in accordance with the requirements set in the national legislation.

The operation of the proposed Project will generate small amounts of non-hazardous domestic waste from the operation of the administration facilities and from activities of the employees.

This waste can be classified as both recyclable and non-recyclable. Recyclable waste includes paper, tin cans, plastics, cartons, rubber, and glass, while non-recyclables will consist mainly of food residues and other organic waste. Other solid non-hazardous waste generated during operation will be landscaping waste and uncontaminated replacement parts and packaging.

Hazardous waste to be generated during the operation stage will be stored in allocated impervious hard standing areas in sealed containers stored with impermeable bases, sufficient containment and separation capacity, sun/rain shelter, separate drainage system, good



ventilation and equipped with spill kits & spill response procedures. This area must be placed away from any sources of ignition. Waste containers will be marked with appropriate warning labels to accurately describe their contents and detailed safety precautions. Labels will be waterproof, securely attached, and written in English and other languages as required such as Uzbek and Russian. Wherever possible, chemicals will be kept in their original container.

### 3.7 Ecology

The terrestrial ecology surveys have been conducted in July-2021 and April-2022, which refers to summer and spring seasons, respectively. Additional surveys were conducted for autumn period in September 2022. The surveys cover both the Project area and the its surrounding.

Physiographically, the Project area is located in the south of Uzbekistan, in the Surkhandarya intermountain area (Surkhan-Sherabad valley), inclined from north to south, to the floodplain of the Amudarya river. In the north and west, the Surkhan-Sherabad valley is limited by the Gissar ridge, the height of the axial part of which exceeds 4,000 m above sea level and its southwestern spurs, including the Chulbair Mountains (the highest elevation 3,812 m above sea level), Baysuntau (3,920 m), Susyzttau (2,124 m), Tyubere-Oland (2,139 m) and the ridge Kugitang (3,137 m).

The area is adjacent to the western end of the Kattakum sandy massif, which is home to rare and endemic plant and animal species. The landscape of the peripheral part of the Kattakum sands is a wavy or slightly hilly sandy plain, the central part is occupied by a rather extensive massif of semi-fixed hilly sands (the height of the hillocks is 3–7 m), among which there are small saline settlements. The Uchkizil Reservoir has an area of about 10 km<sup>2</sup> and a depth of maximum 37 m, a sandy bottom, and mostly low and gentle sandy and sandy loam shores, but its northern coast, adjacent to the Project area, has relatively steep, eroded slopes, composed of outcrops of gypsum and saline depressions.

According to the typology of vegetation used in Uzbekistan, the predominant type of vegetation in the Kattakum sands is psammophilic vegetation of sandy deserts (Psammophyta), on the outcrops of sandstones, gypsophilic vegetation (Gypsophyta), and along the coast of the Uchkizil Reservoir and in saline depressions among the sands, there is fragmentary saline vegetation (Halophyta).

The preliminary list of the flora of the Kattakum sands, compiled on the basis of reports, literature, herbarium data and photographs taken by field team during the field survey includes 131 species, mainly typical representatives of the flora of sandy and saline deserts of the southern part of Central Asia. The vast majority of species are native; the number of alien plant species is extremely insignificant.

Only 3 species included in the Red Book of Uzbekistan (*Allium rhodanthum*, *Dipcadi turkestanicum*, *Oligochaeta vvedenskyi*) are noted based on literature and herbarium data for the sandy massifs of Kattakum and Khaudaktau in the central part of the Surkhan-Sherabad valley, the first two of them are known only from Khaudaktau and have not been noted for the past several decades, despite special searches. Nevertheless, there is a possibility of finding these species in the Kattakum sands (not excluding the project area).



There are 27 species of reptiles belonging to 12 families on a relatively small and rather highly urbanized project area.

A total of 149 bird species can be identified for the region around the project area, which are rare or listed. The only endemic bird of Uzbekistan, *Podoces panderi* does not live here. Among them, 21 species have IUCN statuses (NT-10 species, VU - 7 species and EN - 4 species). 33 species are included in the Red Book of Uzbekistan (2019) 4 species with the EN status, 23 - VU and 6 NT species. During the field surveys, 49 bird species were recorded, 26 of them directly in the planned area.

Approximately 22 species of mammals belonging to 6 families have been recorded in project area and its surrounding area based on available literature sources.

The territory is potentially inhabited by 6 species of mammals included in the Red Book of the Republic of Uzbekistan; *Otonycteris hemprichi*, *Vulpes corsak turkmenicus*, *Vormela peregusna*, *Lutra lutra seistanica*, *Hyaena hyaena*, *Felis margarita*, *Caracal caracal michaelis*, *Vormela peregusna*. and the 5 species are included CITES (*Lutra lutra*, *felis chaus*, *Felis lybica*, *Felis margarita*, *Caracal caracal michaelis*). Two species are Central Asian endemics that *Rhinolophus bocharicus* and *Allactaga severtzovi*. *Gazella subgutturosa* that used to inhabit the area has been completely exterminated.

A Preliminary Critical Habitat Assessment was performed based on the outcomes of the surveys conducted in July 2021, April 2022 and September 2022. None of plants and animals species observed during the field survey in the project area meet the criteria for CHA. *Neophron percnopterus*, temporarily visits the project area for feeding, since there is a household waste dump nearby the project area. This specie also does not meet the criteria for CHA, since its number is less than 0.5% of the global population. There are no nesting sites for the Egyptian Vulture in the project area. The rest of the plant and animal species that are observed in the project area listed in the National Red Book of the Republic of Uzbekistan (2019) have local conservation statuses of NT and VU which do not meet the CHA criteria. No animal species are observed from literary sources that have high IUCN Red List statuses that meet CHA criteria.

### 3.8 Socio-economy

The ESIA study identified several positive and negative impacts likely to arise during the construction of the Project. These impacts are;

- Employment generation,
- Local economic development,
- Labour influx,
- Impacts on social services

The primary economic impact during construction is likely to result from employment creation during this phase. This Project is expected to create employment opportunities during the construction phase for unskilled and applicably skilled workers. To prevent social conflicts between local employee and expats, should be paid attention to the balance between in the employment shares.



In addition to the direct monetary increase to the families of the employed, the money paid to the workers will also stimulate the local economy with a multiplier effect, so that the money earned from the locally spent Project will recirculate within the local economy.

The Project construction will require involvement of significant workforce (direct and contracted) Approximately 30% of the workforce is estimated to be non-qualified and 70% of will be qualified. The Contractor prioritise localisation of workforce (including subcontractors through contractual requirements) and it is anticipated that 50 % of the workforce will be national people. This policy will maximise the use of local workers and reduce the influx of non-local workers to the area.

### 3.9 Livelihood Restoration

During the social site surveys conducted in 2021 and 2022, no formal and/or informal landusers are observed within the project area. Although the project does not have any impact on livelihood of households and communities, a Livelihood Restoration Framework is presented within this ESIA Report to ensure that the Project company will follow the minimum requirements set in this plan, in case required.

### 3.10 Community Health and Safety

Potential impacts of the project on community health and safety arise from the necessity of accomodation of the workforce, illnesses and diseases, and sexually tranmistted diseases due to increase in local population.

The Project construction will require involvement of significant workforce and the maximum workforce will be around 2050 during the peak construction period. Approximately 30% of the workforce will be unskilled and the remaining will be either skilled or semi-qualified staff.

The provision of accommodation for self-sufficient workers accommodation will be the responsibility of the contractor. It is expected that the workforce required for the construction activities will accommodate in nearby cities and there will no accommodation in the project area. All worker accommodation facilities will be designed and operated in accordance with IFC Workers Accommodation Guidance. The workforce will be transferred to the project area by shuttle buses.

It is anticipated that 50% of the workforce will be third-party nationals. Temporary migration of such workforce might lead to conflicts between the local community and project workers due to cultural, rel, religious and behavioral issues.

Risks associated with hazardous materials or chemical storages will be managed during construction phase according to good international industrial practices on HAZMAT management

Material transport vehicles, shuttle buses, and vehicles transporting the waste generated at construction sites may result in increased traffic on off-site roads during the construction period.



The project area will require site-based security at the gates and on patrol around the site and access road during construction in order to prevent the public from trespassing to the construction areas. This is so as to minimize the potential for construction site incidents or damage of construction machinery. It is anticipated that the security personnel will be unarmed.



## 4. Environmental and Social Management System

The Project will establish Environmental and Social Management Systems (ESMS) in order to effectively manage the environmental and social impacts of the project from the land preparation and construction phase to the closing phase. During the creation of the ESMS, the following subject / documents will be taken into consideration.

- Compliance with relevant national laws and regulations and EU directives
- IFC PSs
- AIIB Environmental and Social Policy
- IFC EHS General Guidelines
- Environmental and Social Action Plan (ESAP) prepared within the scope of the ESIA study

The defined measures to eliminate impacts and risks identified at various stages of the project should be adopted not only by the Project Company, but also by the EPC Contractor and, if any, Sub-Contractors. The Company Owner will be responsible for the implementation of the issues in the ESIA by all parties.

The Project Company will appoint an ESMS Manager who will be responsible for the establishment, implementation and maintenance of the ESMS. The ESMS Manager and his team will work closely with the employees of the project owner and contractors to ensure the most effective implementation of the ESMS.

The Project Company will prepare the necessary procedures to establish and maintain an effective internal and external communication mechanism. Efficient communication will be provided through the website of the project owner and mechanisms such as meetings.





## 5. Stakeholder Engagement

### 5.1 Project Stakeholders

The details of the stakeholders defined for the project are presented in the SEP and the list of the stakeholders is as below:

Stakeholder Group	Definitive Stakeholders	Specific Interest /Relevance/Influence
<p><b>Project Affected People</b></p>	<ul style="list-style-type: none"> <li>• Residents of Uchkizil Mahalla (within 5 km radius of the project area)</li> <li>• Residents of Kattaqum Mahalla (within 5 km radius of the project area)</li> <li>• Residents of Bahor Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Dehqonbirlashuv Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Ilgor Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Karvon Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Kayran Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Khalqobod Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Ilgor Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Madaniyat Mahalla (within 10 km radius of the project area)</li> <li>• Residents of Markaz Mahalla (within 10 km radius of the project area)</li> </ul>	<ul style="list-style-type: none"> <li>- Affected/potentially affected from Project-related E&amp;S risks and impacts that will be managed through the Project's future ESMS</li> <li>- Management of E&amp;S impacts</li> <li>- Cooperation to maximise benefits and planning for local employment and the supply of goods and services</li> </ul>



Stakeholder Group	Definitive Stakeholders	Specific Interest /Relevance/Influence
<b>Other interested parties</b>	<ul style="list-style-type: none"> <li>• Termiz Khokimiyat</li> <li>• Angor Khokimiyat</li> <li>• District Health Department</li> <li>• Department of Cultural Heritage of Surkhandarya Region</li> <li>• Department of Cultural Heritage of Surkhandarya Region</li> <li>• Termiz Archaeological Museum</li> <li>• Termiz District Education Department</li> <li>• Termiz District Health Department</li> <li>• Angor District Health Department</li> <li>• Angor District Agriculture Department</li> <li>• Angor District Educational Department</li> <li>• Angor District Cadastre Department</li> <li>• Amu Surkhan Regional Inspection Department</li> <li>• Angor District Labour Department</li> <li>• Angor District Road Construction and Transportation</li> <li>• Angor MonoCentre Official Training Centre (Ministry of Labour)</li> <li>• Angor District Youth Department</li> <li>• Termiz District Agriculture Department</li> <li>• Termiz District Labour Department</li> <li>• Termiz District Municipal Department</li> <li>• Termiz District Cadastre Department</li> <li>• Academic/educational institutions</li> </ul>	<ul style="list-style-type: none"> <li>- Influence on Project-related permitting processes</li> <li>- Coordination of Project activities and processes, and stakeholder engagement activities</li> <li>- Management of environmental and social impacts</li> <li>- Emergency preparedness and coordination</li> <li>- Management of cumulative impacts</li> </ul>
<b>Disadvantaged and vulnerable</b>	<p>Women</p> <p>Youth</p> <p>Female headed households</p> <p>Fishermen</p> <p>People with disabilities</p>	<ul style="list-style-type: none"> <li>- Affected/potentially affected from Project-related E&amp;S risks and impacts that will be managed through the Project's future ESMS</li> <li>- Ensuring that sensitive and disadvantaged Persons / Groups have</li> </ul>



Stakeholder Group	Definitive Stakeholders	Specific Interest /Relevance/Influence
	People with irregular income	access to sufficient information about the Project, ensuring that these persons / groups benefit equally from the benefits of the Project
<b>Local businesses, suppliers, other industrial projects</b>	Local companies	<ul style="list-style-type: none"> <li>- Positively affected from potential Project benefits/opportunities</li> <li>- Supply of local goods and services related to the project</li> <li>- Coordination of infrastructure services</li> <li>- Management of cumulative impacts</li> </ul>
<b>Local media</b>	National and local newspapers, local magazines and TV channels	Project information sharing with stakeholders

## 5.2 Stakeholder Engagement Activities to Date

According to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 541 dated 07.09.2020 "On further improvement of the mechanism for assessing environmental impact", objects of I and II categories of environmental impact are subject to the procedure for passing public hearings about environmental impact. In accordance with, the Public Hearing Meeting was conducted in Angor District 17 of August 2021.

Besides, during the ESIA study, qualitative and quantitative techniques were applied for public disclosure as Household Survey, Local Authority Disclosure and Focus Group Discussion. Household survey covered 410 household, which of 295 were in Angor and 115 of them were in Termez.

Local Authority Disclosure were conducted among 16 mahalla reis representatives in Angor and Termez districts in July-August, 2022.

Six Focus Group Discussion (FGD) were held in July-August 2022, who were the representative of women, youth/unemployed and farmers.



The main concerns raised during the social site survey were related to the full-time job opportunities during the construction and operation stages of the project. The majority of the respondents highlighted that their school needs well-equipped sports center so that youth could have an opportunity to develop their skills in sports.

The disclosure meetings were also conducted to inform the public who are likely to be affected by the planned Project and other interested stakeholders in December 2022. First meeting was held with 27 attendances in Angor District on 20<sup>th</sup> December 2022. Second meeting was held with 23 people in Termez District on 22<sup>rd</sup> December 2022. Furthermore, there were also meetings held with the women (52 participants) and youth (23 participants) groups on 23<sup>rd</sup> December 2022 in Termez and Angor Districts, respectively. No concern regarding the Project's potential E&S impacts and risks was received during the meetings. The questions raised mostly related to local employment, expected wages, potential E&S-related impacts, the baseline studies conducted, electricity distribution, the Project schedule and capacity development activities to be conducted for the technical personnel to be employed. All the questions were answered by Uzassytem kindly.

### 5.3 Stakeholder Engagement Plan

The ESIA Report includes a stand-alone SEP which is prepared based on the social site surveys. The SEP aims to establish and maintain constructive dialogue between the Project and the local communities, other stakeholders and interested groups.

The Project Company will assist and collaborate with the EPC Contractor to implement the SEP throughout the construction phase of the Project. The implementation of the SEP throughout the operation phase of the Project will be under the responsibility of the Project Company.

All stakeholders (individuals, groups, or entities) directly and/or indirectly affected by the Project or have a direct or indirect influence/impact on the Project are identified in the SEP. Besides, to establish and maintain a constructive relationship through public consultation and information disclosure, relevant mechanisms and tools are defined in the SEP. In addition, the SEP establishes external and internal mechanisms that will ensure timely and appropriate implementation of actions for the management of grievances and feedback received.

### 5.4 Grievance Mechanism

Grievance Redress Mechanism (GRM) will be developed to enable stakeholders to raise grievances to the project and seek redress when stakeholders perceive an adverse impact arising from the project activities. The mechanism sets out clear systematic steps for affected individuals and communities to submit complaints and feedback and simultaneously for the Project in responding to queries, feedbacks and complaints received. This mechanism will be applied to guarantee the project is responsive to any concerns and grievances particularly from affected stakeholders and communities.

GRM will be available to construction and commissioning personnel, workers, project staff and people living or working in the areas impacted by the project activities. Any impacted or



concerned person or group of people about the project activities have the right to participate in the GRM and be encouraged to use it. Moreover, the developed GRM does not replace the public mechanisms for filing complaints and resolving conflicts in the legal system of Uzbekistan, but, on the contrary, seeks to minimize its use as much as possible.

## 5.5 Contact Information for the Stakeholders

Contact Information	
<b>Name</b>	Stone City Energy B.V.
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