European Bank for Reconstruction and Development

ENVIRONMENTAL AND SOCIAL ASSESSMENT

100MW Shokpar Wind Power Plant, Kazakhstan



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100MW Shokpar Wind Power Plant, Kazakhstan

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APPENDIX A

SUMMARY SITE VISIT FINDINGS REPORT AND PHOTOLOG

APPENDIX B

ENVIRONMENTAL AND SOCIAL ACTION PLAN (ESAP)

1 EXECUTIVE SUMMARY

1.1 PROJECT BACKGROUND

The European Bank for Reconstruction and Development (the "EBRD" or the "Bank") and Asian Infrastructure Investment Bank (AIIB) are considering providing senior loans of up to USD 50 mln and USD 40 mln accordingly on a project finance basis to Shokpar Wind Power Station LLP (the "Borrower" or "Project Developer"), incorporated in Kazakhstan. The finance will be used for the development, construction, connection to the transmission grid, commissioning, and operation of the 100 MW wind power plant in Zhambyl region, near the town of Zhanatas (the "Project"). The wind farm's current design consists of 22 turbines placed on the northern slope of the Ulken Aktau Ridge along the Karatau-Zhanatas highway. The turbines are to comprise 95 m high towers with 76.4 m long blades that rotate within a 156 m diameter with the total height of the wind turbine being 173 m.

It is understood that the Shokpar WPP Project involves the expansion of the existing Zhanatas WPP owned by the Shareholders, using adjacent land plots and the development of the Shokpar WPP with the connection to the same Opornaya substation (located 15 km west from the WPP site) via a 11.5 km 220 kV transmission line.

The Project has initially been classified as "Category B" under the EBRD's Environmental and Social Policy 2019 (ESP 2019), therefore requiring an **Environmental and Social (E&S) Assessment** and review of associated Project E&S appraisal documents. This will be followed by their public disclosure for a period determined as per the confirmed category of the Project (for private transactions). The Bank will ascertain the Project category based on the assessment and the disclosure requirements.

A comprehensive E&S analysis and supplementary documents, such as Stakeholder Engagement Plan (SEP) and Non-Technical Summary (NTS), is required to be prepared by an environmental and social due diligence (ESDD) Consultant for this Project. It is understood that the national Environmental Impact Assessment (OVOS) was prepared by the Project Developer's local consultant to meet the environmental requirements of the Republic of Kazakhstan. The Project Developer has undertaken the bird migration study conducted for four seasons in 2020, which will need to be incorporated into the ESIA disclosure package.

WSP was appointed by the EBRD to undertake an E&S assessment of the proposed Project in order to review the compliance of the Project with national legislative requirements and the Bank's ESP 2019 and performance requirements (PRs), identify any potential E&S 'red flags' and significant deficiencies associated with the Project's appraisal, and to evaluate the Company's capacity to operate in line with these requirements. The Bank will ascertain the Project category based on the assessment and the disclosure requirements. These will be determined based on the E&S appraisal process.

1.2 OBJECTIVE OF E&S ASSESSMENT

The objective of the E&S assessment is to:

- To identify and assess any potentially significant adverse E&S effects associated with the proposed Project's development phases, from construction to operation & maintenance and decommissioning;

- To assess Project's compliance with applicable laws and the EBRD ESP 2019 and PRs;
- To ensure that potentially significant negative impacts are avoided where possible, or minimized, mitigated or compensated for if avoidance is not possible; and
- To identify potential E&S opportunities, including those that would improve the E&S sustainability of the Project.

The assessment was undertaken in line with applicable national laws and the EBRD ESP 2019 and PRs.

1.3 SUMMARY OF E&S ASSESSMENT, CONCLUSIONS AND WAYS FORWARD

The E&S assessment of the proposed Project started in mid-August 2022. The WSP team visited the Project site in Zhanatas from 14-20 August 2022. The site visit included site reconnaissance supported by interviews with the Project Developer (Shokpar Wind Power Station LLP), Project shareholder (Visor) and EPC Contractor management teams and various stakeholders, including the Zhanatas Akimat (town's administration).

1.3.1 DELIVERABLES

Based on the outcomes of the E&S assessment, the following deliverables have been produced:

- A Summary of Site Visit and Key Findings Report (**Appendix A**).
- **An E&S Assessment report** comprising: (i) a Project overview; (ii) a review of the Project's E&S appraisal to date, including Gap Analysis; (b) a review of key E&S risks and aspects associated with the Project (for both construction and operation & maintenance (O&M) phases), including a compliance table against EBRD PRs (presented in Section 11.1 of this report);
- **An Environmental and Social Action Plan (ESAP)** (presented in **Appendix B**) for the Project construction and operation and maintenance phases, structured according to the EBRD PRs. The ESAP determines key E&S risk and aspects identified during the course of the due diligence and measures to mitigate them and address areas of non-compliance.
- **A Stakeholder Engagement Plan (SEP)** (presented as a stand-alone document), a public document prepared for the Project Developer (Shokpar Wind Power Station LLP). The SEP sets out the implementing body's commitments relating to stakeholder engagement, consultation and disclosure activities.
- **A Non-Technical Summary (NTS)** for disclosure and to be used during consultations (a separate document).

1.3.2 SUMMARY AND WAYS FORWARD

Under the EBRD Environmental & Social Policy (2019), the Project is categorised as **Category B**. The Project considered for the EBRD's financing is a 100MW Shokpar WPP located near Zhanatas town, Sarysu district, Zhambyl region, southern Kazakhstan. This will be the second stage of a prospective ~400MW wind power resource development on the northern slope of the Ulken Aktau Ridge along the Karatau-Zhanatas highway (R-43). The wind farm will comprise twenty-two (22) 4.8MW wind turbine generators and will be connected to the national grid via 11 km long overhead 220kV powerline to the existing 220kV KEGOC, national electric grid operator, substation

"Opornaya". The Project has received required permissions to proceed with construction from competent local authorities, and a local EIA in line with national regulations was prepared by the Project Developer. The construction activities commenced in June 2022. The Project's scheduled commissioning date is January 2024.

WSP was engaged to carry out the Project's E&S due diligence assessment and additional cumulative E&S assessment of the whole development. The analysis of impacts has been performed for construction and operation stages of the Project. During the construction, and operation periods, the Project Company will implement an ESAP, which identifies mitigation measures to minimize, reduce, eliminate or control potential adverse impacts. The proposed mitigation measures are based on best management practices applied across the wind power/construction sectors.

The following environmental and social resources and aspects were examined during the Project's E&S appraisal.

Environmental	Socioeconomic
▪ Air Quality	▪ Demographics, including population and income
▪ Surface water and groundwater	▪ Infrastructure, including roads and power supply
▪ Land use	▪ Economic conditions
▪ Waste management	▪ Community Health & Safety
▪ Visual aspects	▪ Labour conditions, Occupational Health &Safety
▪ Geology and soils	▪ Cultural resources
▪ Vegetation	
▪ Animals, birds and habitats	
▪ Noise and vibration	

The E&S Assessment confirmed that the wind farm is not located in any E&S sensitive areas, and there are no protected or designated nature reserves within a 30 km radius of the Project. The birds' main migratory pathways are found within about 25-30 km north of the Project area. The area's ecological value is considered to be relatively low with the vegetation and animals typical for the waterless zones of the steppe. Overall E&S impacts are judged to be site specific (localized) and manageable in compliance with the Bank's Performance Requirements via implementation of the ESAP mitigation measures. The expected emission reductions of over 250,000 tCO2/year will support the Government's efforts to move towards a green growth model for the Kazakh economy.

The Project Developer has completed land acquisition process for the plots under wind turbine generators (WTGs) and reached easement agreements for the land leases under the 220kV

transmission power line route through voluntary negotiations with the landowners. The Project will not be associated with resettlement or livelihood loss and is compliant with the local development plans. Currently, the area is mostly used for grazing nomadic animals (horses, sheep, goats). The project would not cause significant impact as these activities can continue in adjacent available land areas. The impact of influx of up to 70 construction workers to an area with 1,437 population is considered to be low.

Cumulative impacts on the biodiversity of Shokpar WPP with other wind power plants have not been considered. With regard to birds these impacts are:

- Collision with turbine towers, blades (moving or stationary) and/or associated infrastructure;
- Displacement of birds due to loss of suitable feeding and/or breeding/wintering habitat;
- Disturbance within and around the turbine envelope; and
- Creating a barrier to dispersal, regular movements or migration.

Other impacts include cumulative habitat loss and fragmentation of migratory corridors. These impacts can be - additive; or - antagonistic (i.e. the cumulative impact is less than the sum of the multiple individual effects); or synergistic (i.e. the cumulative impact is greater than the sum of the multiple individual effects (NatureScot 2018)[1]

***WSP Recommendation**: The key source of information to help to assess cumulative impacts is the national EIA and ESA from the adjacent Zhanatas WPP. For this site one of the actions to achieve compliance with PS6 is as follows:*

'Commission an experienced ornithologist to continue birds and bats monitoring to complete through the year assessment of the WPP territory usage. Develop methodology and train the plant staff to monitor birds and bats site usage and mortality with a focus on protected species. If annual mortality exceeds the industry statistics for the given turbines: 100 bats, 20 birds and 1 prey birds per 10MWh generated or more than 1% of the population of protected species using the site and implement additional mitigation measures in liaison with AIIB/IFC.'

The first post construction monitoring for birds was undertaken between September 25th 2022 and October 24th 2022 (EcoSocio Analysts 2022)[2]. This report presents the results of a bird carcass search protocol.

It should be possible to produce a cumulative assessment using the predicted effect of the Zhanatas project and the predicted effects of the Shokpar project combined by using data and information from the respective ESIA's and monitoring reports.

Mitigation of impacts on biodiversity will involve the practice of adaptive management in which the implementation of mitigation and management measures will be responsive to changing conditions and the results of monitoring throughout the Project's lifecycle. The mitigation strategy will be commensurate with the Project risks and impacts to ensure that the requirements of PR6 are met

[1] NatureScot (2018) Assessing cumulative impacts of wind farms on birds

[2] EcoSocio Analysts (2022) Zhanatas Wind Power Plant: Birds and Bats Mortality Monitoring During Autumn Migration

and should take a risk-averse approach that explicitly identifies and accommodates uncertainty about outcomes of mitigation measures. Also, in areas of natural habitat, mitigation measures will be designed to achieve 'no net loss of biodiversity' where feasible. Appropriate actions include:

- Avoiding impacts on biodiversity through the identification and protection of set-asides;
- Implementing measures to minimize habitat fragmentation, such as biological corridors;
- Restoring habitats during operations and/or after operations; and
- Implementing biodiversity offsets.

A Biodiversity Management Plan will be produced (within **ESAP, Section 12** and **Appendix B**) outlining all the impact mitigation, management and post construction monitoring protocols to be followed at Shokpar WPP. The ESAP requires updated survey information, post-construction fatality monitoring, including application of carcass search protocol and involvement of an independent expert for ornithological surveys to re-evaluate bird impacts and establish adaptive management approach if high fatalities numbers are recorded.

The ESAP developed based on the results of the E&S Assessment identified a number of other actions at the corporate management system level comprising, inter alia, of strengthening institutional capacity of the Project Developer/Shareholders to implement the EBRD PRs, contractor management, and additional stakeholder engagement and grievance mechanism application that will have to be implemented prior to the works start, during construction and operation. The ESAP is yet to be agreed with the Client prior to the Bank's Board meeting.

To ensure meaningful consultation process with Project stakeholders, affected people and third parties, WSP developed a SEP and NTS for the Shokpar WPP development, which are expected to be publicly disclosed by the Project Company.

2 INTRODUCTION

2.1 TERMS OF REFERENCE

The European Bank for Reconstruction and Development (the “EBRD” or the “Bank”) and Asian Infrastructure Investment Bank (AIIB) are considering
providing senior loans of up to USD 50 mln and USD 40 mln accordingly on a project finance basis to Shokpar Wind Power Station LLP (the “Borrower” or “Project Developer”), incorporated in KazakhstanThe finance will be used for the development, construction, connection to the transmission grid, commissioning, and operation of the 100 MW wind power plant in Zhambyl region, near the town of Zhanatas (the “Project”). The wind farm’s current design consists of 22 turbines placed on the northern slope of the Ulken Aktau Ridge along the Karatau-Zhanatas highway. The turbines are comprise 95 m high towers with 76.4 m long blades that rotate within a 156 m diameter with the total height of the wind turbine being 173 m.

Shokpar Wind Power Station LLP is a subsidiary to China Power International Holding (“CPIH”, “Sponsor”), a state-owned Chinese power utility company with headquarters in Beijing. CPIH is a majority shareholder of the Bank’s existing project, Zhanatas Wind Power Plant. CPIH is envisaged to own 63% in the Project through its subsidiary in Hong Kong, China Power International Investment Ltd (“CPIIL”), targeting a purchase of 63% shares in the Netherlands-based Central Asia Wind Power B.V., currently owned by Visor International (“Visor”, “Minority Shareholder” and together with CPIH – “Shareholders”), which will remain an owner of the remaining 37% shares in the Project. The Project is expected to be co-financed by AIIB who also financed previous the project (Zhanatas WPP) and indicated their interest to participate in the new Project (Shokpar WPP).

It is understood that the Shokpar WPP Project involves the expansion of the existing Zhanatas WPP owned by the Shareholders, using adjacent land plots and the development of the Shokpar WPP with the connection to the same Opornaya substation (located 15 km west from the WPP site) via a 11.5 km 220 kV transmission line.

The Project has initially been classified as “Category B” (to be confirmed upon the outcomes of this E&S assessment) under the EBRD’s Environmental and Social Policy 2019 (ESP 2019), therefore requiring an **Environmental and Social (E&S) Assessment** and review of associated Project E&S appraisal documents. This will be followed by their public disclosure for a period determined as per the confirmed category of the Project (for private transactions). The Bank will ascertain the Project category based on the assessment and the disclosure requirements.

A comprehensive E&S analysis and supplementary documents, such as Stakeholder Engagement Plan (SEP) and Non-Technical Summary (NTS), is required to be prepared by an environmental and social due diligence (ESDD) Consultant for this Project. It is understood that the national Environmental Impact Assessment (OVOS) was prepared by the Project Developer’s local consultant to meet the environmental requirements of the Republic of Kazakhstan. The Project Developer has undertaken the bird migration study conducted for four seasons in 2020, which will need to be incorporated into the ESIA disclosure package.

WSP was appointed by the EBRD to undertake an E&S assessment of the proposed Project in order to review the compliance of the Project with the national legislative requirements and the Bank’s ESP 2019 and performance requirements (PRs), identify any potential E&S ‘red flags’ and significant deficiencies associated with the Project’s appraisal, and to evaluate the Company’s capacity to

operate in line with these requirements. The Bank will ascertain the Project category based on the assessment and the disclosure requirements. These will be determined based on the E&S appraisal process.

2.2 OBJECTIVES & SCOPE OF WORK

The primary objectives of the assignment are as following:

- To identify and assess any potentially significant adverse E&S effects associated with the proposed Project's development phases, from construction to operation & maintenance and decommissioning;
- To assess Project's compliance with applicable laws and the EBRD ESP 2019 and PRs;
- To determine the measures needed to prevent or minimise and mitigate the adverse impacts; and
- To identify potential E&S opportunities, including those that would improve the E&S sustainability of the Project.

WSP was engaged to carry out the following scope of work:

- Identify existing and Project-related E&S risks and/or adverse effects;
- Describe and characterise a relevant E&S baseline commensurate with the Project;
- Develop an E&S Assessment report in accordance with the Bank's requirements as defined in the ESP, including a Compliance Summary table with the Bank's PRs;
- Develop a SEP for the proposed Project to be further implemented by the Project Developer or the Project Company;
- Prepare an ESAP and NTS for public disclosure;
- Identify any additional future studies that may be required to cover relevant aspects in greater detail (e.g. biodiversity, land acquisition and resettlement, gender, retrenchment, etc,); and
- Finalise all documentation further to the EBRD's comments.

2.3 ENVIRONMENTAL & SOCIAL AUDIT TEAM

The WSP E&S due diligence team is summarised in **Table 2-1** below.

Table 2-1 - WSP E&S Audit Team

Team Member	Project Role
Neal Barker	Project Director & EHS&S Specialist (WSP UK Ltd.)
Ivan Maximov	Project Manager & EHS Specialist (WSP UK Ltd.)
Joseph Benson	Social & Resettlement Specialist (WSP UK Ltd.)
Rhys Bullman	Biodiversity/Ornithology specialist (WSP UK Ltd.)

2.4 SITE VISIT

The site visit was completed by Ivan Maximov (WSP EHS Specialist) and Rhys Bullman (WSP Biodiversity/Ornithology Specialist) between 15-19 August 2022. The itinerary presented in **Table 2-2** below was followed:

Table 2-2 - Site Visit Itinerary

Date	Description of Activities
14 August 2022, Sunday	WSP team (Ivan Maximov and Rhys Bullman) arrive to Almaty, Kazakhstan. Accommodation at the hotel in Almaty (Voyage Hotel).
15 August 2022, Monday	▪ 10:10: Arrival to Shymkent. ▪ 12:00: Arrival to the Site. ▪ 12:00-13:00 health, safety and environment (HSE) Induction training. Lunch. ▪ 13:00 - 16:00 Introduction meeting with the Project management. Project presentation. ▪ 16:00 – 18:00: Interviews with Project management. As required - collection and review of available on-site E&S (management plans, monitoring reports etc.) and H&S documentation. ▪ 18:00 – 20:00 Trip to hotel in Shymkent, Rixos Shymkent.
16 August 2022, Tuesday	▪ 10:00: Arrival to Zhanatas. ▪ 10:30: HSE Induction training. ▪ 11:00-15:00: Site tour – Shokpar WPP; photographing the surroundings. Interview with available HSE personnel. ▪ 15:30-18:00: Meetings with Sarysu Akim and local districts– Zhanatas, Zhanaaryk, Turkestan, Ushbas. Interview with Sarysu Community liaison officer (or Social/Public relations specialist) (confirmed). ▪ 18:00 – 20:00 Trip to hotel in Shymkent, Rixos Shymkent.
17 August 2022, Wednesday	▪ 10:00 Visiting IBAs closest to the Project site. ▪ 14:00: Continue interviewing PO and EPC HSE and HR staff. ▪ 14:30-17:30: (As required) collection and review of available on-site E&S (management plans, monitoring reports etc.) and H&S documentation. ▪ 18:00: Closure meeting with Project Company. ▪ Trip to Shymkent, Rixos Shymkent.
18 August 2022, Thursday	▪ 10:00: Departure to Almaty. ▪ As required: additional meetings at Project Company HQ office in Almaty. ▪ Meeting with Association for the Conservation of Biodiversity of Kazakhstan (ACBK) – Union for Bird Conservation (to be confirmed, any day – Thursday or Friday). ▪ Kazakhstan Ornithological Society (KOS) (to be confirmed, any day – Thursday or Friday). ▪ Accommodation in Almaty.
19 August 2022, Friday	▪ Meeting with Association for the Conservation of Biodiversity of Kazakhstan (ACBK) – Union for Bird Conservation (to be confirmed). ▪ Kazakhstan Ornithological Society (KOS) (to be confirmed, any day – Thursday or Friday).
20 August 2022, Saturday	WSP team leaves Almaty.

Key personnel and Project Representatives interviewed by WSP are provided in **Table 2-3** below:

Table 2-3 - Project Representatives interviewed

Name	Affiliation	Role	Contact information
Dmitryi Filatov	EPC (GCD as part of consortium)	GCD Project manager	dmitriy.filatov2017@gmail.com
Arkenzhan Arziyev	Visor Kazakhstan LLP	Business Development Officer	
Saule Sagadiyeva	Visor Kazakhstan LLP	Investment Manager	saule.sagadiyeva@visor.kz
Cihan Kiykac	Visor Kazakhstan LLP	Director of Shokpar Project	Cihan.Kiykac@visor.kz
Yernur Dzhiyenbayev	Shokpar Wind-Power Station LLP	Director	
Eric Chen	SIMEE representative	Project Manager	chenlq2@shanghai-electric.com
Islam Utegenov	EPC (GCD as part of consortium)	GCD Site Manager	i.utegenov2015@gmail.com
Stepan Torgashin	Build Master Group LLP	Chief Engineer	st.ep.an@mail.ru
Nurbek Abdeshev	EPC (GCD as part of consortium)	GCD Financial Manager	
Adilhan Turganbayev	Dostar Story Group	Technical Supervision Engineer	Adil050979@mail.ru

3 PROJECT OVERVIEW

3.1 PROJECT LOCATION

The Shokpar Wind Power Plant (WPP) (the Project) is a greenfield development of a 100MW installed capacity wind farm located in southern Kazakhstan, Sarysu district, Zhambyl region near city of Zhanatas – approximately 660 km west from the city of Almaty (**Figure 3-1**). The Project site is accessible throughout the year by asphalt roads linking the main country highways between Zhanatas town and Taraz city (regional highway R-43) and Taraz with Almaty through the country highway A-2. Zhanatas town is also accessible by railway.

The Project area is located in the transition zone from the shallow hills to the denudation-accumulative plain and is characterized by weakly dissected/gently rolling terrain and steppe-like landscape (**APPENDIX A:** *A.1 and A.2)*. Climate of the region is sharply continental, with large fluctuations in annual and daily air temperatures.

The nearest residential areas surrounding the Project area are:

- The village of Zhanaaryk (Suzdykbayuly) situated within 1.5-2 km north off the Project site (closest to the Shokpar western flank of wind turbine generators (WTGs);
- The village of Aktogay located in some 3.5 km east off the Project site;
- The town of Zhanatas, located in approximately 2 km from the eastern flank of the wind farm layout; and
- The village of Turkestan, which is situated at some 15 km north-east from the Project site.

From south-west within 1.0 to 3.5 km, the Project site borders with the area occupied by the local mining company LLC KazPhosphate, one of the Central Asian region's leading phosphorus and phosphorus containing products production companies.

Further south and south-west (within 1.5-3.5 km distance), there is an existing and operational 100MW Zhanatas wind farm, which comprises the total of forty (40) 2.5MW (90 m high) WTGs arranged in two rows of 23 and 9 turbines and two clusters of 4 turbines each. The Zhanatas wind farm was commissioned in 2021 and now operates at its full capacity with an annual production rate of about 350 mln. KWh.

3.2 PROPOSED DEVELOPMENT

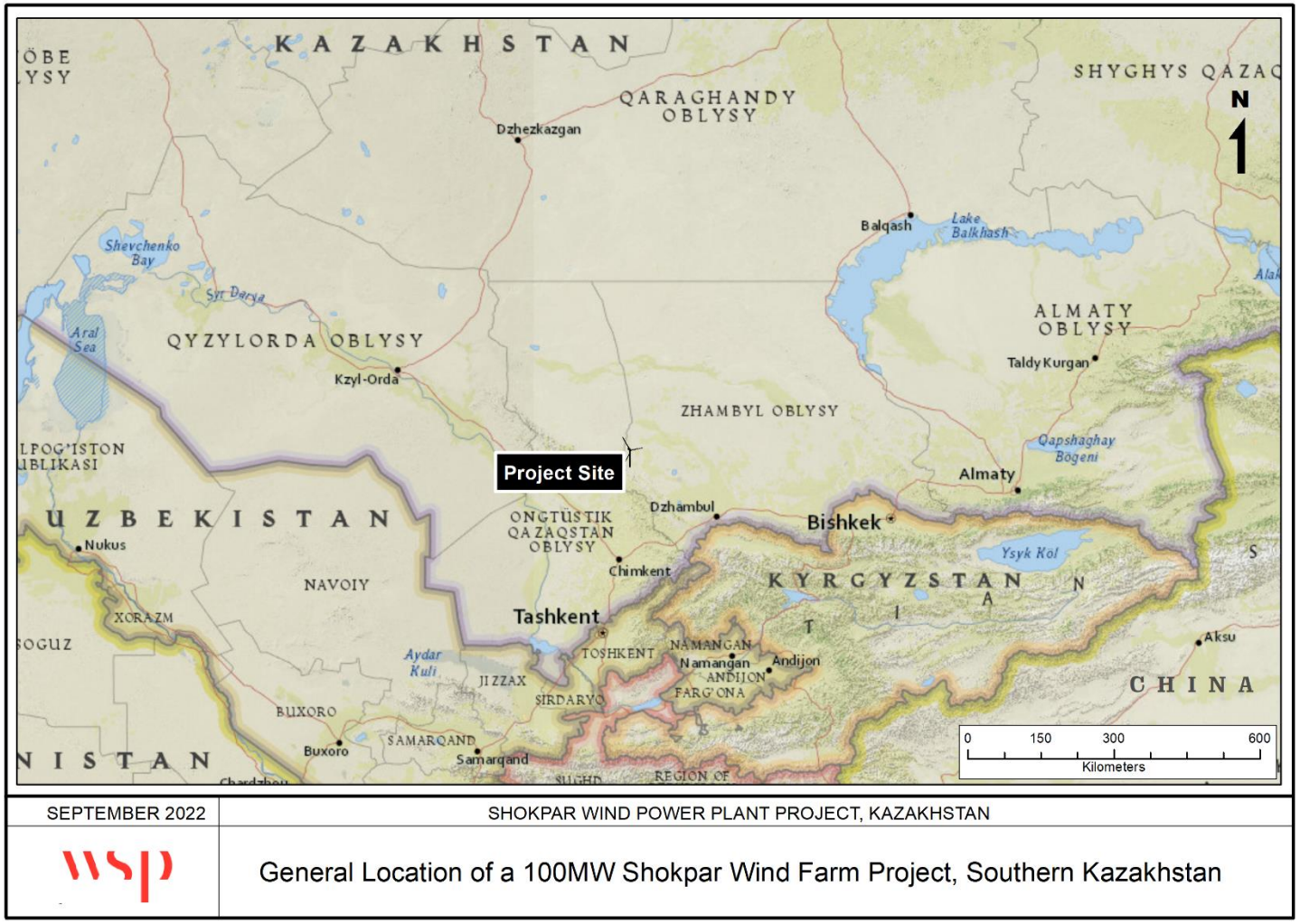
Quick Project facts:

- **Total installed capacity** – 100MW, comprising (22) 4.8MW EN-156 WTGs.
- **Wind farm lifespan** – 20 years.
- **The total area of land allocated for WPP** - 163.68 ha.
- **Total staff during WPP operation & maintenance (O&M)** – up to 25 staff, comprising power facility operators and other personnel on-site, as well as management staff located in HQ in Almaty.
- **Annual electricity production** ~ 350 mln. kWh.
- **Connection to the national grid, operated by KEGOC (state electricity grid operator)** – existing 220kV Opornaya substation.
- **Power Purchase Agreement (PPA)** - signed in 2019 for 15 years.

- **Length of construction stage** – 19 months. Construction works commenced June 2022; Est. commissioning date – January 2024. Approximately 160 construction workers are anticipated to be engaged on-site at construction peak times.

Main project components are presented in **Figure 3-2** and listed in Table 3-1 below.

Figure 3-1 - General Location of the Project Site



SEPTEMBER 2022	SHOKPAR WIND POWER PLANT PROJECT, KAZAKHSTAN
wsp	General Location of a 100MW Shokpar Wind Farm Project, Southern Kazakhstan

Figure 3-2 - Project Layout and Key Components (revised layout)

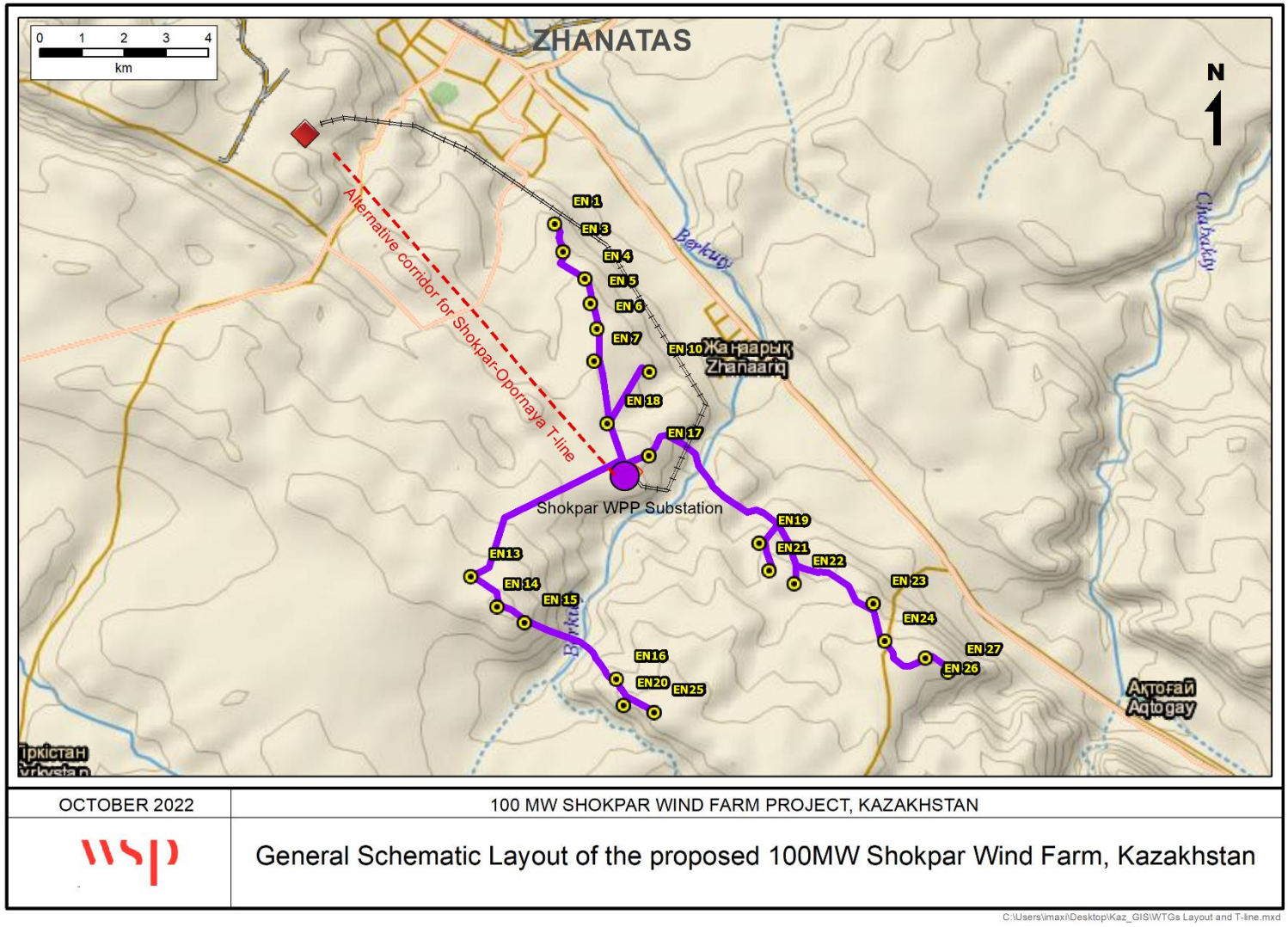


Table 3-1 - Key components of the proposed 100MW Shokpar WPP

<table>
<tr><th>No</th><th>Component/Facility</th><th>Description</th></tr>
<tr><td>1.</td><td>22 Envision (EN-156) WTGs @4.8MW; three of which will be limited to 2.93MW.</td><td>

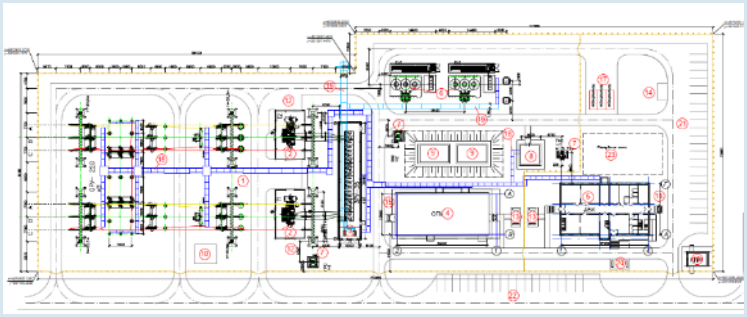

Each WTG will have a design capacity of 4.8MW; three WTGs will be limited to 2.93MW in order to meet the 100MW capacity limit as specified in the Power Purchase Agreement (PPA), which was signed between the Project Company and the state in 2019.

The EN-156/4.8 WTG has a rated power of 4.8 MW, 156m rotor diameter, and three blades, horizontal axis, upwind direction, variable speed and pitch control.

Main characteristics of EN-156/4.8 are provided in the table below:

<table>
<tr><th>Items</th><th>Parameter</th></tr>
<tr><td>Rated power</td><td>4800 kW</td></tr>
<tr><td>Rotor diameter</td><td>156 m</td></tr>
<tr><td>Swept area</td><td>19113 m^2</td></tr>
<tr><td>Design grade</td><td>IEC-S</td></tr>
<tr><td>Rated wind speed</td><td>12m/s</td></tr>
<tr><td>Turbulence density</td><td>C/0.12</td></tr>
<tr><td>Cut-in wind speed</td><td>3 m/s</td></tr>
<tr><td>Cut-out wind speed</td><td>25 m/s</td></tr>
<tr><td>Maximum wind speed (10min average)</td><td>42.5 m/s</td></tr>
<tr><td>Operating temperature range</td><td>Normal t type -10-40℃
Standard type -20-40℃
Cold type -30-40℃</td></tr>
<tr><td>Survival temperature range</td><td>Normal t type -20-50℃
Standard type -30-50℃
Cold type -40-50℃</td></tr>
<tr><td>Design life time</td><td>20y</td></tr>
</table>
The turbines will be placed on three major elevated flanks of the ridge on reinforced concrete foundations - about 30 m^2 square pad and ~3.5m deep foundations spaced at 400-600 meters from each other.
</td></tr>
<tr><td>2.</td><td>Medium Voltage undersurface cabling @35kV</td><td>

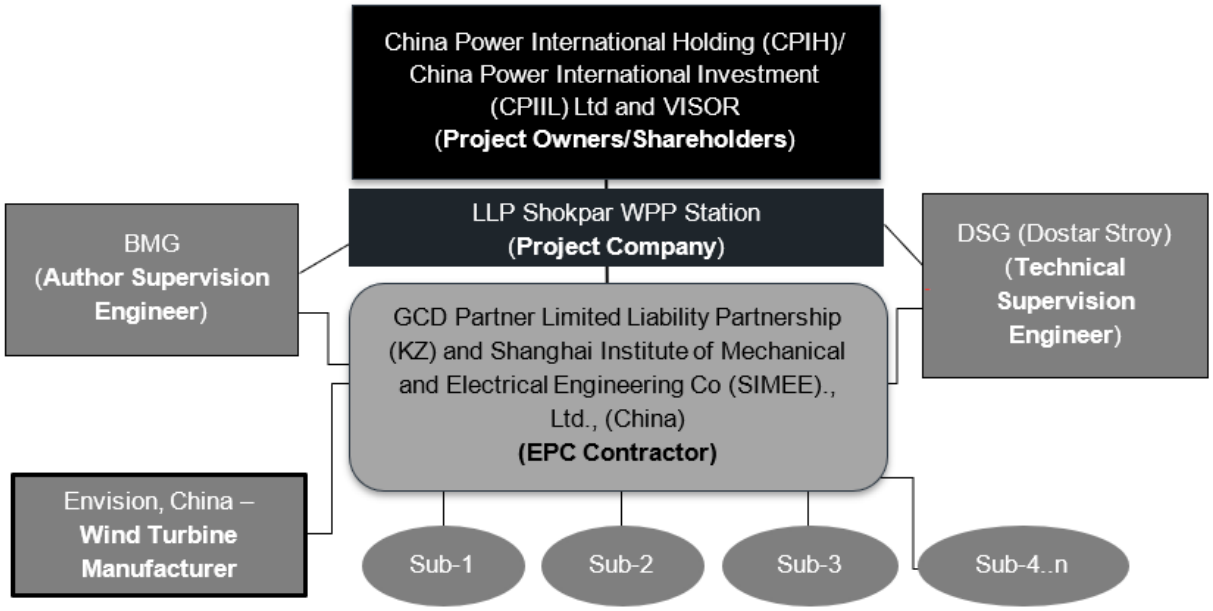
4 cable lines; mostly underground cabling. Overhead cable passages are foreseen to cross the stream valley at one location.
</td></tr>
</table>

No	Component/Facility	Description
		The 35kV alternate current powerlines will run along the 4.5m wide internal roads to the Shokpar Step-Up Substation from where a 110kV overhead t-line (see p.4 below) will carry electricity to the 220 kV Opornaya national grid substation.
3.	New Step-Up Substation 35/220kV including administrative facilities (admin and control building)	 The substation will comprise (i) an Outdoor Switchgear 220kV; (ii) two transformers; (iii) Enclosed Switchgear 35kV; (iv) control room and admin quarters; (v) three projector masts with lightning discharger; (vi) Fire-fighting pumping station; (vii) 2x100 m^3 water tanks; (viii) oil reservoir; (ix) Septic tank; (x) sanitary waste collection containers; (xi) Firefighting equipment stand; (xii) 3 storage containers; (xiii) resting area; (xiv) staff and visitors parking lot and entrance checkpoint.
4.	Overhead Transmission Line linking Shokpar Step-Up Substation with national grid (KEGOC 220kV Opornaya substation)	Double line (single pole) 220kV OHTL linking the WPP substation with the existing grid connection point called “Opornaya” substation. Currently two alternatives for the OHTL corridors are being considered (refer to Figure 3-2 above). The T-line will be about 11 km in length.
5.	Extension of KEGOC’s “Opornaya” 220kV substation	 Extension will include installing 220kV feeders (all within the already reserved area of the KEGOC substation).

3.3 PROJECT ORGANISATION

3.3.1 PROJECT ORGANISATION FOR MOBILISATION, CONSTRUCTION & COMMISSIONING

The diagram below shows the project organisation for the mobilisation, construction and commissioning stage.



Project Owners/Shareholders and Project Company. Shokpar Wind Power Station LLP (the Project Company) is a subsidiary of China Power International Holding (CPIH), a state-owned power utility company, which has a majority shareholder stake in the neighbouring to Shokpar operational Zhanatas wind farm project. CPIH is envisaged to own 63% in the Shokpar Project through its subsidiary in Hong Kong - China Power International Investment Ltd (CPIIL), which is targeting a purchase of 63% shares in the Netherlands-based Central Asia Wind Power B.V., currently owned by Visor International (VISOR) – altogether Project Shareholders. The Project is expected to be co-financed by AIIB (to be confirmed), who also financed previous project (Zhanatas WPP) and indicated their interest to participate in the new Project (Shokpar WPP).

EPC Contractor. EPC contract between GCD and Shanghai Institute of Mechanical and Electrical Engineering (SIMEE) and LLP Shokpar WPP was signed on 14 December 2021. The contract is based on the FIDIC Silver Book template and conditions. EPC Contractor (GCD and SIMEE) has full responsibility for procurement methods and contracting. GCD procures local services from local subcontractors, such as drinking water supply, waste collection and disposal, wastewater collection and disposal, internet and mobile network, electricity and others. Envision, China will be the Supplier of WTGs under the contract with SIMEE and will be fully responsible for supply and installation of all WTGs on-site. Security during site construction is contracted to a private security firm (4 guards are currently on duty). Video cameras (CCTV) and lighting across the construction site's perimeter have been installed. The site's entry is secured by a barrier.

Build Master Group (BMG) Ltd. a company registered in Kazakhstan and based in Nur-Sultan.The main role of BMG in Shokpar project will be providing necessary supervision over construction (the Author Supervision Engineer).

Dostar Story (DSG). As required by Kazakhstan's local legislation for construction sector, DSG will be technically supervising the construction of the Project, which mainly refers to regular (quaternary) construction site audits and check-ups for project technical compliance to the Project design documentation.

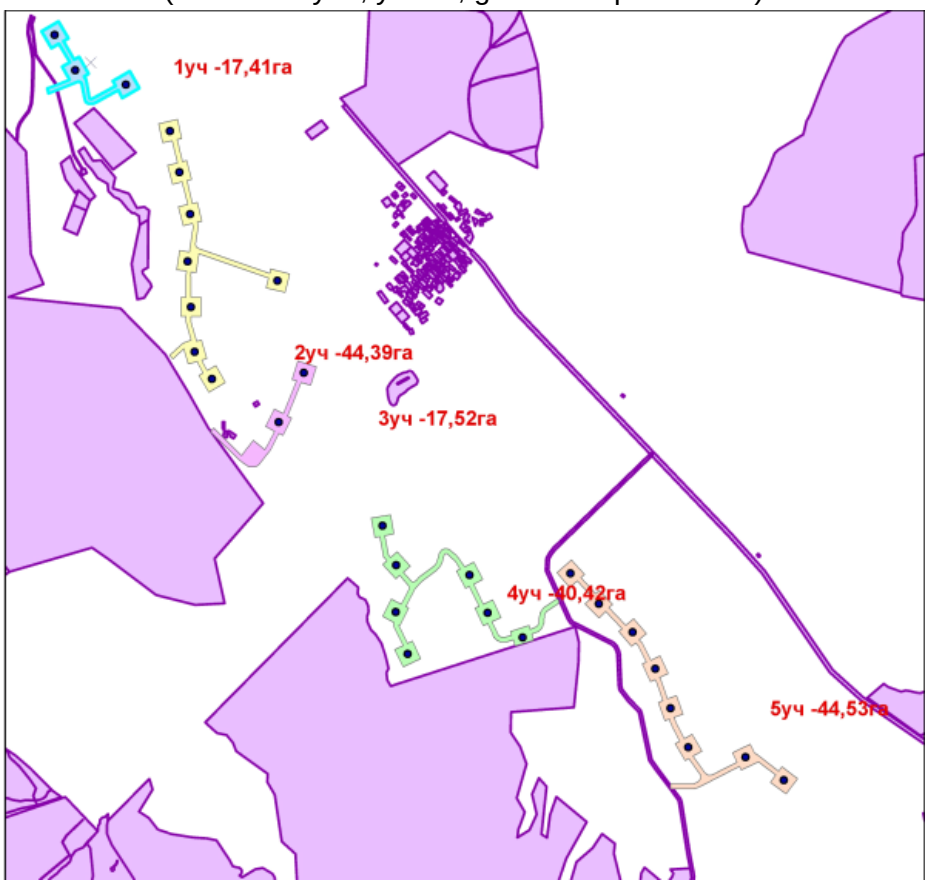
3.3.1.1 Land Allotments

The total land area acquired is 163.68 ha comprising five land allotments as shown in Figure 3-3. Land rights have been secured during the period of February-November, 2021 (land state acts obtained, land lease agreements with Akimat were signed for a period of 49 years). The intended purpose includes construction and operation of wind power stations, access roads. Land for high voltage (HV) overhead transmission line was secured via land easement. Three land easement agreements have been signed for construction of a HV 220kV transmission line to connect new step-up 35/220kV Shokpar substation with the 220kV KEGOC "Opornaya" substation.

- November, 2021 – agreement with Mr Dulygaev (local herder) to lease 1.077 ha of pasture land for construction of 220kV transmission line (monthly lease payment of ~63k KZT or $135)
- November, 2021 – agreement with Mr Amangeldyev (local herder/farmer) to use 1.077 ha of pasture land for construction of 220kV transmission line (monthly lease payment of ~63k KZT or $135)
- November, 2021 – agreement with LLC KazPhosphate to use 2.648 ha of land for the transmission line. The monthly lease payment as stipulated in the agreement is 100k KZT tenge (~$200)

As reported, no complaints were registered with regard to land lease/land easement agreements.

Figure 3-3 - Five land allotments secured for Shokpar Wind Power Plant (old layout)
(shown in cyan, yellow, green and pink colors)



For the revised wind farm layout (Figure 3-2), additional new land allotments will be required. As reported, the Project Developer has formally submitted a land use request to the Zhanatas Akimat; the Akimat confirmed that the requested lands are currently under Akimat's management and are not leased to any third parties. Following the requirements of local legislation, Land Management Projects for the intended land use purposes (i.e. for wind power plant) have been prepared by a designated state authority "NPCZem" for further Akimat's approval by land commission. As of October, 2022, the documentation package was submitted and Akimat's special land commission issued a formal approval for land allotment and use by Shokpar WPP.

3.3.1.2 Electricity Supply

Electricity to the construction site is sourced from the Kazfosphate LLC electrical network – the neighbouring mining company. For this, GCD developed a design project for a 6kV 1.33km long transmission line which is to link the construction site and a switchyard belonging to Kazphosphate. In May, 2022, GCD signed an electricity purchase agreement with Kazphosphate.

3.3.1.3 Construction activities and arrangements

Construction activities commenced on-site in July 2022. EPC contractor has cleared the land for the construction camp, upgraded the primary construction site access road and completed erection of some temporary facilities, including living quarters for construction workers,

administrative building, canteen, laundry rooms, storage hangars and area for rebar workshop, welding workshop, areas for warehouses, and a parking lot for heavy construction equipment (refer to photographs in **APPENDIX A:** *Appendices A.3 through A.5*).

Reportedly, 53 construction workers are currently engaged in construction activities on-site, including EPC Contractor HSE Manager. Approximately 160 construction workers are anticipated to be engaged on-site at construction peak times. Construction phase is scheduled for 19 months with the commissioning date January 2024.

The primary source of drinking water supply at the construction site is bottled water. In order to meet the demand of the construction site in sanitary and technical water, in 2021, GCD engaged a Kazakh company BMG to develop a design project for a 22cm diameter under surface water pipeline connecting the construction camp with the existing groundwater withdrawal well located in some 1.6 km south-east of construction camp on the right floodplain of Berkytti stream; as reported, the groundwater well belongs to Kazphosphate. The project is being implemented.

All wastewater at construction camp is collected in septic tanks for further collection and disposal by a local certified wastewater disposal company “Zhanatas-Su Zhilu” based in the town of Zhanatas. GCD signed agreement with the company for the services.

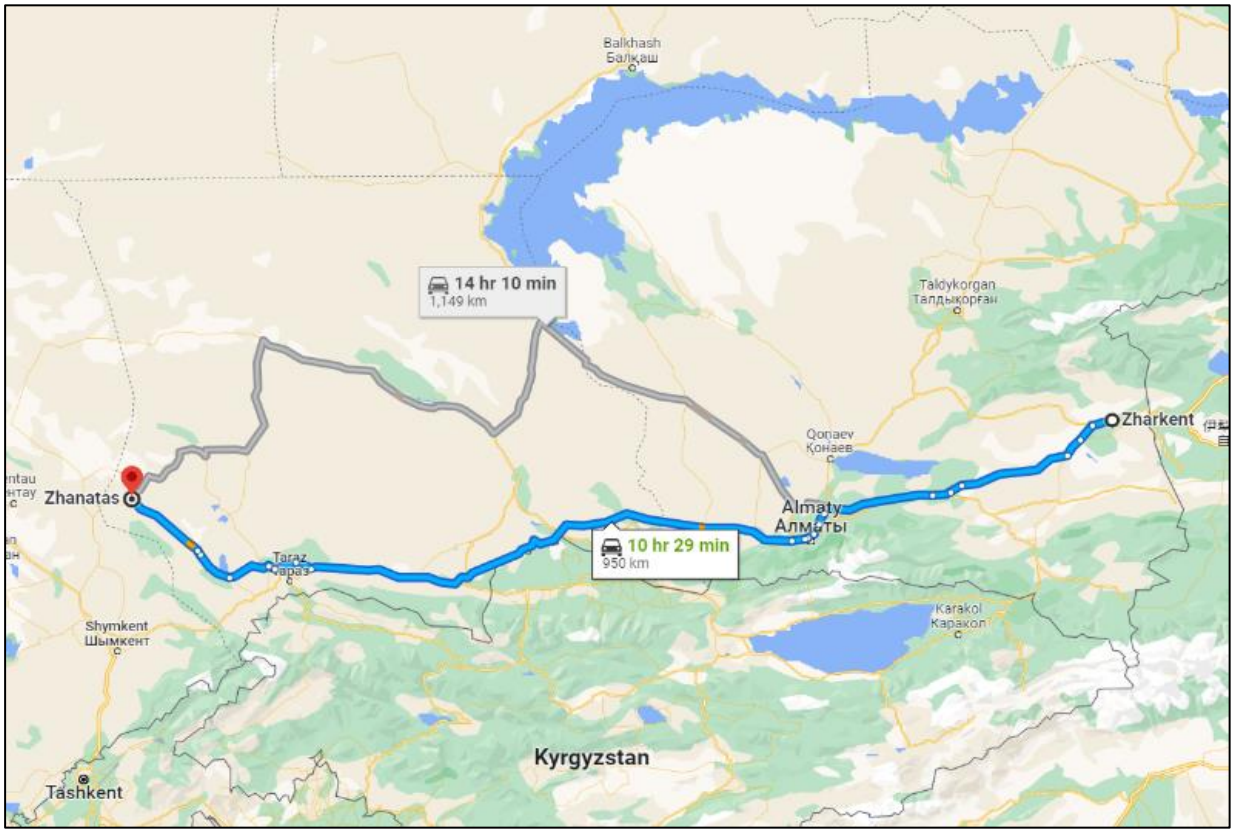
Construction and general waste is temporarily collected in containers in a waste collection designated area on-site. GCD signed a contracts with a local certified waste collection and disposal company based in Zhanatas.

3.3.1.4 Delivery of WTGs

The oversize parts like towers, nacelles and blades will be transported by the so-called “New Silk Way” highway A-2, which runs all the way from the Chinese border with Kazakhstan at the city of Khorgos, passing by Almaty and Taras to the town of Zhanatas (by regional highways R-43 and R-44) (Figure 3-4).

As reported, Envision (the Chinese WTG manufacturer) will be transporting parts of WTGs from its two locations in China to the China-Kazakhstan border, where another sub-contractor, Kazakh logistics and transportation company called M-Nefte Service will be responsible for in-country delivery of loads from the boundary to the site. M-Nefte Service was engaged in deliveries of all WTGs for Zhanatas wind park. Reportedly, the deliveries of oversize items will involve usage of special trucks supplied with police convoys.

Figure 3-4 - Approximate transport route for oversize and heavy weights from China (e.g. WTGs etc) *(sourced from GoogleMaps)*



3.3.2 OPERATION & MAINTENANCE (O&M)

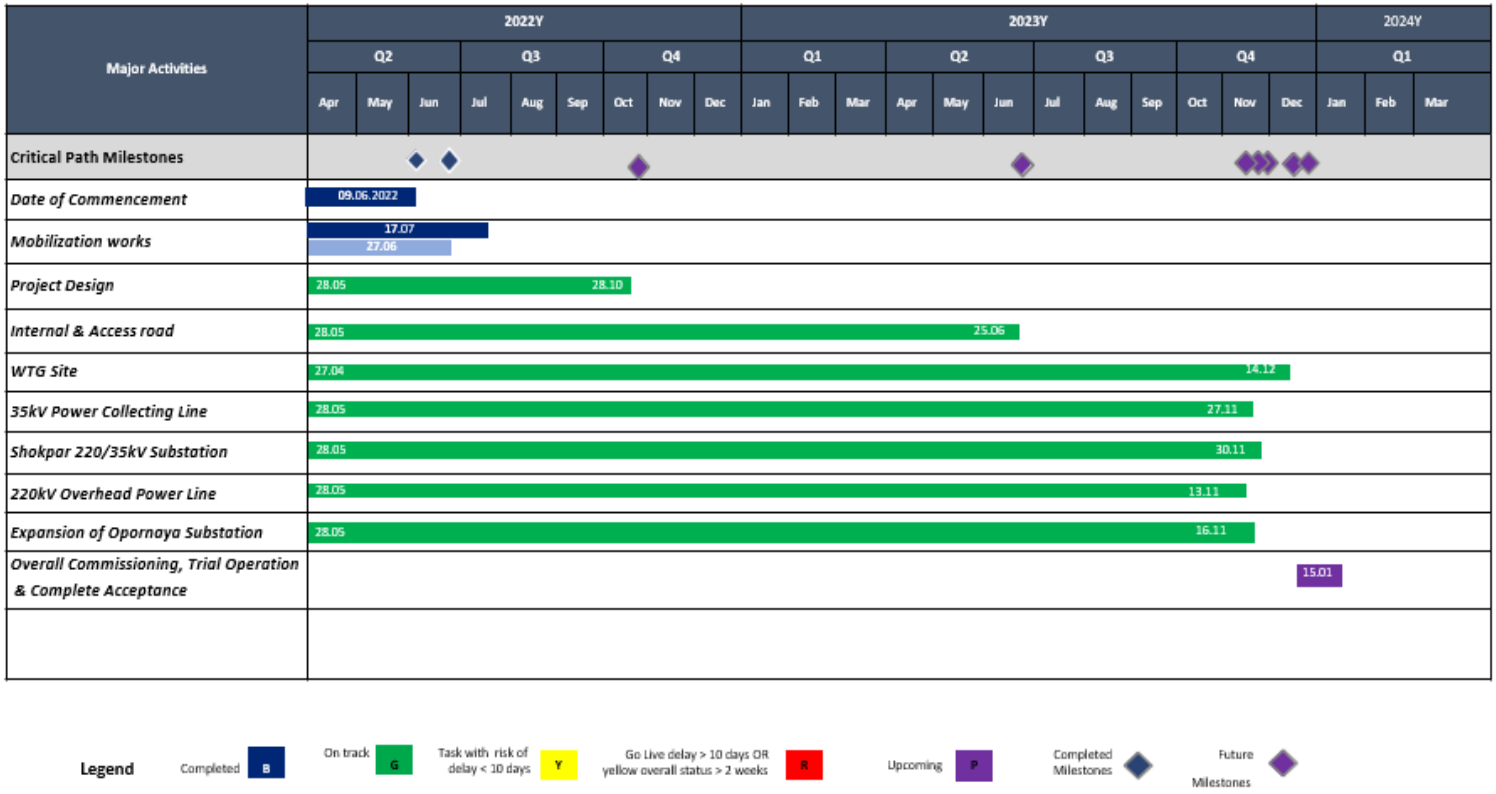
Shokpar Wind Power Station LLP will be operating and maintaining the wind park facility. The overall lifespan of the wind farm is set to be about 25 years. It is expected that the wind farm will employ up to 25 staff, comprising power facility operators and other personnel on-site, as well as management staff located in the headquarters (HQ) in Almaty. As reported, Envision is to provide a 2 year warranty since the wind park facility commission date. After the two year period, Shokpar will likely to further extend the warranty with Envision for maintenance.

3.4 PROJECT SCHEDULE

As mentioned earlier, the Project is currently at the early construction phase; The construction activities commenced in June 2022. The construction phase is scheduled for 19 months with the wind park commissioning to take place in January 2024.

The overall Project Road Map (to date) is provided in **Figure 3-5** below:

Figure 3-5 - Shokpar WPP Project Construction Schedule by Major Activities (as of August, 2022)



4 LENDER REQUIREMENTS & PROJECT CHARACTERISATION

4.1 LENDER ENVIRONMENTAL & SOCIAL POLICY REQUIREMENTS

Lender requirements comprise the EBRD ESP[3] 2019 and PRs.

The EBRD PRs comprise:

- PR1: Assessment and Management of Environmental and Social Risks and Impacts;
- PR2: Labour and Working Conditions;
- PR3: Resource Efficiency and Pollution Prevention and Control;
- PR4: Health, Safety and Security;
- PR5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- PR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- PR7: Indigenous Peoples;
- PR8: Cultural Heritage; and
- PR10: Information Disclosure and Stakeholder Engagement.

It is assumed in the PRs that all elements of the Project, including associated infrastructure (Associated Facilities), are required to meet national environmental, social, health and safety laws and regulations, including national obligations under international law that apply to the Project, as well as the requirements of the PRs.

The Project will be structured to meet relevant substantive European Union (EU) Environmental Standards including (but not limited to) the pertinent requirements of the EIA Directive (as updated in 2014), the Birds Directive and the Habitat Directive. When the host country regulations differ from EU substantive standards, the Project is required to meet whichever is more stringent**.**

Public consultation and stakeholder engagement is required to be tailored for the Project, meaningful, and to allow for disclosure of information and public participation in decision-making (in accordance with PR10).

The Project will include all reasonable measures to avoid, minimise or mitigate any adverse change in E&S conditions and impacts on public health and safety, especially with respect to any disproportionate impacts on any group of people as a result of their gender, age, ethnicity, disability, socio-economic status and/or any other personal characteristic.

4.2 PROJECT CHARACTERISATION

Project Categorisation has been undertaken by EBRD in order to determine the nature and level of environmental and social investigations, information disclosure and stakeholder engagement

[3] In the context of this assessment, social refers to those issues which pertain to project affected people and their communities and workers and related to socioeconomic status, vulnerability, gender identity, human rights, sexual orientation, cultural heritage, labour and working conditions, health and safety and participation in decision making. (EBRD, Environmental and Social Policy, 2019).

requirements. Project Characterisation is commensurate with the nature, location, sensitivity and scale of the Project, and the significance of its potential adverse future environmental and social impacts (**Table 4-1**).

EBRD pre-categorised the Project as *Category B* in accordance with the EBRD ESP 2019. The table below provides an overview of the EBRD Project categorisation framework.

Table 4-1 - Summary of EBRD Project Categorisation Descriptions

Category	Description	Project Assignment
Category A	Project may result in potentially significant adverse future environmental and/or social impacts which, at the time of categorisation, cannot be readily identified or assessed, and which, therefore, require formalised and participatory environmental and social impact assessment process.	X
Category B	Project may result in adverse future environmental and/or social impacts which are typically site-specific, and/or readily identified and addressed through mitigation measures. Environmental and social appraisal requirements may vary depending on the project and will be determined by EBRD on a case-by-case basis.	✓
Category C	Project is likely to have minimal or no potential adverse future environmental and/or social impacts, and can readily be addressed through limited environmental and social appraisal.	X

WSP Comment:

WSP agrees with the categorisation of this Project. WSP confirms that the Project Developer has completed a national EIA, which was successfully approved by local authorities (expertise) and formal environmental permit was issued. The EIA report was provided to WSP for a review and gap analysis (detailed in Section 7.1 of this report).

5 NATIONAL LEGISLATIVE REQUIREMENTS APPLICABLE TO THE PROJECT

5.1 LEGISLATIVE REQUIREMENTS OF THE REPUBLIC OF KAZAKHSTAN

The Republic of Kazakhstan is a unitary state with a parliamentary government system, with an elected president as head of state. The President of the Republic of Kazakhstan is the highest political official, who determines the main directions of the domestic and foreign policy of the country. The Parliament of the Republic of Kazakhstan performs legislative functions and consists of two Chambers acting permanently: the Senate and the Majilis. The Government is appointed by the President and accountable to the Parliament. The Government exercises the executive power of the Republic of Kazakhstan heads the system of executive bodies and manages their activities. The Government includes members of the Government – the Prime Minister, his deputies, ministers, and other officials. The ministries constitute the structure of the Government.

The ministries usually have territorial departments which are in dual subordination: corresponding ministry by vertical and local administration horizontally (for example, education, finance divisions and etc.).

The country is divided into 17 administrative regions (oblasts) and has 3 cities of republican significance (Almaty, Nur-Sultan, and Shymkent). Each is headed by an Akim (Regional Governor) appointed by the President. Municipal Akims are appointed by Regional Akims.

Legislative and other normative legal acts of Kazakhstan can be categorized as constitutional, administrative, civil, criminal, labour-related, tax, customs, and other material or procedural laws.

A strict hierarchy of the sources of law includes:

- The Constitution of the Republic of Kazakhstan;
- Constitutional laws and decrees;
- International treaties;
- Codes;
- Ordinary laws; and
- Other regulations, obligations, normative decrees, and so forth.

The industry sectors are also regulated by other laws and regulations, including the Tax Code, the Land Code, the Labour Code, the Environment Code, the National Security Law, and procurement rules.

5.1.1 BACKGROUND ON E&S LEGISLATION DEVELOPMENT IN KAZAKHSTAN

The development of Kazakhstan's environmental and social (E&S) regulatory system began right after Kazakhstan declared independence in 1991.

The new Environmental Code of the Republic of Kazakhstan (No 400-VI ЗРК) was adopted on 2 January 2021 to replace the 2007 Environmental Code. Kazakhstan introduced considerable changes in the 2021 Environmental Code, when compared with the 2007 edition of the Code. Schematically the development process and key milestones describing the main achievements in the development of national E&S legislation are shown in **Figure 5-1**. Some details for each stage are provided in the text below the diagram.

Figure 5-1 - Kazakhstan's E&S Legislation System Development



5.1.2 CURRENT E&S LEGISLATION IN KAZAKHSTAN

The current E&S legislation system in Kazakhstan is based on the following principles (as introduced in 2021 New Environmental Code):

1. **Prevention principle:** any activity that causes or may cause environmental pollution, degradation of the natural environment, environmental damage, and harm to human life and (or) health shall be allowed if all necessary measures to prevent being taken at the source of the environmental impact.
2. **Remedial principle:** environmental damage occurred must be remedied in full. If it is impossible to fully remedy the inflicted environmental damage, its implications shall be minimized as much as possible given the current level of scientific and technological development.
3. **Precautionary principle:** if an activity creates a risk of environmental damage with significant and irreversible implications for the natural environment and (or) its individual components or harm to human life and (or) health, effective and proportionate measures shall be taken to prevent impacts.
4. **Proportionality principle:** environmental protection measures are provided and sufficient for achieving the goal and objectives of the environmental legislation of the Republic of Kazakhstan.
5. **'Polluter pays' principle**: a party whose activities cause or may cause environmental pollution, degradation of the natural environment, environmental damage in any form or harm to human life and (or) health shall bear all costs of compliance with the requirements under the environmental legislation of the Republic of Kazakhstan to prevent and control negative implications of their activities, including the elimination of caused environmental damage in line with the remedial principle.
6. **Sustainable development principle:** Nature and its resources constitute the wealth of the Republic of Kazakhstan, and their use shall be sustainable. The State ensures the balanced and rational management of natural resources for the benefit of present and future generations. Environmental decision-making shall prioritize the conservation of natural ecological systems and ensure their sustainable functioning, water conservation, energy conservation, and energy efficiency, reducing the consumption of non-renewable energy and raw material resources, using renewable energy sources, minimizing waste generation, and using it as secondary resources.
7. **Integration principle:** the state policy of the Republic of Kazakhstan, it is underlined that all spheres of economic and social activity are subject to seeking a balance between the socio-economic development and the need to ensure the ecological foundations of sustainable development of the Republic of Kazakhstan.
8. **Principle of environmental information accessibility:** the State guided by international treaties of the Republic of Kazakhstan ensures the public right of access to environmental information.

9. **Principle of public participation:** Public participation in decision-making on matters related to environmental protection and sustainable development of the Republic of Kazakhstan is ensured from an early stage, when all project development alternatives are open for consideration, and when effective public participation can be ensured. State bodies and officials ensure the publicity of planned decision-making with the possible environmental impact on terms that allow the public to express its views to be taken into account in the decision-making process.
10. **Ecosystem approach principle:** integrity and natural interconnections of natural ecological systems, living organisms, natural landscapes, other natural, natural-anthropogenic and anthropogenic objects, and the need to preserve the natural balance of the natural environment shall be taken into account during planning phase of a prospective development. Upon that, priority should be given to the conservation of natural landscapes, natural complexes, and biodiversity, to the conservation and sustainable functioning of natural ecological systems, and to avoiding negative impacts on the services provided by such ecological systems.

Individuals and legal entities that use the environment (for example, subsoil users or water users) are subject to state environmental control. The Committee of Environmental Regulation and Control carries out such control by organizing state environmental inspections. Various aspects of business activities are subject to environmental requirements. For example, a positive state environmental expert evaluation must be obtained in relation to projects having environmental impacts before the projects are commissioned. Enterprises engaged in environmentally hazardous business activities are subject to the mandatory requirement of obtaining environmental insurance covering potential damage as a result of environmental contamination. All individuals and legal entities that produce discharges into the air, sewage and any solid consumption or industrial waste must obtain an Environmental Permit from the Committee of environmental regulation and control or its local subdivisions.

5.1.3 NATIONAL ADMINISTRATIVE FRAMEWORK

Kazakhstan's governmental structure and administrative framework went through a considerable re-structuring that resulted in 18 ministries and about 40 committees. For the regulation of metallurgic sector and mining, the key ministries responsible for the implementation of E&S legislation are the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan, the Ministry of Energy, the Ministry of National Economy, the Ministry of Labor and Social Protection of Population, the Ministry of Industry and Infrastructural Development and Ministry of agriculture of RK.

With the new organizational structure, all issues associated with environmental conservation, compliance to the *Environmental Code (2021)*, and management across all industry sectors are now with the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan and has 5 Committees:

- Committee for Fisheries;
- Committee of Geology;
- Forestry and Wildlife Committee;
- Committee on Water Resources; and

- Committee of Environmental Regulation and Control.

The Committee for Environmental Regulation and Control is engaged in improving the quality of the environment, ensuring environmental safety, preserving natural resources and achieving a favorable level of environmentally sustainable development of society; improving the system of state regulation in the field of environmental protection and state environmental control within its competence; organization, coordination, regulation of emissions and implementation of the issuance of environmental permits; implementation of state environmental control.

The Committee for Environmental Regulation and Control of the Ministry of Ecology, Geology, and Natural Resources of the Republic of Kazakhstan has a total of 16 territorial branches (departments) that are in charge of environmental regulation and control in their respective regions (oblasts). Each territorial branch operates through delegated power from the head Ministry in the capital.

The Akimats, municipality, or local state administration are also involved in the Environmental activities of the Enterprises/developers (for example, developments of environmental road maps, stakeholder engagement, environmental action plans and etc.).

5.1.4 KEY LAWS RELATED TO THE PROJECT

New Environmental Code (2021). The environmental legislation of the Republic of Kazakhstan is based on the Constitution of the Republic of Kazakhstan and consists of the New Environmental Code[2] and other laws and regulations of the Republic of Kazakhstan.

The *Environmental Code* of the Republic of Kazakhstan, dated 2 January 2021, is aimed at eliminating the shortcomings of the old code (2007) revealed in the process of its application and also introducing the best international experience of the OECD countries, and consolidating the missing mechanisms for Kazakhstan to perform its international environmental obligations, ensuring public participation in environmental decision making by the State.

The *Environmental Code* includes a number of key requirements directly applicable to the Project activities, including issues associated with Integrated Environmental Permit; new requirements for all stages of OVOS processes; the new waste classification and waste management; full involvement with stakeholders during the OVOS process; toughening administrative liability for environmental offenses; compliance to international agreements, and conventions ratified by the Republic of Kazakhstan.

Specific regulations drafted by the Ministry of Ecology, Geology, and Natural Resources of the Republic of Kazakhstan, the Committee for Environmental Regulation and Control of the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan and approved by Parliament set specific technical standards and rules. Stricter or additional standards may be applied within a project's individual environmental permits or other legal agreements.

Additionally, the *Environmental Code* sets out the process for environmental appraisal and permitting, and more specifically, it defines the environmental impact assessment (OVOS) procedure. The OVOS sets the basis for the permitting process and the OVOS document establishes an estimate of all air pollutant emission loads by source as well as a maximum limit of effluent discharges into receiving water bodies. Once an OVOS document is completed and approved by the local authorities, the permitting process is started, and permits are issued in

accordance with levels set out by law and in the OVOS.

Also, the *Environmental Code* defines management aspects associated with water, air, land, waste, and E&S management practices.

The *Environmental Code* has a special Chapter 20 State regulation regarding greenhouse gas (GHG) emissions and Chapter 21 ozone-depleting substances, which establishes the main principles and state management for the protection of climate and the ozone layer of the Earth, management plans, maximum permissible GHG emissions, and regulation on the consumption of ozone-depleting substances, the state inventory of emissions sources; state mapping of consumption of ozone-depleting substances, and the state inspection requirements.

With the adoption of the Code, associated changes have been introduced into the *Code of Administrative Offences* – i.e. tightening administrative liability for violations of the Code's provisions. Amendments have also been introduced to several other laws and codes, namely the *Entrepreneurial Code*, *Tax Code, Criminal Code, Forestry Code, Water Code, Land Code*, *Law on Civil Protection*, *Administrative Law*, *Law on Development of Agro-Industrial Complex and Rural areas, Law on Mandatory Environmental Insurance* and some others.

The Land Code. The main regulatory legal act regulating land relations is the *Land Code (20* June 2003 No. 442-II, amended as of 7 March 2022). The land legislation of the Republic of Kazakhstan is based on the key principles, such as integrity, inviolability, and inalienability of the territory of the Republic of Kazakhstan; conservation of land as a natural resource, and the basis of life and activity of the people of the Republic of Kazakhstan; protection and rational use of land; ensuring environmental safety; targeted use of land; priority of agricultural land; providing information about the state of land and its availability; state support of measures for the use and protection of land; prevention of damage to land or elimination of its consequences; payment for the use of land.

The *Land Code* mainly describes the legal requirements for allocation, provision, and utilization of land for different uses. According to Clause 1 of the Land Code, land in Kazakhstan is divided into a variety of categories based on use. The *Land Code* regulates the legal procedure for changing land use categories. The law distinguishes the competencies of the state authorities regarding land management matters, together with the rights, responsibilities and protection of the rights of farmers and other land users. The *Code* requires owners/users of land, regardless of whether it is state or privately owned, to maintain sustainable business by not harming public health or the environment; to sustainably use the land; to minimize or avoid pollution of the land or cause deterioration to soil fertility; to conserve topsoil and to rehabilitate disturbed land.

The *Land Code* allows state expropriation of land for "public needs" or in cases if the land is not being used as per its designated land use.

The Water Code. The *Water Code* (9 July 2003, № 481-IIб, amended as 7 March 2022) of the Republic of Kazakhstan specifies the competencies of the state authorities regarding water resources management. It sets out an overall procedure for implementing all water conservation activities, including fees for water use/abstraction and other aspects. *The Water Code* establishes main legal conditions for a variety of water uses. It provides key legal requirements with respect to water conservation, including the protection of water from contamination and depletion.

The Code is also intended to settle the issues related to the following topics:

- Public policy in the area of water fund use and protection;
- Regulation of water relations;
- Ensuring the legal framework for support and development of sustainable water use and protection, including from natural and man-caused pollution by harmful chemicals and types of pollution;
- Definition of basic principles and directions of water fund use and protection;
- Regulation of relations in the area of investigation, exploration, rational and integrated use, and protection of water resources and hydraulic structures; and
- Responsibility of state agencies, and physical and legal entities for the implementation of measures to prevent and liquidate negative water effects from floods, water-logging, destruction of banks, protection dams, and other structures, that refer to emergencies of natural and anthropogenic nature.

Similar to the Environment Code, *the Water Code* defines the permitting process (permits for water abstraction, water use, and effluent discharges into natural water bodies). The permitting process is under the responsibility of the Water Resources Committee of the Ministry of Agriculture of RK. A number of provisions and regulations related to water use aspects are included in the Environmental Code, Land and Forest Codes, too. In particular, the Land Code contains a specific chapter on lands of water fund, which includes lands under water bodies, hydraulic/hydrologic and other water-related structures and facilities, as well as water-protection zones/buffers, and sanitary protection zones of water withdrawal facilities for drinking water supply. The provisions of the Land Code regulate specific issues related to ownership of these lands, the procedure of their allocation and use, restrictions for their withdrawal, etc.

As reported, in 2023, the Ministry of Ecology, Geology and Natural Resources of Kazakhstan is planning to release a new Water Code. As a starting point, the ministry prepared a regulatory policy advisory document and initiated a public and stakeholders hearing/discussion procedure on it. A working group has been created with the participation of the panel experts. The working group, along with the ministry have started developing the concept of a new Water Code. The main provisions of *the Water Code* in the new edition are anticipated to address the following key and important aspects:

- Preservation of the country's water resource potential;
- Determination of mechanisms that encourage water users to use water-saving technologies (i.e. efficient water use and water management);
- Creating a tariff setting model that encourages the use of public-private partnerships (PPPs) to support the development of water management infrastructure;
- Digitalization of monitoring, accounting, and forecasting of the water resource potential of Kazakhstan, as well as increasing the role of science in water resources management; and
- Harmonization of national legislation with the principles of international law.

As reported, the draft of the new Water Code is expected to be submitted to the Majilis of the Parliament in 2023.

The Code of Administrative Offences and the Criminal Code establish liability for offenses, violations in areas of environmental protection, and natural resources (including water) use.

The Labour Code. The Labour Code[4] regulates the labour relations between the employer and the employee. The Labour Code governs the terms and conditions of employment such as working hours, holidays and rest periods, wages, overtime, employment relationships, including relations of residents and non-residents in the territory of Kazakhstan.

The main principles of labor legislation of the Republic of Kazakhstan are:

- impermissibility of restriction of human and civil rights in labour area;
- freedom of work;
- prohibition of discrimination in the labour area, forced labour, and the worst forms of child labour;
- ensuring the right to work conditions that meet requirements of safety and hygiene;
- the priority of life and health of the employee;
- ensuring the right to remuneration for work that is not lower than the minimum wage;
- ensuring the right to rest;
- equality of rights and opportunities for workers;
- ensuring the right of employees and employers to unite to protect their rights and interests;
- assistance of the state in strengthening and developing social partnership;
- state regulation of labour safety and protection issues.

The Labour Law pays special attention to safety and labour protection. The State labour authority will develop and approve several provisions and rules related to labor safety and protection, based on which companies will need to implement a labor protection management system and monitor its functioning. Safety and health conditions in industries are regulated by the Labour Code and approved State programs, which also cover public sector employers. Employers must comply with regulations and safety and health standards. Employers also have a general duty to provide their employees with work and a workplace free from recognized, serious hazards. The Industrial Safety Committee of the Ministry of Emergency Situations of the Republic of Kazakhstan enforces the law through workplace inspections and investigations.

Under the Labour Code, employers must:

- take measures to prevent risks at work and in technological processes;
- conduct training and testing of employees to ensure they are aware of safety and labour protection measures, and provide them with documents on the safe conduct of production and work procedures, at their own expense;
- provide employees with overalls and safety shoes, preventive treatment means, detergents and disinfectants, a first-aid kit, milk or equivalent food products, and special products for dietary (medical and preventive) nutrition, and personal and collective protective equipment, in accordance with the standards established by the labour authorities;
- register, record and analyse accidents related to work activities and occupational diseases;

[4] *Labour Code of Republic of Kazakhstan* (Kazakhstan) Law No 414-V, 23 November 2015, amended 30 December 2021.

- ensure investigation of work-related accidents;
- provide accident insurance for employees for accidents that occur during the performance of job duties;
- at their own expense, ensure obligatory medical examinations and pre-shift medical examination for employees as set out by Kazakhstan's laws; and
- perform other duties to ensure safety and labour protection envisaged by Kazakhstan laws.

The Law on Civil Protection № 188-V dated 11 April 2014, amended 24 November 2021, establishes which industrial facilities are hazardous. They include enterprises and structures in which mining, exploration, drilling, blasting, production and processing of minerals or underground works are carried out.

The Criminal Code and Administrative Violations Code. Legal entities and individuals may be subject to civil, administrative, and criminal liability for violation of environmental requirements. Environmental criminal offenses related to environmental protection, use of natural resources are reflected in Section 13 of *the Criminal Code*[5] of Kazakhstan. Administrative violations related to environmental protection and the use of natural resources are listed in Section 21 of *the Administrative Violations Code*, № 235-V, 5 July 2014, amended 2 March 2022, and include fines, administrative charges, and other penalties a subsoil user may be liable for in case of non-compliance or violations of local environmental requirements.

If breach of the requirements causes damage to the environment, human life or health, the property of an individual, legal entity or state, then the company (developer) that committed the breach must compensate the damages caused in civil proceedings.

5.1.5 NATIONAL EIA PROCESS AND PERMITTING

The Environmental Impact Assessment (EIA) or OVOS process in Kazakhstan is defined as the process of identifying, studying, describing and evaluating the possible direct and indirect significant impacts of the implementation of the planned and ongoing activities or the document being developed on the environment. The purpose of the environmental assessment is to prepare the materials necessary for making decisions that meet the goals and objectives of the environmental legislation of the Republic of Kazakhstan on the implementation of the planned activity or the document being developed.

Environmental Impact Assessment (EIA) is implemented in accordance with the requirements of *the Environmental Code* of the Republic of Kazakhstan, and Instructions for organizing and conducting an environmental assessment. No 280, dated July 30, 2021.

The Environmental Assessment (EA) of a development can be carried out in the form of:

- *Strategic Environmental Assessment (SEA)*

[5] *The Criminal Code* (Kazakhstan) Law No 226-V, 3 July 2014, amended 2 March 2022.

- *Environmental Impact Assessment (EIA)*
- *Transboundary Impact Assessments (TIA)*
- *Environmental Assessment in accordance with the simplified procedure (screening EIA).*

Strategic Environmental Assessment (SEA) is carried out for the implementation of state programs in industries, programs for the development of territories, and master plans for settlements in order to study, identify and evaluate possible significant environmental impacts. For example, documents aimed at the development of agriculture and forestry, fisheries, energy, industry (including exploration and mining), transport, waste management, water management, telecommunications, tourism, and urban and rural development planning are subject to mandatory strategic environmental assessment.

Environmental Impact Assessment (EIA) is the process of identifying, studying, and evaluating possible significant impacts on the environment during the implementation of the proposed activity. Namely, the activities of individuals and legal entities related to the construction and further operation of production facilities, including the conduct of subsoil use operations, as well as the introduction of significant changes in such activities (increasing the volume or capacity of production, increasing the amount or type of natural resources used, fuel or raw materials, increasing the area of disturbed lands: changing technologies, etc.).

Assessment of transboundary impacts - the process of identifying, studying, describing and evaluating, on the basis of appropriate studies, possible significant negative impacts, in an area under the jurisdiction of one state (affected party), from a source that is associated with the implementation of a plan, program or proposed activity and is physically located under the jurisdiction of another state (party of origin).

Environmental Assessment in accordance with a simplified procedure (screening EIA) is carried out for planned and ongoing activities that are not subject to mandatory environmental impact assessment, when:

1) Development of draft emission standards for objects of categories I and II; and

2) Development of the section "Environmental Protection" as part of the project documentation (Project TEO or Project Feasibility Study) for the proposed activity and in the preparation of the declaration on the impact on the environment.

A typical National EIA Process includes the following stages:

A. Introducing proposed activity and screening the impacts (Scoping Study);
B. Defining the scope of the environmental impact assessment;
C. Preparation of a report on potential impacts;
D. Assessment of the quality of the report on possible impacts (EIA report);
E. Issuance of a conclusion based on the results of the environmental impact assessment (completed by local Authorities); and
F. Post-project analysis (post-project monitoring) of the actual impacts during the implementation of the proposed activity.

Draft EIA Public Hearings

The draft EIA is subject to public hearings with the participation of representatives of interested state bodies and public. The authorized body in the field of environmental protection, within two working days after receiving the documents, uploads the draft EIA report on the official Internet resource along with the announcement on holding public hearings; it also submits the draft report on possible impacts to other stakeholders and governmental bodies (as required). The draft report must be publicly available over the Internet for a review by any stakeholder for at least thirty (30) calendar days from the date of posting.

The initiator, twenty (20) working days before the start date of the public hearings, is obliged to place announcements about holding public hearings in the Kazakh and Russian languages in at least one newspaper and through at least one television or radio channel distributed on the territory of the respective administrative-territorial units.

More specifically, the announcement of public hearings must contain the following information:

- the subject of public hearings;
- the place, date and time of the start of public hearings;
- a link to the page of the Internet resource of the authorized body in the field of environmental protection, where you can get acquainted with the draft report on possible impacts, a copy of the statement on the proposed activity;
- details and contact details of the initiator of the proposed activity;
- email address and phone number, where you can get additional information about the proposed activity, holding public hearings, as well as request copies of documents related to the proposed activity; and
- email address and postal address of the authorized body in the field of environmental protection or its structural subdivisions, to which the public concerned can send their comments and suggestions to the draft report on possible impacts in written or electronic form.

The initiator is obliged to provide the public (at request) the copies of the statement on the proposed activity, the protocol, the conclusion on the results of impacts screening (if it was carried out), the conclusion on determining the scope of the EIA and the draft report (in electronic form).

Written comments and proposals received from the stakeholder groups and public are entered by the authority representative into a summary table, which is then submitted for public hearings summary report along with the amended draft EIA report.

Public hearings are open to any person wishing to take part, regardless of their place of residence. In the process of public hearings, any person participating in them has the right to voice his/her comments and suggestions on the draft EIA report in accordance with the established rules for holding public hearing meetings. Public hearings are held under the chairmanship of a representative of the local authority under relevant administrative-territorial unit. The authority in charge also provides video and audio recordings of the entire course of public hearings. Electronic media with video and audio recordings of public hearings is subject to attachment to the final protocol of public hearing meeting(s). The protocol is signed by the chairman and secretary of public hearings within two (2) working days from the date of completion of public hearings.

The duration of public hearings shall not exceed five (5) consecutive business days. After completion of public hearings, a protocol is drawn up, which must include:

- all comments and suggestions of interested state bodies and the public, submitted in writing;

- answers and comments of the initiator (developer) on each comment, feedback, concern and/or question; and
- information on the right to appeal the protocol in the manner prescribed by the legislation of the Republic of Kazakhstan.

The local authority in charge shall post the signed protocol on the official Internet resource no later than two (2) working days after its signing.

5.1.6 INTERNATIONAL OBLIGATIONS

In addition to national legislation and regulations on environmental requirements, Kazakhstan is also party to several international treaties focused on E&S issues:

No	Name conventions, agreements	Document of accession of the Republic of Kazakhstan / ratification
1	Convention on Biological Diversity. Rio - de - Janiero, May 22, 1992	RK Law on ratification of 19.08.1994, No 918
2	The UN Convention to Combat Desertification	RK Law on ratification of 07.07.1997 No 149-1
3	United Nations Framework Convention on Climate Change (UNFCC). Rio - de - Janiero, June 16, 1992	RK Law on ratification of 04.05.1995 № 2260
4	Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran, November 4 of 2003)	RK Law on the Ratification of 13 December 2005 No 97-III.
5	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Basel, 20-22 March 1989	RK Law on ratification of 10.02.2003, No 389-II
6	Stockholm Convention on Persistent Organic Pollutants. Stockholm, May 22, 2001	RK Law on ratification of 07.06.2007. N 259
7	Convention on the Transboundary Effects of Industrial Accidents	RK Law on ratification of 23.10.2000 No 91-II
8	Convention on Long-range Transboundary Air Pollution. Geneva, 13 November 1979	RK Law on ratification of 23.10.2000, No 89-II
9	Convention on Environmental Impact Assessment in a Transboundary Context Espoo (Finland), 25 February 1991	RK Law on ratification of 21.10.2000, No 86 -II
10	Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Helsinki 17.03.1992	RK Law on ratification of 23.10.2000 No 94-II
11	Vienna Convention for the Protection of the Ozone Layer. Vienna, March 22, 1985	Act of accession of Kazakhstan to the Vienna Convention on30.10.1997 No 177-I
12	Montreal Protocol on Substances that Deplete the ozone layer. Montreal, September 16, 1987	Law of the Republic of Kazakhstan on joining from 30.10.1997g. No 176

No	Name conventions, agreements	Document of accession of the Republic of Kazakhstan / ratification
13	Montreal Protocol on Substances that Deplete the Ozone Layer and the London Amendment thereto (May 2002)	Law of the Republic of Kazakhstan on joining from May 7, 2001 No 191-II
14	Convention of the World Meteorological Organization, October 11, 1947	Resolution of accession to the Convention signed 18.12.1992г. No 1791-XII
15	Convention on public participation in decision-making in the field of environmental medium (Aarhus)	RK Law on ratification of 23.10.2000 No 92-II
16	The Rotterdam Convention on the Prior Informed Consent Certain Hazardous Chemicals and Pesticides in International Trade	RK Law on ratification of 20.03.2007 No 239
17	Convention for the Protection of Cultural and Natural Heritage	RK Law on ratification of 29.07.1994
18	The Ramsar Convention on Wetlands - Wetlands of International Importance especially as Waterfowl Habitat.	RK joined on 13.12.2005 No 94-III
19	Convention on International Trade in Endangered Species of Wild Fauna and Flora, which are under Endangered	RK Law on ratification of 06.04.1999 No 372-1
20	Convention on the Conservation of Migratory Species of Animals (Bonn Convention, 1979).	RK Law on ratification of 13.12.2005 No 96
21	"On ratification of the Amendment to the Montreal Protocol on Substances that Deplete Ozone Layer, adopted in Montreal on 1517 September 1997 "	RK Law on ratification of April 6, 2011 No 426-IV
22	"On ratification of the Amendment to the Montreal Protocol on Substances that Deplete Ozone Layer, adopted in Copenhagen on 23-25 November 1992 "	RK Law on ratification of 23. 04. 2014 No 198-V
23	Convention on Civil Liability for Oil Pollution Damage	RK Law on ratification of 05.06.1994 No 244
24	Convention for the Prevention of Pollution from Ships	RK Law on ratification of 4.05.1994 г. N 244
25	Convention on the Prohibition of Military or Any Other Hostile Use of impact on the environment	RK Law on ratification of 20.02.1995, No 301-X-III
26	Kyoto Protocol to the UN Framework Convention on Climate Change	RK Law on ratification of March 26, 2009 No 144-IV
27	The Cartagena Protocol on Biosafety to the Convention on Biological Diversity.	RK Law on ratification of June 17, 2008 No 43-IV
28	Protocol Concerning Regional Preparedness, Response, and Cooperation Incidents oil pollution, the Framework Convention for the Protection of the Marine Environment Caspian Sea.	Signed in 19.05. 2018 No 718

No	Name conventions, agreements	Document of accession of the Republic of Kazakhstan / ratification
29	Protocol for the Protection of the Caspian Sea against pollution from land-based sources and Land-based Activities in the Framework Convention for the Protection of the Marine Environment Caspian Sea.	Signed in 1.11. 2021 № 71-VII
30	On ratification of the Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.	Law of the Republic of Kazakhstan dated December 12, 2019 No. 279-VI

In addition, Kazakhstan has ratified a number of core labour standards of the International Labour Organisation, including the following:

- Forced Labour (C029) and Abolition of Forced Labour (C105)
- Minimum Age (C138) and Worst Forms of Child Labour (C182)
- Discrimination (C111)
- Freedom of Association and the Right to Organize (C087)
- Right to Organize and Collective Bargaining (C098)
- Equal Remuneration (C100)

5.2 PERMITS AND LICENSES

As WSP was informed, the Project has received all required by local legislation permits and licenses – i.e. fully compliant. The full list of local/regional authorities involved in the Project permitting and licensing process is provided in the **Table 5-1** below:

Table 5-1 – Permitting and licensing for the Project

Shokpar 100 MW Wind-Power Station		
No	Name	VDR ref.
	Land use permits, letters, approvals	
N/a	State acts for land plots	3.2.3.6
N/a	Approval of the architecturual general plan	получено
N/a	Land Lease agreements for land plots	3.2.3.2
No 329	Land design and survey permit from 2020-01-10	3.2.3.5.1
No 3T-3-23	Archeology expertise approval from Department of Archives, Culture and Documentation of Zhambyl region from 2020-07-28	3.2.3.5.20
No 61	Decree of the District Akim on granting the right of temporary paid land use to the land plot from 2020-02-25	3.2.3.5.10
No 5	Decree of the Rural District Akim on granting the right of temporary paid land use from 2020-02-26	3.2.3.5.11
No KZ45VNW00003359	Notification of absence of underground resources from Department of Natural Resources and Environmental Management of the Zhambyl Region from 4 February 2020	3.2.3.5.3
No 3T-A-1	Letter of presence of archeology object on territory site from Department of Archives, Culture and Documentation of Zhambyl region from 2020-02-11	3.2.3.5.6
No AR-02/221-20	Conclusion of archeological expertise No AR-02/221-20 from 2020-02-18	3.2.3.5.7
No 02/182	Letter about the location of the object outside the territory of the state forest fund from Committee of Forestry and Wildlife of the Ministry of Ecology, Geology and Natural Resources from 2020-02-21	3.2.3.5.8
No 3T-3-4	Approval of the Conclusion No Ar-02/221-20 of the Archaeological Expertise from Department of Archives, Culture and Documentation of Zhambyl region from 25 February 2020	3.2.3.5.9
No 3T-3-23	Letter on approval of realization of the project from Department of Archives, Culture and Documentation of Zhambyl region from 2020-07-28	3.2.3.5.20
No 42	Conclusion from Veterinary Department of Akimat of Sarysu district from 2020-02-27	3.2.3.5.12
No 18-16-12813T-A-G	Approval of land scheme from Water Resources Committee from 2020-02-11	3.2.3.5.5
KZ56VNW00003355	Approval from South Kazakhstan Interregional Department of Geology from 2020-0	3.2.3.5.2
27-7/509RV	Committee of Geology clarification letter from 2020-03-17	3.2.3.5.13
No 5	Conclusion from minutes of meeting of land commission, excerpts from Land Management Project	3.2.3.4
n/a	Act of selection of the land plot, excerpts from Land Management Project	3.2.3.4
n/a	Act of coordination of wind power turbines from 2020-10-08	3.2.3.5.16
	Grid related permits	
No 01-24-Д-345	Grid Connection agreement of 100 MW Wind power station in the Sarysu district of the Zhambyl Region with KEGOC dated 2021-05-11	3.2.7.4.1
No 01-24-02-05/2260	Approval of the Power Distribution Scheme for 100 MW wind power station in the Sarysu District of the Zhambyl Region from KEGOC from 2020-03-17	3.2.5.1.2.1
No 01-24-02-05/2478	Technical conditions for 100 MW wind power station in the Sarysu District of the Zhambyl Region from KEGOC from 2020-03-27	3.2.5.1.2.2
No 01-15-03-05/6303	Technical conditions for the connection of ASKUE of the Shokpar wind power station capacity of 100 MW to the ASKUE of the System operator of the Republic of Kazakhstan KEGOC JSC from KEGOC from 2020-09-01	3.2.3.5.16
n/a	Inspection report for Substation Opornaya	received
	Building permits	
KZ93RUA00073319	Architectural planning building task (АПЗ)	3.2.1.3
n/a	Notification to GASK before construction works start	received
n/a	Permission from the authorized body in the field of industrial safety	will be recevied right before COD
	Environmental permits	
n/a	International standard EIA	not applicable to Shokpar
n/a	Annual report of bird migrations and bats, from Spring 2020 to Winter 2021.	3.2.10
n/a	Conclusion of the state ecological expertise	3.1.6.1.2
KZ78VCZ01739652	Permit for emission into the environment	3.1.6.1.1.
	Permit for power lines, substations, etc.	
N/a	Servitude agreements	3.2.3.3.
N/a	Resolution of the akimat on granting easement rights	received
N/a	Conclusion from minutes of meeting of land commission	received
N/a	Technical conditions for temporary power supply	3.2.1.3
	Other legal or technical documents	
n/a	Feasibility study, made by Chinese standard	3.2.13
№ ДИ-03/188-А	PPA agreement dated 2019-02-18	3.2.7.5

There is no detailed documented list of permits and licenses obtained by the Project Developer. A summary of the permits that may be required and may have not been obtained as yet, are as follows:

- Permits / approval for transport plan for heavy and oversized equipment to be transported from Kazakhstan-China border to the site e.g. police, customs etc.
- Wind power plant operation permit
- Passport of the constructed object

- Permits for water use, air emissions and declaration on wastes generation and signed contracts with licensed companies for wastes removal (operation phase)

6 SUMMARY ENVIRONMENTAL AND SOCIAL BASELINE

This section of the report provides a concise summary on the E&S baseline conditions (based on the information obtained from the EIA screening report, 2020 and E&S Assessment report for Zhanatas Wind Power Plant Project (2019) by EcoSocial Analysts LLC.

6.1 ENVIRONMENTAL BASELINE

6.1.1 CLIMATE

The proposed Project site is located in a continental zone with large daily and annual air temperature fluctuations. This results in cold winter months with averages between -8°C and -32°C whilst summers are hot with average temperatures of 34°C to 45°C[6]. Precipitation is low throughout the year with an average monthly level of between 14mm-30mm, but flooding can occur during spring as a result of thawing snow and increased rain.

6.1.2 NATURAL DISASTERS AND CLIMATE CHANGE

Kazakhstan experiences storms, landslides, floods, extreme temperatures, earthquakes and forest fires. The most recent major disaster occurred in the south of the country in 2008 with sudden heavy rains and increased air temperature causing rapid snow thawing and a major flooding which displaced approximately 13,000 people[7].

Temperatures in Kazakhstan are projected to rise at a faster rate than the global average and faster than most other Asian nations and has a potential warming of 5.3°C by the 2090s. Climate change is expected to cause severe droughts, land degradation, desertification, and associated events such as dust storms. Additionally, the temperature rises will accelerate the thawing of the country's glaziers which is projected to increase river flow and also flood risk towards the middle of the century, followed by a long-term decline in flow[8].

6.1.3 AIR QUALITY

The nearest to the Project site potentially considerable air pollution source is KazfosPhosphate LLP. Kazaphosphate is an operational open pit phosphate mine complex, situated in approximately 1.5 km off the Project site. No actual ambient air quality parameters were sampled. EIA reports no exceedance of NOx, SO_2, CO, dust ambient concentrations in residential areas in the Project area.

[6] EcoSocio Analysts LLC ESA for Zhanatas WPP

[7] Asian Disaster Reduction Center Risk Profile: https://www.adrc.asia/nationinformation.php?NationCode=398&Lang=en#:~:text=Storm%2C%20landslide%20%26%20slope%20collapse%2C,the%20major%20disasters%20in%20Kazakhstan.

[8] World Bank Climate Knowledge Portal risk profile: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15834-WB_Kazakhstan%20Country%20Profile-WEB.pdf

6.1.4 AMBIENT NOISE

The main sources of noise across the Project area are moving transport along the tarmac roads (the road from Zhanatas to Shymkent). There were also vehicles spotted moving to and from Kazphosphate LLC mining complex. As reported in the EIA, the ambient noise levels range within 44-50dB(LAeq.8h) with shown LAmax of 59-61dB(A) - which is below the maximum permitted in Kazakhstan.

6.1.5 GEOMORPHOLOGY

The area is represented by a gently rolling hilly terrain with a distinctive Uleknt-Aktau ridge. The altitude varies within 800 to 870 m above sea level.

6.1.6 HYDROGEOLOGY

Hydrogeological conditions are characterized by presence of deep shallow aquifers on the hills with lower depths at the local stream flood plains. As reported in geotechnical survey reports, the depth of the groundwater table ranges from 10 to 15-20 m.

6.1.7 SOIL COVER AND VEGETATION

Soil cover is characterised by low fertility, sandy loam, sandy silt soils. Vegetation cover is very sparse and mostly presented by steppe-like xerophytic, ephemeral (annual) and ephemeroid (perennial) plants.

6.1.8 LOCAL FAUNA

As reported, both, birds and mammals diversity and numbers are considered to be low across the whole Project area. Bird migration takes place during breeding seasons, twice a year – in Spring and Autumn.

6.1.9 DESIGNATED AREAS

The sensitive ecological areas are situated within 30+ km off the Project site. The closest protected area is Kyzylkol Lake – some 30-32 km northwest from the Project area.

6.2 SOCIAL BASELINE

6.2.1 DEMOGRAPHY

The Zhambyl region has a total population of 1,117,500 (2018), of which 567,800 are women and 549,700 are men. The birth rate in 2018 was 24.2 per thousand of the population whilst the mortality rate was 6.4[9]. The southern regions of the country are predominantly rural with 60% of the population of Zhambyl residing in rural areas in 2019[10]. Additionally, the working age

[9] EcoSocio Analysts LLC ESA for Zhanatas WPP

[10] UNFPA Report: https://kazakhstan.unfpa.org/sites/default/files/pub-pdf/07_FEB_UNFPA_Report_20pager_ENG_PREVIEW%20%281%29_0.pdf

population accounts for 59.1% of the total whilst the share of those under working age is 29.9% (2019)[3].

Zhanatas town has a population of 21,400, with 94% of the population being Kazakh. The child mortality rate in Zhambyl is 7.28 per 1,000. The UNFPA estimates that Kazakhstan's population will increase by 23% over the next 50 years as a result of momentum or replacement-level fertility.

6.2.2 ECONOMY

The World Bank classifies Kazakhstan as an upper middle-income country with a GDP per capita of $10,401 and an annual GDP growth rate of 4% in 2021[11]. The unemployment rate in Kazakhstan has decreased steadily over the past two decades and sits at 4.9% in 2021, a drop of 7.9% since 2000.

Since 1991 Kazakhstan has experienced strong economic performance as a result of structural reforms, an abundance of hydrocarbon resources, high domestic demand and also FDI. Economic activity has returned to pre-pandemic levels and robust activity in the second half of 2021 increased the real GDP growth to 4%.

For the Zhambyl region the leading sectors in terms of proportion of regional GDP are industry (20%), trade (12%), agriculture (7%), transport and communications (18%) and construction (12%). The gross regional product of the region in Q4 of 2020 amounted to 1,205 billion tenge.

In the Sarysu District, out of an economically active population of 20,000, 880 are unemployed and 4,300 are self-employed. A large proportion of the population are employed in the agricultural sector with 1,260 tons of cereal crops and legumes being produced in 2018[6].

6.2.3 TOWN OF ZHANATAS

The first mineral resources exploration commenced in the territory in 1936 when phosphorous deposits were found. The worker camp appeared when first phosphorus mining and refinery started in 1945. In 1969 it grew to a town size and was called Zhanatas. For the rapidly growing population 214 panel block of flats were erected that formed 8 quarters. Incomers were attracted by housing and exclusive supplies that were not available in Almaty or Zhambyl.

By the beginning of 1990 the population reached 66 000 but the Soviet Union demise brought the collapse of mining. People that lost jobs left and the population fell to 18 000. The empty houses were cut from the utilities and looted. Many of them deteriorated beyond repairs and 111 had to be demolished to prevent their uncontrolled collapse. Currently out of 85 blocks, 10 are empty while 1900 families are on the list for housing. The council provided housing for those most in need in one rehabilitated block made into a dormitory.

Rebirth of the town started in 2013 when a Russian company Eurochem began development of two phosphate deposits for fertilizers production. Now only 300 people are registered as unemployed. Besides providing jobs the company agreed to help with social development. A

[11] World Bank economic profile for Kazakhstan: https://data.worldbank.org/country/kazakhstan

Turkish enterprise Kazsoda has also allocated $23 197 000 for the town. Kazphosphate also has its corporate social responsibility program, but the allocated budget and actions were not disclosed during the assessment.

In addition to the annual income from taxes ($3 000 000) the town is also supported by the State budget that provides $26 300 annually and funds specific projects like rehabilitation of the sewage treatment plant ($6 565 000) or rehabilitation of 2 blocks of 80 flats each.

By the end of 2018, the population reached 21 400 with 7 800 families. Ninety four percent of population are Kazakhs, the rest are Russians and other nations. The majority are employed in Eurochem and Kazphosphate. Others either work in the State bodies, organise small businesses or are self-employed.

The town infrastructure consists of 3 colleges, 5 schools, a medical centre and sport facility. The local 2 lane tarmac roads condition is poor but the traffic is not intense. Zhanatas streets are paved and duly maintained. Due to shallow lying base rock, the field roads are passible most of the year.

Aktogay village with 820 inhabitants is located 3.5km northeast from the closest wind turbine row. Syzdykbayuly village with 900 residents is 5.9km northeast from the WPP. The villages cultivate 800ha of arable land that is located south of the windfarm. However, in the past 10 years most of development was in non-intensive pasturing of the livestock, which number is increasing by 10% annually because both villages are set at the creeks and shallow groundwater with plenty of water for the livestock and vegetable patches. The livestock does not enter the WPP area.

7 ENVIRONMENTAL & SOCIAL APPRAISAL OF THE PROJECT

This section discusses any environmental or social appraisal documentation/reports that have been undertaken for the Project, to provide context in line with PR1. In addition, this section also provides a gap analysis of the Screening EIA and other relevant to the Project E&S documentation conducted by WSP during the course of the assessment.

7.1 NATIONAL EIA: GAP ANALYSIS

WSP established through discussions with Shokpar Wind Power Plan LLC that **a Screening National EIA has been completed** for the Project.

In accordance with the new 2021 Environmental Code #400-VI (Articles 65, 69, 49, p.3, Appendix 1 (1.6) and 2) of the Republic of Kazakhstan Shokpar WPP facility falls under Category-2 facilities requiring EIA screening of potential E&S risks and negative impacts. In 2021, The Project Company retained services of a local environmental consultancy company “EKO-2” LLC to undertake a screening EIA of the proposed Project. The Screening EIA report, after formal public hearings, was submitted to the Ecology Department of the State Ecological Regulation and Control Committee for approval and issuing conclusion. In October 2021, the authority issued a formal approval of the screening EIA ‘without a need to conduct a full EIA’ based on provisions of Article 49, p.3 of the new 2021 Environmental Code). Later, in February 2022, the Company obtained a formal Environmental Permit for Category-2 facilities with validity date throughout 2031. The screening EIA report then was used to inform the Project Documentation package as being an “Environmental Protection” chapter of the Project Feasibility Study report. The outcomes of the screening EIA comprised the following:

(i) A framework level ESMP;
(ii) A waste management program (plan);
(iii) An environmental monitoring program; and
(iv) A project for air emissions and loads.

- It is noted that national EIA was completed at the ‘screening level’ and therefore is not expected to examine and address E&S risks and aspects of the Project to the extent required by EBRD PRs for Category B projects. Below is a summary of gap analysis of local screening EIA against EBRD/IFC PRs with the primary aim to identify major gaps and/or E&S project risks that need to be fully addressed (e.g. through ESAP) for the EBRD Category B or B+ projects: Screening EIA report provides no Project-specific baseline characterisation, especially for biodiversity (birds) and local social and economic conditions.
- Impact analysis on local biodiversity (ornithology inclusive) is inadequate and generic. The analysis provides a conclusion that impacts on local flora and fauna are characterised as ‘acceptable’. No bird migration aspects are examined/addressed. No discussion over cumulative effects, especially taking into consideration plans to develop the total of 400MW of wind power resources on this ridge.
- General principles of waste management in compliance with national legislation are provided in the EIA screening report.
- Social and Occupation and Community H&S risks and considerations were only partially included in the EIA screening report -require more content and details

- No information on management of occupational health and safety has been provided.
- No discussion over project-related risks and adverse impacts to the health and safety of the communities and how these will be managed during construction and operation (e.g. traffic and safety; emergency response etc.).
- Framework ESMP and mitigation measures specified are inadequately linked with the "initial impact-mitigation measures-residual impact" analysis in the EIA report. Only limited information about environmental impact mitigation measures has been provided in the EIA screening report.
- No information on Environmental and Social Management System (ESMS) established by the Project developer was provided. No information on Environmental and Social Policy established by the Project developer was provided. Project developer should provide information on environmental and social objectives and principles to achieve sound environmental and social performance. No information on Project Developer's organisational structure was provided.
- No information on management of third-party risks has been provided (Supply chain risks).
- No information on management of human resources and working relationships has been provided.
- Child and enforced labour aspects. No evidence has been provided on compliance with this requirement. Project Developer should provide information on how compliance with child and forced labour requirements is ensured.
- Project Developer should provide information on how compliance with non-discrimination and equal opportunity requirements is ensured.
- No information on management of human resources and working relationships has been provided. Project Developer should provide information on how compliance with labour requirements is ensured.
- No information on established grievance mechanism has been provided. Project Developer should provide information on the availability and maintenance of grievance mechanism. WSP produced a SEP for Shokpar Wind Power Plant LLC (a separate to this report document), which defines external Grievance Mechanism and sets out the way the company will communicate with the project stakeholder groups.

Summary of Screening EIA report Gap Analysis. Below is a summary of major issues and gaps of the Screening EIA report:

Overall compliance: Partly Compliant

The Project is partly compliant with the EU/EBRD Environmental, Social, Health and Safety Requirements due to the following primary aspects:

EBRD/EU Environmental, Social, Health and Safety Requirements	Overall, it is considered that the Project is partly compliant with the PRs set out in the EBRD Environmental and Social Policy. A number of gaps and weaknesses have been identified, which need to be addressed as suggested in order for the project to be in full compliance.

	Project Developer **is to demonstrate how Project's ESMS** will work during construction and operation phase of the Project i.e. how the Project developer will manage environmental and social risks and impacts in a systematic manner.
	Environmental and Social Management and Monitoring Plan (ESMMP). The EIA screening report did not specify any need for environmental and social performance monitoring. A detailed ESMMP is required. The ESMMP must be structured to pre-construction, construction (C-ESMMP) and operation & maintenance (O-ESMMP) stages of the Project.
	Pollution prevention and control. Certain elements of ESMS should be developed and/or enhanced as per ESAP: e.g. detailed information on mitigation measures to prevent potential risks of contaminating air, soil, surface water and define the way how it will be managed (i.e. stand-alone E&S management plans, sub-plans and procedures).
	Biodiversity and Living Natural Resources. The Shokpar biodiversity baseline has gaps: ▪ There is no habitat survey and no Critical Habitats Assessment. ▪ Ornithology data is partial and undertaken over a single year only. It is however good quality but requires an update in Autumn 2022 to cover an area not previously visible. ▪ The collision risk model is not standard and needs to be reconsidered and updated using existing data and the updated information from Autumn 2022. ▪ Bat data has not been collected. ▪ There are no surveys for mammals, reptiles and amphibians or invertebrates. The collection of baseline data should follow the best practice guidelines (Gullison et al. 2015) and the relevant species-specific survey guidance documents that are internationally accepted standards. No current Biodiversity Action Plan. There is no cumulative assessment of impacts with other wind farms in the area. Full details required for ongoing monitoring to include pre, during and post construction monitoring for flora and fauna (specifically birds and bats).

	Traffic and Road Safety. It is recommended that the Project Developer (or EPC Contractor) develop Traffic and Road Safety Management Plan as soon as possible, since the construction activities have already commenced on-site.
	Health & Safety (Occupational and Community). ▪ No information on management of occupational health and safety has been provided (e.g. overarching OHS management plan etc.). ▪ No assessment on potential effects on the health and safety of nearby communities. Project Developer should provide information on identified and assessed community health and safety risks and developed protection, prevention and mitigation measures.
	Labour and Working conditions. ▪ No information on management of human resources and working relationships has been provided.
	Contractor management. Project Developer should provide information on principles applied for management of E&S risks associated with its primary suppliers, starting with EPC Contractor and subcontractors.
	Supply chain and Forced Labour aspects need to be further addressed. As recommended in ESAP, the Company is advised to develop Project specific Supply Chain Management Plan to cover key risks associated with its suppliers during construction and operations.
	Information Disclosure and Stakeholder Engagement. Inadequately addressed in the EIA screening report. ▪ Need to develop SEP and Grievance Mechanism; and ▪ SEP must be fully implemented throughout all stages of the Project.

7.2 REVIEW OF OTHER PROJECT DOCUMENTS

7.2.1 GAP ANALYSIS OF EPC CONTRACT

WSP reviewed the EPC contract with a primary aim to identify E&S and H&S requirements (conditions) defined for EPC tender candidates. The following key requirements are listed in the EPC contract template:

❖ **4.18. Protection of the Environment**

The Contractor shall take all necessary measures to:

a) protect the environment (both on and off the Site);
b) comply with the environmental impact statement for the Works (if any); and
c) limit damage and nuisance to people and property resulting from pollution, noise and other results of the Contractor's operations and/ or activities.

The Contractor shall ensure that emissions, surface discharges, effluent and any other pollutants from the Contractor's activities shall exceed neither the values indicated in the Employer's Requirements, nor those prescribed by applicable Laws.

❖ **4.6. Health and Safety Obligations**

The Contractor, while performing its obligations under the Contract, shall take all necessary measures for health and safety in accordance with

- Laws of RoK.
- The Contractor shall maintain international good industry practices for health and safety in performing Works as much as possible. The Contractor shall ensure that enough number of health and safety officers and personnel, possessing necessary licenses or certificates covering all scope of Works according to the Contract, are employed at the Project Site with regards to Laws of RoK. The Contractor shall follow requirements stated in Chapter 8 of ПОС (POS) – Plan of organization of the construction works.

Health and Safety Obligations

The Contractor shall:

a) comply with all applicable health and safety regulations and Laws;

b) comply with all applicable health and safety obligations specified in the Contract;

c) comply with all directives issued by the Contractor's health and safety officer (appointed under Sub-Clause 6.7 [Health and Safety of Personnel]);

d) take care of the health and safety of all persons entitled to be on the Site and other places (if any) where the Works are being executed;

e) keep the Site, Works (and the other places (if any) where the Works are being executed) clear of unnecessary obstruction so as to avoid danger to these persons;

f) provide fencing, lighting, safe access, guarding and watching of:

(i) the Works, until the Works are taken over under Clause 10 [Employer's Taking Over]; and

(ii) any part of the Works where the Contractor is executing outstanding works or remedying any defects during the DNP; and

Provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land and property.

Within 21 days of the Commencement Date and before commencing any construction on the Site, the Contractor shall submit to the Employer for information a health and safety manual which has been specifically prepared for the Works, the Site and other places (if any) where the Contractor intends to execute the Works. This manual shall be in addition to any other similar document required under applicable health and safety regulations and Laws.

The health and safety manual shall set out all the health and safety requirements:

(i) specified in the Employer's Requirements;

(ii) that comply with all the Contractor's health and safety obligations under the Contract; and

(iii) that are necessary to effect and maintain a healthy and safe working environment for all persons entitled to be on the Site and other places (if any) where the Works are being executed.

This manual shall be revised as necessary by the Contractor or the Contractor's health and safety officer, or at the reasonable request of the Employer. Each revision of the manual shall be submitted promptly to the Employer.

WSP Comment:

In WSP's view, these E&S requirements as shown in EPC are generally in conformance with EBRD requirements and good international practices for contractor management in the field of HSE performance and management.

*However, in order to achieve full compliance with the Lenders requirements, it is advised to implement action items as specified in the ESAP (items 1.3, 4.3, 4.5 specifically), which WSP developed for the Shokpar WPP Project (**Appendix B**).*

7.2.2 OTHER E&S DOCUMENTATION REVIEWED

Other E& Project documentation, which were made available to WSP for review included the following:

- **Shokpar Windfarm Wildlife Monitoring Reports for Spring 2020**, Summer-Autumn 2020 and Winter 2020-2021 (prepared by EcoSocial Analysts LLC*)*
- **Project for Shokpar Wind Power Plant air emissions** (2021). The document is a local requirement for acquiring 'environmental permit' and must be developed and approved by local authority prior to submission for 'environmental permit'. Project Developer received the formal approval in 2022;
- **Waste management program** (developed as part of EIA process)
- **Environmental measures program** (developed as part of EIA process)

- **Environmental Permit for Shokpar WWP (Category 2 facility**), including permit for air emissions and waste generation and disposal; valid until 2031
- **EPC Contractor's Occupational H&S Policy** (GCD, 2022) – a declarative document, describing EPC commitment to OHS with no specific references to detailed procedures or method statements, associated with various OHS aspects e.g. working on height; confined space; PPE etc.
- **EPC Contractor's program for primary and repeated instructions on safety and labour protection at the workplaces** (GCD, 2022) – a 3 page document, defining how OHS tool-box talks and debrieifings are held.
- **EPC Contractor's Instruction on OHS Inductions** (GCD, 2022).
- **Project Management Plan** (2022) developed by Shanghai Institute of Mechanical and Electrical Engineering Co., Ltd (SIMEE); There is a 2 page Section on HSE containing general statement about EPC commitments to H&S of workers and at the construction site
- **Quality Management System Plan** (2022). The document primarily discusses the way the EPC will address non-conformances, roles and responsibilities, reporting lines.

WSP Comment:

- *In WSP's view, the existing ESMS system does not meet the standards and requirements of EBRD and/or international good construction practices.*
- *it is advised to implement action items as specified in the ESAP (items 1.3, 4.3, 4.5, 6.1-6.3, 10.1) which WSP developed for the Shokpar WPP Project (**Appendix B**).*

8 ENVIRONMENTAL AND SOCIAL RISKS, IMPACTS AND MITIGATION

8.1 INTRODUCTION

The E&S risks/impacts associated with the Project are covered in this section of the Report. The subsections summarize the risks and impacts that could occur as a result of Project implementation.

The risks and impacts have been screened at high level based on the gap analysis of the screening EIA and consideration of the information presented to WSP. Where required, the management measures needed to prevent, minimize, mitigate or optimize the impacts have been given.

The Environmental and Social Action Plan (ESAP) is presented in **Appendix B**. It will serve as the appropriate appraisal instrument to identify and provide guidance on mitigating potential E&S risks.

8.2 ASSESSMENT APPROACH

An E&S assessment of available Project information and documentation has been made against the requirements of EBRD's PR1 through PR10 (excluding PR7 and PR9 which were scoped out or not applicable to this project), in addition to, the WSP team's knowledge of best practice approaches to the management of environmental risk and techniques.

A number of criteria were applied to determine whether or not the potential environmental impacts of the proposed scheme are 'significant'. A qualitative assessment of impacts was undertaken, based on existing information available for the Project area and its surroundings. The two principal criteria determining significance are the sensitivity of the receptor and the magnitude of the change arising from the Project activities, as shown in the table below.

	SENSITIVITY OF RECEPTOR		
MAGNITUDE OF CHANGE	**High** (e.g. international, national protection)	**Medium** (e.g. regional, local protection)	**Low** (e.g. no protection)
High (e.g. >75% of area or receptor affected)	Major (H,H)	Major (H, M)	Moderate (H, L)
Medium (e.g. 25-75% of area or receptor affected)	Major (M, H)	Moderate (M, M)	Minor (M, L)
Low (e.g. 5 to 25% of area or receptor affected)	Moderate (L, H)	Minor (L, M)	Neutral (L, L)
Very Low (e.g. >0, but <5% of area or receptor affected)	Minor (VL, H)	Neutral (VL, M)	Neutral (VL, L)
No Change	None (NC, H)	None (NC, M)	None (NC, L)

Another consideration was the duration of the impact, e.g. whether the impact was temporary or permanent, and if they are temporary whether they are short, medium or long term. Defining the duration of the impact can be subjective, depending on the receptor. The table below sets out the duration of impact which will be used in this E&S assessment.

Nature of change	Duration	Definition/ Description
Temporary	Short-term	Impact continues during construction (1-2 yrs) and up to 1 year following construction
	Medium-term	Impact continues 1-5 years following construction
	Long-term	Impact continues 5-10 years after construction
Permanent		Due to the length of time period for human beings, these impacts >10 years can subjectively be defined as permanent.

The objective of the social and economic impact assessment is to identify major risks to social and economic conditions in the area of the proposed actions and to assess impacts of the Project construction, operation and maintenance on socioeconomics. The impacts can be direct and indirect, intended and unintended, positive and negative.

For significant impacts, the Project developer will implement a variety of mitigation measures through Environmental and Social Management Plan (ESAP) and/or through overarching Construction and Operation Environmental, Social Management and Monitoring Plans (C-ESMMP and O-ESMMP) (detailed further in Section 12 of this report).

Generally, the social impact assessment process involves the following major tasks:

- Identifying types of adverse and beneficial impacts of the proposed actions.
- Assessing the level of socioeconomic risks in terms of frequency (how likely is it to happen) and consequences.
- Assessing the acceptability of the risks.
- Introducing mitigation measures to reduce risks to acceptable level.

The social impact assessment typically addresses the following issues:

- **Demographics**, including changes in local population size, emigration/immigration in the area, migration of people in search of work, and other issues.
- **Economic issues**, including supply chain impacts, local sourcing opportunities, potential impacts on local markets for goods and services, employment opportunities for construction, operation and decommissioning phases of the Project.
- **Health issues**, including risks of new diseases to local communities, impacts on health of operations personnel and local communities, impact of local diseases on workers.
- **Social infrastructure**, including adequacy of health care and education facilities, transport and roads, power supply, fresh water supply to support project activities and personnel as well as the local communities.
- **Resources**, including land use changes, increased access to rural or remote areas, use of natural resources.
- **Psychological and community aspects**, including changes from traditional lifestyles, community cohesion, attitudes and behaviour, perception of risk.
- **Cultural**, including issues associated with sites that have archaeological, historical, religious, cultural or aesthetic values.

- **Social equity**, including local social groups who will gain or lose as a result of the Project implementation.

As with environmental impacts, a general method for grading the significance of socio-economic impacts is adopted to ensure consistency in the terminology of significance, whether for a beneficial or an adverse impact. An example of the way in which we intend to determine the significance of social impacts is given below:

	Nature of impact		
Magnitude of change	**Avoidance**	**Disruption/Habituation**	**Permanence**
Negligible	No avoidance needed	No noticeable under normal conditions	Not noticeable
Minor	Mitigation or design change prevents Impact(s)	No effect on daily life or routine of affected party	Ephemeral: <1 year
Moderate	Mitigation or design change reduces impact	Possible initial change on daily life/routine, rapid habituation reduces to below nuisance level	Temporary: recovery to pre-existing conditions after one or a few years (e.g., after construction)
High	Mitigation or design change cannot significantly reduce impact(s)	Requires change to daily life or routine activities	Permanent: life of project, or beyond

WSP Comment:

*It is advised to undertake a Social Impact Assessment study for the proposed Project (ESAP item 1.4) (**Appendix B**).*

8.3 SUMMARY OF ACTIVITIES THAT COULD AFFECT E&S CONDITIONS

8.3.1 CONSTRUCTION

The Project will involve a variety of activities, many of which could affect environmental resources and people if they are not carefully designed and implemented. It is noted that majority of potential adverse impacts will take place during construction phase of the Project and for the most part will be temporary in duration. The activities that could cause the most important effects include:

- Construction of civil structures foundation including earth works; stripping of topsoil; drilling; and other construction activities. During the construction, there will be increased construction traffic locally at the places where construction is ongoing at the time.
- The construction works would require clearing an area for vehicles and equipment to use for erecting wind tower and 220kV transmission line pole/tower foundations and facilities of the substation. The construction will comprise the following activities: land-clearing, foundation excavation, foundation installation, towers/poles assembly and erection.

- Clearing and maintenance of access roads for vehicles and equipment to drive to wind and T-line tower locations. Wherever possible, existing roads and tracks will be used. Where necessary, roads will be constructed (construction may imply creation of tracks across open land or bulldozing a path).
- For 220kV T-line construction: conductoring (placing wires between towers) the entire line. This would involve unrolling conductor wire, raising it to towers and stringing the wires between the towers on either side of the two rail lines.
- Construction and maintenance of a new substation, located north adjacent to the construction camp. The new substation will approximately cover an area of 6 ha. It would require land-clearing and construction of buildings and installation of equipment.

8.3.2 OPERATION AND MAINTENANCE

During operation and maintenance phase, potential E&S impacts will be primarily associated with wind turbine operations and risks of bird killings as a result of collisions with the rotating blades; as well as with some traffic movements during wind park maintenance and inspection activities thereby affecting local ambient air quality (at a very minor scale and significance), increasing the risks of road accidents and temporarily increasing the ambient noise levels.

8.4 E&S IMPACTS AND MITIGATION MEASURES

Results of high-level E&S risk and impact analysis and description of mitigation measures to reduce, control, avoid, compensate or otherwise mitigate the adverse E&S effects are provided in the ESAP (Section 12 and **Appendix B**).

The physical, biological and socio-economic conditions that can be potentially affected by the Project are briefly discussed herein.

8.5 BIODIVERSITY ASPECTS

This review has considered the reports relevant to Biodiversity studies for the Shokpar Wind Power Plant (WPP) which detail the surveys undertaken to inform the impact assessment:

- *EcoSocio Analysts LLC (2020) Shokpar Windfarm Wildlife Monitoring, Part 1: Spring 2020;*
- *EcoSocio Analysts LLC (2020a) Shokpar Windfarm Wildlife Monitoring, Part 2: Summer-Autumn 2020; and*
- *EcoSocio Analysts LLC (2021) Shokpar Windfarm Wildlife Monitoring, Part 3: Winter 2020-2021.*

These documents detail the biodiversity surveys undertaken, the methods used and a brief assessment of impacts of the project on biodiversity. Contextual information on the project area

is available in the ESA for the neighbouring Zhanatas Project in EcoSocio Analysts (2019)[12] and this report has been reviewed for further information.

8.5.1 BASELINE DATA

The collection of baseline data should follow the best practice guidelines (Gullison *et al.* 2015)[13] and the relevant species-specific survey guidance documents that are internationally accepted standards.

PR1 states that "*the assessment process should be commensurate with and proportional to the potential impacts and issues of the project and will cover, in an integrated way, all relevant direct and indirect environmental and social impacts and issues of the project".*

Data validity for all surveys is important as population trends, numbers and behaviour can change over time. For birds current best practice guidance (NatureScot 2017)[14] recommends that for EIA purposes data should be collected within the last five years or within the last three years if the populations of key species are known to be changing rapidly.

For the Shokpar project the ornithology data was collected during the period March 2020 to February 2021 so is compliant with regard to its age and representativeness.

These data represent one full year of surveys, however the guidance document that has been used in the bird monitoring reports for this project, NatureScot (2017) which is the international standard for wind power projects, states that two years of surveys are required to include two full breeding seasons and two winters. In total this equates to four migration periods i.e. March to May and August to October each year. That said, there are circumstances where two years may not be required if there is suitable contextual data from adjacent projects and it can be shown that the data collected is both robust and representative for an area, both spatially and temporally.

For bats, data should be no more than one to two years old (NatureScot 2021)[15]. For this study it is stated that the bat surveys followed Eurobats (2015)[16]

8.5.2 BASELINE CONDITIONS

A desk study was undertaken prior to surveys commencing to *'identify the local conditions, a pre-survey study identified the Kazakhstan and internationally accepted areas designated for*

[12] EcoSocio Analysts (2019) Zhanatas Wind Power Plant Environmental and Social Analysis

[13] Gullison, R.E., J. Hardner, S. Anstee, M. Meyer. 2015. Good Practices for the Collection of Biodiversity Baseline Data. Prepared for the Multilateral Financing Institutions Biodiversity Working Group & Cross-Sector Biodiversity Initiative

[14] NatureScot (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017. Version 2.

[15] NatureScot (2021) Bats and onshore wind turbines – survey, assessment and mitigation.

[16] Eurobats (2015) Guidelines for consideration of bats in wind farm projects – revision 2014.

protection of animals, valuable habitats in the vicinity of the WPP area, the literature and the plans for development of other windfarms nearby.'

The biodiversity survey work for the wind power plant has been summarised in EcoSocio Analysts (2020, 2020a and 2021). These reports state that '*The overall aim of the monitoring was to collect information for assessment of the windfarm impact from habitat loss, displacement and death through collision with rotating blades.'* It is acknowledged that the reports cover mainly ornithology but that other animals are considered.

All studies were conducted within the 1500ha site allocated for the WPP and within a 2km buffer around the site for some ornithology receptors.

8.5.3 HABITATS AND FLORA

No systematic botanical or habitat surveys have been undertaken. A fine scale habitat survey has not been undertaken and EcoSocio Analysts LLC (2020a) states that only one habitat has been identified. The habitats noted were dry boulder fields with sparse xeric vegetation and an undeveloped thin layer of soil on dolomitic chip rock that originates from the shallow lying dolomite bed rock. With low water availability, this soil supports xerophytic, ephemeral (annual) and ephemeroid (perennial) plants. No species names are provided.

Data collected from the adjacent wind farm, Zhanatas WPP show that at least three protected red book species are found in the area: *Crocus alatavicus, Juno kuschakewiczii* and *Tulipa greigii.* (see EcoSocio Analysts 2019)

There is no information, therefore, to inform a Critical Habitats Assessment and no information on invasive alien species.

8.5.4 ORNITHOLOGY

The bird survey programme has followed the guidance of NatureScot (2017) which is the relevant international standard for wind farm ornithology. Details of each of the relevant surveys are discussed in the following sections.

8.5.4.1 Flight activity or vantage point (VP) surveys

These surveys are required to inform the potential for bird collision with operational wind turbines and data is collected in a very specific format which is related to dimensions of the turbines that will be constructed on site.

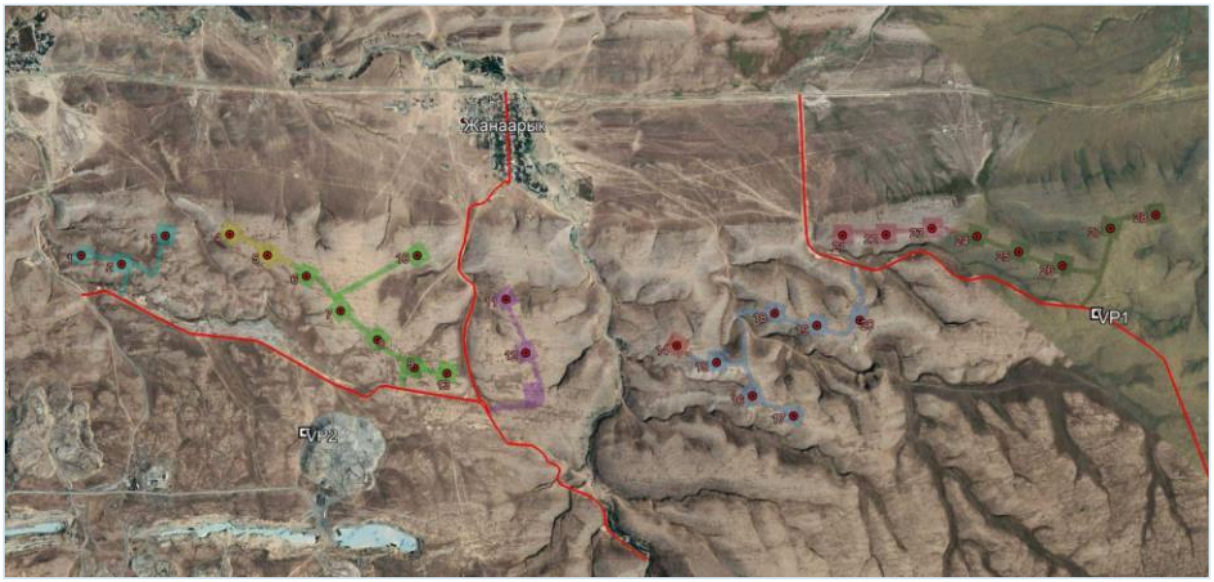
The site was surveyed from two vantage point (VP) locations, each with a maximum viewshed of 2000m.

- Vantage Point 1: Located on slightly elevated ground with suitable views of N23 to N26. T21 and 22 are between 2 and 2.5km from the VP. Although the accepted viewshed distance is 2km visibility if reasonable for N21 to N26. N20 is with 2km but N19 and N18 are up to 3km distant.
- Vantage Point 2: Located on a large tailing pile elevated at 50m above the surrounding habitats with sweeping views of the land area containing N1 to N12. N3 to N12 are all within the 2km viewshed but N1 to N3 are up to 3km from the vantage point albeit with clear views. N14 to N17 are greater that 3km from both VP 1 and VP 2.

Ideally a third vantage point should have been used for surveys covering N14 to N20 as the Burkitti river valley has been identified as the passage route of raptors through the site.

The locations of each VP are shown in **Figure 8-1**.

Figure 8-1 - Locations of the vantage points at Shokpar WPP (Source: EcoSocio Analysts 2020)



The surveys commenced on 13 March 2020 and were completed by 13 February 2021. The recommended bird survey effort for a wind farm is a minimum of 6 hours at each VP per month for a period of **two** years i.e., 72 hours per VP per year. This standard is adopted at all wind farms in the UK except in exceptional circumstances.

- Survey period 1: March 2020 to May 2020

This period consisted of six visits to the site of two days each. The total number of observation hours is circa 150 hours but it is not clear how much of this time is VP watch time and how much time has been spent on site walkovers looking for breeding birds as the results for each survey are conflated in the results tables. The required total number of VP survey hours for this period is 36 hours so it can be reasonable assumed that considerably more survey effort has been undertaken then is required by the standard guidance.

- Survey period 2: June 2020 to November 2020

This period consisted of nine visits to the site of two days each. The number of observation hours is not possible to ascertain as only 27.5 hours are noted in the results, again it is not possible to tell how much of this survey effort is VP survey work, that said breeding bird surveys were only required up until July. The required total number of VP survey hours for the two VPs for this period is 72 hours.

- Survey period 3: December 2020 to March 2021

This period consisted of four visits to the site of two days each. The number of observation hours is not possible to ascertain as no start or finish times are given in the results. The required total number of VP survey hours for the two VPs for this period is 48 hours.

Although the survey effort has exceeded the recommended annual minimum, it has, however, only been collected for one full year rather than the recommended two years.

8.5.4.2 Breeding bird surveys

The best practice guidelines referenced i.e. (NatureScot 2017) recommends that four surveys are completed (April to July) within the site boundary and a 500m buffer over a two-year period. The entire area within this buffer should be surveyed. For raptors this survey boundary should be extended to 2km around the site boundary. The results tables for breeding birds show 'nesting birds' and nesting birds at the nearby area' which are assumed to be in the 500m buffer. Just four species were recorded nesting within the site boundary: crested lark *Galerida cristata,* Jackdaw *Corvus monedula,* Chukar *Alectoris chukar* and pied wheatear *Oenanthe pleschanka* all of which are common species in Kazakhstan.

8.5.4.3 Raptor surveys

It is not clear if raptor surveys were undertaken out to 2km, however EcoSocio Analysts (2020) states that 'a nest of a pair of the Red Book listed Golden Eagles *Aquila chrysaetos* was found 3km from the site. They successfully brought up two chicks but did not enter the WPP area during the survey period. A male and female golden eagle were seen over the site from VP 1 during the site visit by WSP in August 2022.

8.5.5 BATS

No desk study detailing the species likely to be found in the area or the likelihood of migration is provided albeit EcoSocio Analysts (2020a) states that *'the literature sources state that bats inhabit vertical caves e.g. Akmechet cave 50km south and another cave 12 southeast of the site'* Such a review would normally include a review of species distribution maps, existing knowledge of migration routes, academic papers on bat ecology, records of known roosts etc.

It is stated in the monitoring reports that bats were surveyed according to Eurobats (2014). As recommended in this guidance troost surveys have been undertaken and '*the nearest woods, empty buildings, stables and lofts at Zhanaaryk village were checked for potential hibernation and roosting places of bats but no direct or indirect signs of presence were found.'*

Bats were noted outside the WPP site at the Zhanaaryk village 1.3km northeast from the nearest turbine 10 and common noctule *Nyctalus noctule* and Common pipistrelle *Pipistrellus pipistrellus* are identified as living on the lofts of local houses.

Bat transects with manual bat detectors have not been undertaken. These would normally take place within the site and a 1km buffer round it.

Automated static detectors have not been used. The minimum level of preapplication surveys using ground level static detectors is 10 nights in Spring (April to May), Summer (June to mid-August) and Autumn (mid-August to October). There should be one static detector for each two to three turbines.

8.5.6 MAMMALS

Structured mammal surveys appear not to have been undertaken and the records provided in the monitoring reports are occasional and linked to observations noted during the bird surveys. The following species have been recorded: northern mole vole *Ellobius talpinus* and Yellow ground squirrel *Spermophilus fulvus.* It is also stated that red fox *Vulpes vulpes* could be present.

8.5.7 REPTILES AND AMPHIBIANS

No site-specific reptile or amphibian surveys have apparently been undertaken. The monitoring reports state that no reptiles were recorded.

8.5.8 INVERTEBRATES

No site-specific invertebrate surveys have been apparently undertaken. There is no mention of invertebrates in the monitoring reports.

8.5.9 IMPACTS ON BIRDS, BATS AND OTHER BIODIVERSITY FEATURES

This section refers to the WPP area only.

8.5.9.1 Habitats and Flora

The impacts on habitats and flora have neither been assessed nor defined.

EBRD PR6 requires that areas affected by the Project is defined and assessed as potential area of “priority biodiversity features”. These include: (i) threatened habitats; (ii) vulnerable species; (iii) significant biodiversity features identified by a broad set of stakeholders or governments (such as Key Biodiversity Areas or Important Bird Areas); and (iv) ecological structure and functions needed to maintain the viability of priority biodiversity features.

In addition, an assessment on the relevant sensitive biodiversity features is needed to check the presence of a critical habitat. A habitat is considered critical if comprises one of the following: (i) highly threatened or unique ecosystems; (ii) habitats of significant importance to endangered[17] or critically endangered species; (iii) habitats of significant importance to endemic or geographically restricted species; (iv) habitats supporting globally significant migratory or congregatory species; (iv) areas associated with key evolutionary processes; or (v) ecological functions that are vital to maintaining the viability of biodiversity features.

[17] As listed on the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species. The determination of critical habitat based on other listings is as follows: (i) if the species is listed nationally/regionally as critically endangered or endangered, in countries that have adhered to IUCN guidance, the critical habitat determination will be made on a project-by-project basis in consultation with competent professionals; and (ii) in instances where nationally or regionally listed species’ categorisations do not correspond exactly to those of the IUCN (for example, some countries more generally list species as “protected” or “restricted”), an assessment will be conducted to determine the rationale and purpose of the listing. In this case, the critical habitat determination will be based on such an assessment.

It is recommended therefore that the full zone of influence of the Shokpar WPP is clearly defined and mapped and includes consideration of the broader landscape.

8.5.9.2 Ornithology: Bird Collision Risk

The height band for the collection of flight activity data is given as 20 to 120m and it is not clear if data has been collected for any other height bands. EcoSocio Analysts (2020a) suggests that a range of turbines were under consideration at the time the surveys were planned and undertaken with the Envision EN-156/4.5MW turbine highlighted as the preferred model. This model has a hub height of 95m and a blade length of 76.4m giving a total height of 171.4 m. The other candidate turbines have total height of 160m, 180m and 188m giving a range of rotor swept areas (bird collision risk window): 21.2m to 160m, 18.6m to 173m, 41.3m to 180m and 33.8mm to 188m. All these collision risk height ranges are out with the 20m to 120m flight activity height range used for all the flight activity surveys. It is not clear why the 20m-120m collision risk window has been identified when it does not correspond to any of the preferred turbine models.

A form of collision risk calculation has been undertaken using the flight activity data collected from the vantage points but it is calculated for each study period and is not based on the standard calculation approach[18]. Calculation tables are available from the NatureScot website to assist with these calculations and an avoidance rate is then applied. The calculations currently provided suggest that when amalgamated there would be 0.44 mortalities of unidentified protected species per turbine for the period March to May or 12.3 birds (0.44 x 28 turbines). It is not clear if an avoidance rate is applied but current guidance[19] suggests that the avoidance rate for raptor species other than white tailed eagle *Haliaeetus albicilla* or common kestrel *Falco tinnunculus* is 99%.

Three red listed species were recorded flying through the site at collision risk height enough times for a calculation to be applied:

- Black stork *Ciconia nigra* – Least Concern
- Steppe eagle *Aquila nipalensis* – Endangered
- Booted eagle *Hieraaetus pennatus* – Least Concern

8.5.9.3 Ornithology: Breeding birds

Common breeding birds were found on the site. None of the species were of conservation concern.

[18] NatureScot (2000) Windfarms and birds: calculating a theoretical collision risk assuming no avoiding action.

[19] NatureScot (2018) Wind farm impacts on birds – use of avoidance rates in NatureScot wind farm collision risk model (Ver 2).

8.5.9.4 Bats

No impacts were assessed as no bat data has been collected.

8.5.9.5 Mammals

No impacts were assessed as no systematic mammal surveys have been undertaken.

8.5.9.6 Reptiles and amphibians

No surveys and consequently no impacts were assessed.

8.5.9.7 Invertebrates

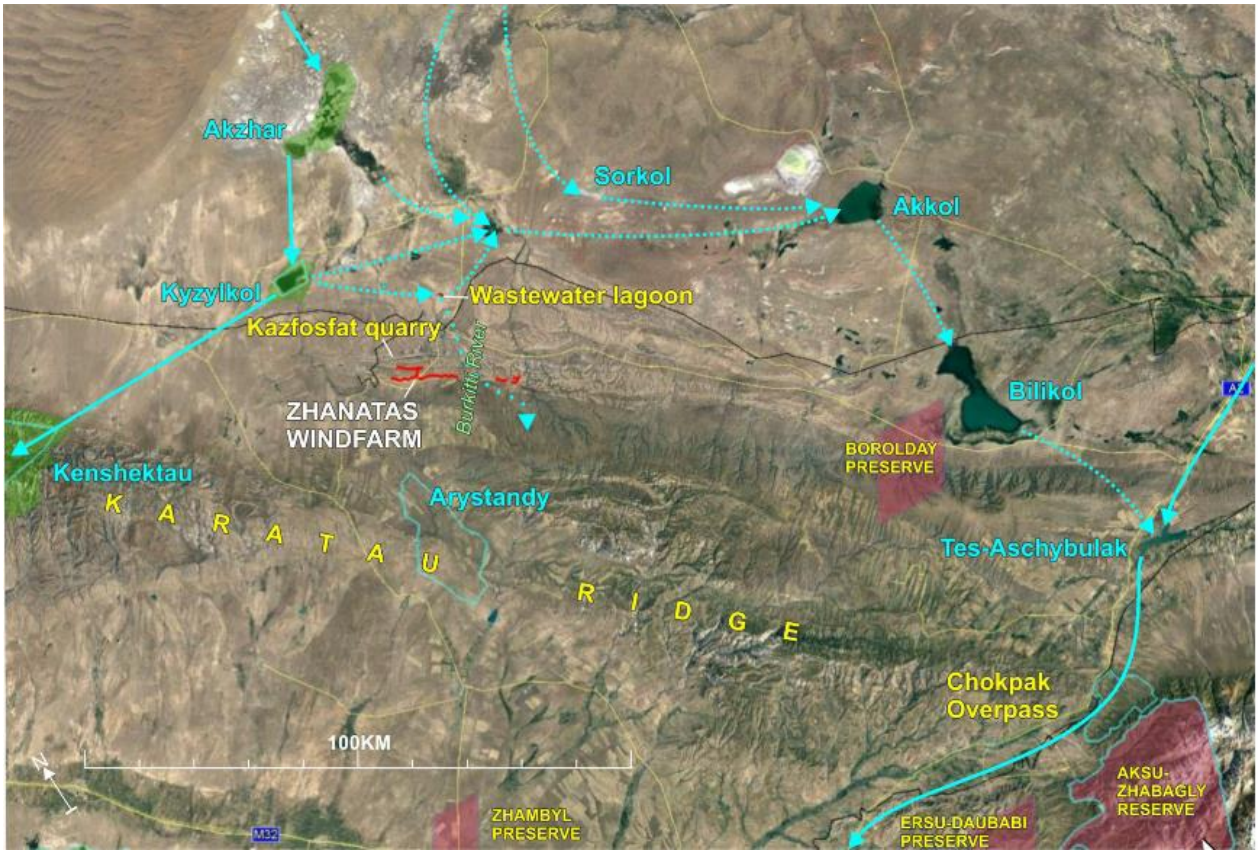
No surveys and consequently no impacts were assessed.

8.5.10 POTENTIAL CONNECTIVITY WITH DESIGNATED SITES

Connectivity of birds using the Shokpar WPP with designated sites has not been specifically considered. There are a number of Important Bird Areas (IBAs) in the area and two were specifically visited by WSP in August 2022.

Lake Kyzylkol was visited is c 30km from the nearest Shokpar turbine but is a major stopover and wintering area for large numbers of waders and wildfowl. A broad range of species were recorded including: black necked grebe, green sandpiper, little stint, northern shoveler, mute swan, red necked phalarope, ruddy shelduck, gadwall, slender billed gull, turnstone, terek sandpiper, ruff and black winged stilt. It is expected that numbers and species diversity will increase through the autumn and winter months. As ruddy shelduck has been recorded on the Shokpar surveys and little bittern noted on the WSP site visit, there may be some level of migratory connectivity between this IBA and the Shokpar site. It has been highlighted in EcoSocial Analysts (2019) however that bird migration routes and important for resting, feeding and breeding areas have been identified using previous observations for the period 1995-2018 in the key birds areas of like Chokpak Overpass, Ters Aschibulak Reservoir, Kyzylkol and Akkol lakes These observations and the ring return data from 1966 suggested that the corridor nearest to the WPP migration lies 20km to the north along the Kyzylkol, Sorkol, Akkol lake system.

Figure 8-2 - Showing the nearest Important Bird Areas (blue); Key biodiversity areas (green); State protected areas (pink) and the nearest to the WPP birds migration route (blue dashed line). Source: EcoSocio Analysts (2019)



It is noted that the migration routes approach the Karatau Mountain Ridge but then follow the lakes system to join the main migratory route 115km away from WPP at Ters-Aschibulak Reservoir to go over the Ridge at the Chokpak Overpass. During the surveys for Zhanatas it was recorded that there was some minor migration activity along the Burkitti River valley which cuts through the Shokpar site.

Arystandy IBA is c 35km to the south west of the site and consists of hilly steppe foothills and adjacent cereal fields at the western slope of the Karatau ridge. It is noted for being a wintering area for great bustard. No great bustard have been recorded on the Shokpar surveys.

8.5.11 CUMULATIVE IMPACTS WITH OTHER WIND FARMS

Cumulative impacts on biodiversity of Shokpar WPP with other wind power plants have not been considered. With regard to birds these impacts are:

- Collision with turbine towers, blades (moving or stationary) and/or associated infrastructure;
- Displacement of birds due to loss of suitable feeding and/or breeding/wintering habitat;
- Disturbance within and around the turbine envelope; and
- Creating a barrier to dispersal, regular movements or migration.

Other impacts include cumulative habitat loss and fragmentation of migratory corridors. These impacts can be - additive; or - antagonistic (i.e. the cumulative impact is less than the sum of the multiple individual effects); or synergistic (i.e. the cumulative impact is greater than the sum of the multiple individual effects (NatureScot 2018)[20]

***WSP Comment**: The key source of information to help to assess cumulative impacts is the ESIA and ESA from the adjacent Zhanatas WPP. For this site one of the actions to achieve compliance with PS6 is as follows:*

'Commission an experienced ornithologist to continue birds and bats monitoring to complete through the year assessment of the WPP territory usage. Develop methodology and train the plant staff to monitor birds and bats site usage and mortality with a focus on protected species. If annual mortality exceeds the industry statistics for the given turbines: 100 bats, 20 birds and 1 prey birds per 10MWh generated or more than 1% of the population of protected species using the site and implement additional mitigation measures in liaison with AIIB/IFC.'

The first post construction monitoring for birds was undertaken between September 25th 2022 and October 24th 2022 (EcoSocio Analysts 2022)[21]. This report presents the results of a bird carcass search protocol.

A cumulative assessment using the predicted effect of the Zhanatas project and the predicted effects of the Shokpar project combined by using data and information from the respective ESIA's and monitoring reports should be produced.

8.5.12 MITIGATION AND MANAGEMENT OF IMPACTS

As per PR6, the Shokpar WPP should adopt a practice of adaptive management in which the implementation of mitigation and management measures are responsive to changing conditions and the results of monitoring throughout the project's lifecycle. The mitigation strategy should be commensurate with the project risks and impacts to ensure that the requirements of PR6 are met and should take a risk-averse approach that explicitly identifies and accommodates uncertainty about outcomes of mitigation measures. Also, in areas of natural habitat, mitigation measures should be designed to achieve 'no net loss of biodiversity' where feasible. Appropriate actions include:

- Avoiding impacts on biodiversity through the identification and protection of set-asides;
- Implementing measures to minimize habitat fragmentation, such as biological corridors;
- Restoring habitats during operations and/or after operations; and
- Implementing biodiversity offsets.

[20] NatureScot (2018) Assessing cumulative impacts of wind farms on birds

[21] EcoSocio Analysts (2022) Zhanatas Wind Power Plant: Birds and Bats Mortality Monitoring During Autumn Migration

If a Biodiversity Management Plan is available or due to be produced for the Zhanatas WPP it is recommended that all of the mitigation, management and monitoring protocols outlined in these documents are followed at Shokpar WPP once they have been reviewed and accepted.

As previously noted there is no post construction monitoring protocol for biodiversity available for the Zhanatas WPP nor is there any carcass search protocol available.

8.5.13 RECOMMENDATIONS

- A habitat survey of the Shokpar WPP using the relevant EUNIS classifications should be undertaken at an appropriate scale and a Critical Habitat Assessment undertaken.
- There is some doubt about the visibility of N14 to N17 in the initial bird surveys. Although only a single year has been collected the amount of survey hours appears to exceed the minimum, so it is likely to be representative. It is suggested that a sample VP is set up for N14 to N17 (which can also take in N12 and N18 to N20) as this river valley has been identified as the passage route of raptors through the site. An update survey for flight activity can be undertaken in October to see if this is an important area for migration.
- The bird collision risk model has not followed standard guidance so the existing data should be re-analysed as per the recommended approach and the relevant collision risk window used. This window will depend on the final choice of turbine model for the Shokpar WPP. If the turbine model is the Envision (EN-156) 4.8MW then the risk window is 18.6m to 171.4m. A report and updated collision risk modelling exercise (to include the Autumn 2022 migration period flight activity data) can then be produced for review, to include a cumulative impact assessment.
- Bat surveys have apparently not been undertaken with only roost searches and anecdotal information used in the assessment. It is recommended that updated bat data is collected at the site as soon as possible using static detectors as per the relevant guidance to ascertain if there are currently bats using the site.
- A mammal survey (or appropriate desk study) of the site and an appropriate buffer is required.
- A reptile and amphibian survey (or appropriate desk study) of the site and an appropriate buffer is required.
- An invertebrate survey (or appropriate desk study) of the site and an appropriate buffer is required.
- It is suggested monitoring and mitigation for birds is considered here and should be included in a Biodiversity Management Plan. In addition:
    - Maintain the turbine blade markings as per the Zhanatas WPP turbines to enable motion smear as this makes the turbine blades more visible to birds;
    - Maintain monitoring for at least three years post construction, to include flight activity surveys and bird carcass searches; and
    - Ensure that the mitigation strategy is adaptive if impacts exceed the predicted thresholds.
    - Suitable flight divertors installed on the earth wire of the transmission line to make it more visible and prevent bird collisions.

- It is suggested monitoring and mitigation for bats are considered here and again should be included in a Biodiversity Management Plan, should bats be recorded during an updated survey programme. In addition:
  - Mortality monitoring i.e., bat carcass searches;
  - Avoidance, mitigation and compensation i.e., prevention of roost destruction, removal of attraction factors, blade feathering, increased turbine cut-in wind speeds and shutting down turbines temporarily during higher risk times of the night or year;
  - Possible use of acoustic deterrents
- A Construction and Operation Biodiversity Monitoring Plan commensurate to the identified level of risk.

8.7 POTENTIAL ENVIRONMENTAL EFFECTS AND MITIGATION

A summary of potential environmental risks associated with the proposed Project is provided in **Table 8-1** below.

Table 8-1 – Summary of key potential environmental effects

Receptor	Issue (Source/Pathway)	Potential Environmental Effects/Risks
Air Quality	Dust and PM_{10} during construction stage arising from activities such as excavations, concrete mixing, transportation of construction materials.	Emissions of air pollutants during construction and operation. Increased dust, PM_{10} during construction leading to reduced air quality and indirect effects on surrounding population.
	Vehicle emissions from construction vehicles and equipment.	Increased SOx, NOx, CO emissions during construction leading to reduced air quality and indirect effects on surrounding population and ecosystems.
Groundwater	Spills of chemicals and hazardous materials during construction activities.	Potential adverse effect on groundwater quality.
	Disruption to shallow aquifer natural regime due to deep foundation excavations on-site.	Potential risk of impaired groundwater quantity and quality.
Soils	Excavation and movement of soil; soil erosion and sediment discharge.	Loss or damage to soils due to compaction or increased erosion during to construction.
	Spills of chemicals and hazardous materials.	Accidental fuel and other hazardous materials spills could also contribute to soil contamination and degradation.
Ecosystems, flora and fauna; Natural protected areas	Site clearance and construction in areas of the proposed locations that have not yet experienced development (e.g. vegetation cuts, soil disturbance). Disturbance and displacement of existing and migratory populations. Direct mortality via collision of birds with turbines	Habitat loss. Localized damage to biodiversity, through harm to, or loss of, flora and/ or fauna. Local loss of populations and impacts on migratory populations, potential barrier effects Direct impacts on local, regional or global populations
Noise and vibration	Elevated noise levels due to construction and/or operation activities.	Temporary disturbance from construction and/or operational activities, impacting upon sensitive receptors (nuisance to nearby residents of Zhanaaryk village), local herders, domestic cattle and local wild fauna.
	Increased vibration to sensitive receptors as a result of ground	Intermittent disturbance from blasting or piling works and other construction machinery

Receptor	Issue (Source/Pathway)	Potential Environmental Effects/Risks
	induced vibration (e.g. blasting or piling works).	impacting upon sensitive receptors (possibly limited to OHS considerations).
	Residents of Zhanaaryk, local nomadic herders.	Risk of nuisance/disturbance as a result of construction noise.
Waste generation and management	Construction activities produce different types of waste. Operations of the facilities will also generate different types of waste.	If not properly managed, there is a high risk of contaminating the surrounding areas with rubbish and other types of construction waste and debris, including hazardous waste. For operation phase, it is recommended to produce a waste management plan, which will define the waste management practices, including how different types of waste will be collected, sorted, stored and disposed.
Landscape and Visual	Construction: the main impacts on landscape character and visual amenity result from the areas for temporary works, construction compounds, access road and on-site roads, areas for wind turbines, construction equipment and machinery. Operation: 22 turbines 175 m high within open but vast landscape, in terms of scale.	Visual impacts introduce a human element to the landscape assessment by changing how humans perceive the landscape. The degree of impact will be subjective and thus will vary between individuals. However, general predictions of impact significance can still be made. Therefore, visual impact is concerned with: ▪ The direct impacts of the development upon views of the landscape through intrusion or obstruction. ▪ The reactions of viewers who may be affected. The main source of landscape and visual impact during operation is the erection of 22 4.8MW turbines, each approximately 175 meters high. These turbines will be seen within the context of an open landscape that is currently largely devoid of engineered structures. Given the requirements of wind power, they will also be located on the highest ground, which comprises the peaks and ridge line of the Ulken Aktau Ridge. Due to the gently rolling, hilly treeless landscape, the turbines are likely to be visible from peaks and ridges for some distance from the site, depending on atmospheric conditions.

A summary of key environmental impacts/risks, relevant EBRD PRs and generic mitigation measures is provided in Table 8-2 below.

Table 8-2 - Summary of key potential environmental risks and impacts and mitigation measures

No.	Receptor	Risk/Impact	Relevant EBRD PRs	Mitigation and/or good management practices	Significance[22]
1.	Air Quality	Increased dust and PM_{10} during construction.	EBRD PR 1,3&4	▪ Require contractor to develop Air quality management plan. ▪ Minimization of fugitive dust using enclosures, dust collectors, covering of loads, wetting/sprinkling roads and other appropriate measures.	Minor and localized if all prevention, reduction and control measures are implemented.
		Increased gaseous emissions during construction	EBRD PR 1,3&4	Use of modern, well maintained vehicles; ensuring vehicle emissions are in compliance with the EU/Kazakhtan's and international emission standards; switching off of machinery when not in use; controls on vehicle movements through populated areas through use of approved access routes.	
2.	Groundwater resources	Disruption of natural groundwater regime.	EBRD PR 1,3	▪ Require contractor to develop a chemicals storage, refuelling and spill response plan. ▪ To prevent contamination from spills of fuel, oil and chemicals, the liquids have to be stored in designated secure areas.	Minor to Negligible. Geotech surveys indicated the GW table to be present at >10m therefore the effect on GW quantity and quality as a
		Spills of chemicals and hazardous materials during construction activities.			

[22] Estimate is given after mitigation measures applied (i.e. based on residual impact evaluation)

No.	Receptor	Risk/Impact	Relevant EBRD PRs	Mitigation and/or good management practices	Significance[22]
				▪ Refuelling must be conducted over impervious surfaces. Spill clean-up kits should be available at all areas and in all vehicles. ▪ Inspection of construction vehicles to identify and repair leaks or damaged fuel/lubricant lines should be performed on a regular basis.	result of construction of foundations is negligible. Minor to Negligible risk as a result of potentially massive or frequent spills of chemicals if all prevention and control measures are taken.
3.	Soil resources	Accelerated rates of soil erosion during construction stage and local contamination of soils due to fuel, oil and chemicals spills.	EBRD PR 1,3	▪ Require contractor to develop a Soil management and erosion control plan. ▪ Storage of the removed soil in stockpiles and taking the soil away or return it back in. ▪ Use soil erosion and sediment control measures to reduce erosion and sediment loading. ▪ Planting vegetation on the disturbed ground with native plants, compacting and/or stabilizing disturbed surfaces as soon as practicable. ▪ Require contractor to develop a chemicals storage, refuelling and spill response plan. ▪ To prevent contamination from spills of fuel, oil and chemicals, the liquids have to be stored in designated secure areas. ▪ Refuelling must be conducted over impervious surfaces. Spill clean-up kits	Minor if mitigation measures applied.

No.	Receptor	Risk/Impact	Relevant EBRD PRs	Mitigation and/or good management practices	Significance[22]
				should be available at all areas and in all vehicles. ▪ Inspection of construction vehicles to identify and repair leaks or damaged fuel/lubricant lines should be performed on a regular basis.	
4.	Flora and Fauna	Site clearance and construction in areas of the proposed locations that have not yet experienced development. Damage/loss of plant species including rare plant species.	EBRD PR 6	▪ Avoid development in areas which currently contain vegetation, in favour of previously developed land. ▪ Remove vegetation only as a last resort and protect it where possible during construction. ▪ Provide compensatory planting of vegetation for any affected areas.	Minor – if proper avoidance and management practices are implemented.
		Modification of fauna species habitat or loss of habitat.	EBRD PR 6	▪ During construction ensure minimum biodiversity damage due to land clearing; No damage outside boundaries; Limited damage to ground surface and root zone. Where possible employ and ecological manager to oversee the works.	Moderate. Could be risks to terrestrial organisms if no prevention and control measures are implemented during the construction phase.
	Birds and bats	Potential risk of disturbance, displacement, barrier effects and collision mortality especially with regard to migratory and congregatory species	EBRD PR 6	▪ Best practice during construction and operation ▪ Monitoring and management of impacts via carcass searches and behavioural surveys. ▪ Adaptive management protocol to respond to future mitigation requirements.	Moderate based on current information and with implementation of recommended monitoring and mitigation.

No.	Receptor	Risk/Impact	Relevant EBRD PRs	Mitigation and/or good management practices	Significance[22]
5.	Noise and vibration	Temporary disturbance from construction and/or operational activities, impacting upon sensitive receptors nuisance to nearby residents of Zhanaaryk village), local herders, domestic cattle and local wild fauna.	EBRD PR1, 2 & 4 & 6	▪ Require contractor to develop a noise management plan. ▪ Ensure construction noise will be limited to restricted times (daylight). ▪ During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible.	Very minor and localised if proper avoidance and management practices are implemented.
		Excess noise in work environments		▪ As needed, implement noise control techniques (equipment selection, silencers for fans, acoustic machine enclosures; noise isolation, mufflers or silencers in intake/exhaust channels; vibration isolators and flexible connections minimise pressure variations in piping, etc). ▪ Keep records of noise measurements. ▪ Provide and require use of hearing protection in noisy areas. ▪ Workers exposed to noise all to be required to wear PPE.	Minor if all mitigation measures are applied.
7.	Waste generation and management	Construction activities produce different types of waste.	EBRD PR1 & 3	▪ Require contractor to develop a waste management plan. The plan will define the waste management practices, including how different types of waste will be collected, sorted, stored and disposed. ▪	Minor if all mitigation measures are applied.

No.	Receptor	Risk/Impact	Relevant EBRD PRs	Mitigation and/or good management practices	Significance[22]
8.	Traffic congestion	Risks to public from heavy traffic to occur on access road and through R-43 and R-44 roads. Any community H&S risks associated with the transportation of heaby and oversized loads (WTGs) from China-Kazakhstan border to the Project site. Potential collisions with other vehicles or pedestrians (death, injury, property damage).	EBRD PR1 & 4	▪ Develop and implement a traffic management plan. ▪ Employ traffic control measures (temporary signs, markers, flagmen, etc.) during times of heavy traffic or road blockage. ▪ Ensure the logistical contractor for WTG has developed transportation management plan and obtained all required in-country licenses and permits for heavy load transportation. ▪ Employ police convoys for transporting oversized and heavy equipment from China. ▪ Vehicles to be regularly inspected and maintained through the construction period. ▪ Wheel washing and vehicle checks to be required to minimise the transporting of the dust and debris out of the project site and onto the public highway (road linking Zhanatas with Taras). ▪ All materials transported by road to be covered and secured to prevent spillage onto the surrounding roads. ▪ Training for all drivers. ▪ Observe all traffic and safety regulations, including rules for wide loads and weight.	Minor to Moderate; Minor if all required traffic management and control measures are implemented.

No.	Receptor	Risk/Impact	Relevant EBRD PRs	Mitigation and/or good management practices	Significance[22]
				▪ Traffic conditions during the operational period to be monitored in order to identify and address any negative impacts. ▪ Adequate on-site parking.	
9.	Landscape and Visual	The main source of landscape and visual impact during operation is the erection of 22 4.8MW turbines, each approximately 175 meters high. Local herders, local residents and passing travellers on the R-43 road will experience changes to their existing views if they happen to look to northern slope of the Ulken Aktau Ridge near Zhanaaryk. Some turbines will be clearly visible from the road. Visual amenity may also be affected by presence of on-site support buildings and roads; off-site linear features including roads and power lines.	-	Construction stage: the impacts will be temporary and medium term with the significance being minor No concerns were raised in relation to landscape or visual impacts during WSP meetings with some representatives of local communities. During public consultations reportedly it was found that local residents did not feel strongly about the change to views for example with respect to the existing and operational Zhanatas wind park local residents felt they would quickly become accustomed to the changed landscape.	Overall, the landscape was judged as being of medium sensitivity and due to the size of the structures, the magnitude of change is medium to high. The significance of the impact of the turbines on the local landscape is assessed as moderate adverse.

8.8 POTENTIAL SOCIAL AND HEALTH & SAFETY EFFECTS AND MITIGATION

A summary of key socio-economic, community and H&S risks and effects, relevant EBRD requirements and mitigation measures is provided in **Table 8-3** as below.

Table 8-3 - Summary of key potentially significant impacts and mitigation measures

Receptor	Impact/Risk	Relevant EBRD Standard	Significance and Mitigation and/or good management practices
Impacted communities and businesses and project stakeholders	Inadequate understanding of local socio-economic conditions and risks that could be further exacerbated by the project	EBRD PR1	Moderate to Minor. Take all required steps in order to ensure that all project stakeholders are informed, consulted and protected through grievance mechanisms in accordance with EBRD requirements.
Health and Safety – residents of village Zhanaaryk	Elevated noise and disturbance to local residents	EBRD PR4	Moderate to Minor. In order to provide a more detailed assessment of potential noise impacts, it is advised to complete Noise assessment and modelling for the Project.
	Shadow flickering effects of WTG EN-10 as per the revised Shopar wind park layout. Searches undertaken in local language highlight that there do not appear to be any official Kazakhstan regulations in place for shadow flicker. However, international studies[23] cite		Likely to be Very Minor or Negligible. It is advised to undertake a flicker shadow simulation test for EN-10, the closest WTG to the residential housings of the Zhanaaryk village.

[23] Parsons Brinkerhoff (now WSP) (2011) Update of UK Shadow Flicker Evidence Base [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48052/1416-update-uk-shadow-flicker-evidence-base.pdf

Receptor	Impact/Risk	Relevant EBRD Standard	Significance and Mitigation and/or good management practices
	distances of 10 rotor blade diameters or 500-1,000 metres distance should minimise the potential for shadow flicker. The closest house to Shokpar WWP is advised to be 1,120 metres from the nearest wind turbine (WTG EN-10), and Project Company reported that shadow flicker would not be an issue at that distance.		
Communities near Project area	Disturbance to local residents by elevated ambient noise levels. Noise Impact Assessment of Shokpar wind park has not been undertaken during project appraisal.	EBRD PR4	Minor to Moderate if not examined/mitigated. It is advised to undertake a noise impact assessment. Based on the outcomes of the study, consider implementing mitigation measures (if triggered). Noise impact should be assessed in accordance with the following principles: • Receptors should be chosen according to their environmental sensitivity (human, livestock, or wildlife). • If no sensitive receptors are within 2,000 meters of any of the turbines in a wind energy facility, a noise impact assessment is generally not required. • If one or more sensitive receptors are within 2,000 meters of any turbine, 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).

Receptor	Impact/Risk	Relevant EBRD Standard	Significance and Mitigation and/or good management practices
			• If the preliminary model suggests that turbine noise at all sensitive receptors is likely to be below 35 dB(A) at all wind speeds during day and night times, noise is unlikely to be an issue; otherwise more detailed modeling should be carried out. • All modeling 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 receptor is also close to other significant noise sources, a more distant receptor may need to be chosen
	Community health and safety at risk by increased traffic.	EBRD PR4	Moderate to Minor. ▪ Require contractor to develop a Traffic Management Plan. ▪ Reduce unnecessary traffic during peak hours and for heavy vehicles select routes with strong infrastructure or pay for upgrading to minimize damages. ▪ Secure the entrance to construction site with proper signage and contact information.
	Community health and safety (accidents during construction or by trespassers) at risk by increased traffic during construction.		

Receptor	Impact/Risk	Relevant EBRD Standard	Significance and Mitigation and/or good management practices
	Community functions: Risk of disrupting community function as a result of generating noise, dust, presence of outsiders during construction stage.	EBRD PR4	Moderate to Minor. ▪ Site away from the nearby residential areas as much as possible, and take all dust reduction measures, including watering unpaved roads, and only operating during agreed daylight hours. ▪ Secure the entrance to construction site with proper signage and contact information.
	Workers influx: Risk for Community disruption, increased crime, etc.	EBRD PR2	Moderate to Minor. ▪ Worker Code of Conduct that will prescribe certain behaviours and require others. ▪ Require contractor to enforce the Code, with penalties leading up to dismissal. ▪ EPC Contractor to consult with local authorities and community leaders, which will ensure they (that is, project managers) are aware of incidents and can take appropriate action if the issue arises.
	Community health and safety at risk: diseases, violent behaviour (including GBVH), accidents, emergencies	EBRD PR2 EBRD PR4	
Economy	Employment opportunities for local residents during construction stage.	EBRD PR2	Moderate positive. Ensure local workforce receives priority in hiring for construction.
Social infrastructure	Potential risk of damaging existing public roads during construction.	EBRD PR4	Moderate to Minor. Require contractor to develop a Traffic Management Plan.

Receptor	Impact/Risk	Relevant EBRD Standard	Significance and Mitigation and/or good management practices
Cultural heritage and heritage	Risk of damaging cultural monuments, archaeological artefacts, cemeteries.	EBRD PR8	Minor. Require contractor to develop and follow a chance find procedure.
Workers for construction and operation	Occupational hazards.	EBRD PR1 & 2	Major to Moderate. Adhere to all international/EU labour OHS (Occupational Health and Safety) standards, including OHS training, during all phases of the Project.

9 STAKEHOLDER CONSULTATIONS & ENGAGEMENT

9.1 PREVIOUS ENGAGEMENT BY PROJECT COMPANY

Shokpar Wind Power Plant LLC has been engaging with various project stakeholders since 2020, which coincided with the preparation phase of the Screening EIA report. The Project Company has engaged with the following institutions and stakeholders:

- Zhanatas Akimat
- Zhanaaryk Akimat
- Aktogay Akimat
- Kazphosphate LLC
- EuroChem LLC
- Local public (residents of Aktogay and Zhanaaryk)

Formal screening EIA public disclosure/hearings meeting was held in the village of Zhanaryyk at 6PM on 21 January 2022. The total of 27 attendees participated in the meeting. The Company representatives disclosed information about the proposed Project and answered the questions from participants. In accordance with the meeting protocol, the key issues raised by local residents involved:

(a) a concern about noise generated by construction and operation of the wind park; and
(b) employment opportunities for local residents.

As reported, Shokpar Wind Power Plant LLC plans to set up a contact website alongside a social media page for the community to observe ongoing construction and submit their queries.

9.2 STAKEHOLDER ENGAGEMENT DURING E&S DUE DILIGENCE

During the course of the site visit (15-20 August, 2022), WSP, with assistance from the Project Company, a number of meetings were held with stakeholders on 17 August 2022 (summarised in Table 9-1):

- Akim of Zhanatas;
- Akim of Akotgay; and
- Akim of Zhanaaryk.

It was noted that the Project Company and the Project Investor had managed to build a constructive relationship with the local authorities. The Akimats expressed deep interest in wind power development taking place in the region and promised full support as needed to the wind developers and investors.

Akim of Zhanatas shared information about prospective plans for wind power resource development in the region. According to his information, there is a memorandum between local authorities and (collectively) investors and wind developers to expand the total wind resource development capacity to 400MW – all attached to the northern slope of the Ulken Aktau Ridge along the Karatau-Zhanatas highway.

Table 9-1 - Stakeholder Meetings held during Site Visit

Meetings Held	Key Points Discussed at Meetings
Meeting in the Akimat of Zhanatas: - Akim of Zhanatas; - Akim of Akotgay; and - Akim of Zhanaaryk.	**Shokpar WWP – overall status and progress** The Project Company provided a summary on Project's current status – local permitting/licensing and compliance; status of construction works **Public perception of the Shokpar Wind Power Plant project?** It was stated that the project will contribute to community development and help attract investment to the region. It was reported that the Akimat of Zhanatas, AKimat of Zhanaaryk and AKimat of Akotguy fully support the project. **Were there any objections from the communities?** None were reported. Local residents observed the development of Zhanatas wind park project; at an early stage the Shokpar project benefits for the community had been explained to the local residents by Akims of all three Akimats. Due to the lack of businesses in the villages, support for the project was high particularly as it would yield taxes that would be directed to the local economy and the villages would welcome this investor and others that can contribute to community development. **Brief discussion over turbines transportation routes and potential effects on community?** The Project Developer stated that the wind turbines will most likely be transported during the night time and all the required permits to allow for transportation and installation will be obtained. In terms of road suitability to transport wind turbine towers and blades, it was reported that towers would be in sections, however blades would not (67 m length) and therefore some road sections might need to be widened / modified (especially secondary local roads) to address the vehicle turning radius. **Ice throw and noise effects** On ice throw impacts, the Company stated that the closest to the residential area WTG is situated within 1.2 km and there is no risk of ice throw; additionally, it was stated that there is a 400 m buffer zone for ice throw, although this was unlikely as de-icing of wind turbine blades will be undertaken in winter months to protect the wind turbines for technical reasons. Access to the turbine will be restricted by installation of barriers with proper signage (no trespassing; no unauthorised access). With respect to noise effects – Akims and local residents participating in the meeting indicated no adverse noise effects from existing and operational Zhanatas wind farm; the expectation from public is that Shokpar wind park will not disturb local residents.

WSP comments:

- It is advised to undertake a Noise Assessment (modelling) for Shokpar wind power plant in order to fully address the noise aspect and potential adverse effects associated with increased disturbance to local residents as a result of elevated noise levels. **This aspect is conditioned in the ESAP (item 4.2)**.
- WSP developed a stand-alone SEP for Shokpar Wind Power Plant LLC and the Project. The SEP outlines how the Project Company will communicate with Project stakeholder groups and public who have an interest throughout different Project stages, including operation and maintenance. It is proposed that the SEP will be updated on a regular basis depending on the stage of the project, but as a minimum on the annual basis. Updated versions may include new stakeholders and any changes to the stakeholder programme as the Project develops. As part of the SEP, a formal grievance mechanism as developed by Shokpar Wind Power Plant LLC has been outlined to enable project stakeholders to raise grievances and receive answers relating to any aspect of the Project.

10 ENVIRONMENTAL, HEALTH, SAFETY & SOCIAL MANAGEMENT SYSTEM

10.1 EHS MANAGEMENT

Lenders' Requirements set out expectations with regards to organisation capacity and commitment to adhere to the environmental and social (including health and safety and labour) requirements[24]. The Environmental and Social Action Plan (ESAP) (Section 12 and **Appendix B**) was developed by WSP for Shokpar Wind Power Plant LLC to implement an integrated approach in EHS structure of the Project.

The following Environmental and Social Management System (ESMS) structure is therefore recommended by WSP for the Construction and Operation & Maintenance phases of the Project:

- **Project Developer (Project Company):** Shokpar Wind Power Plant LLC (management) and overall supervision over EPC.
- **EPC Contractor (GCD & Shanghai Institute of Mechanical and Electrical Engineering (SIMEE)): has two** HSE Engineers at the construction camp working shifts engineers; reporting lines to Shokpar Wind Power Plant LLC (as required)
- **Sub-contractors to EPC:** reporting to EPC contractor.
- **Build Master Group (BMG) Ltd.** Kazakh company based in Nur-Sultan. The main role of BMG in Shokpar project will be providing necessary supervision over construction (the Author Supervision Engineer).
- **Dostar Story (DSG).** As required by Kazakh local legislation for construction sector, DSG will be technically supervising the construction of the Project, which mainly refers to regular (quaternary) construction site audits and check-ups for project technical compliance to the Project design documentation.
- **Project operator: (O&M stage)** responsible for Project operation & maintenance, including all related E&S and H&S performance aspects.

The Shokpar Wind Power Plant LLC's management will have the overall responsibility of the Project's EHS performance during the construction phase. The Project Company to assign and E&S and H&S supervision engineer who will oversee the construction activities including all HSE

[24] The client will establish, maintain, and strengthen, as necessary, an organisational structure that defines roles, responsibilities, and authority to implement the ESMS for ensuring on-going compliance with relevant national regulatory requirements, and the PRs. The client will designate specific personnel, including management representative(s), with clear lines of responsibility and authority to maintain and implement the ESMS. Key environmental and social responsibilities will be defined and communicated to the relevant personnel. The client will provide adequate support and human and financial resources on an on-going basis to achieve effective and continuous environmental and social performance.

matters and who will also be regularly updating the Project shareholders on the overall HSE performance.

The first level of monitoring during construction will be conducted by the EPC in routine management of ongoing activities. This will be supplemented by nearly continuous monitoring by the E&S Supervision Engineer and somewhat less by the EBRD. The Project Company will be responsible for submitting periodic (twice a year) reports to EBRD on E&S performance during construction.

Project operator (to be selected later) will be responsible for reporting E&S performance during the operation of the Project.

10.2 E&S MANAGEMENT DURING CONSTRUCTION STAGE

As discussed earlier, it is envisaged that the majority of E&S impacts will take place during construction phase of the Project. Therefore, it is important to establish an effective E&S management system designed for construction activities and based on good construction industry practices.

The construction period for the Project is scheduled for 19 months. The maximum amount of workers engaged in the construction activities at the peak of construction stage will not exceed 160 workers. Initial construction works include the following key activities:

- Site preparation (site clearance etc);
- Earthworks;
- Set up temporary site facilities and camp infrastructure;
- Allocating work areas and installing temporary security fencing (at camp area); and
- Identification, arrangement and distribution of utilities as required.

The main activities of the following construction phases will include excavations, backfilling, compaction, ditching, trenching, equipment installation, electrical and instrumental installation, concrete works at foundations, wind tower erection, erection of electric towers, conductoring, erection of building at substation areas, piping works and others.

It is expected that no dewatering activities will be required due to deep shallow aquifer groundwater table (>10 meters below the surface).

The main types of equipment and machinery expected to be used during the construction phase are:

- For site preparation activities: Bulldozers, rock breakers, excavators, loaders, dump truck, compactor.
- For foundations: concrete plant, mixers, pumps, piling equipment (pile driving rigs), concrete saws.
- For general construction activities: small diesel generator, compressor, cranes and other transportation and heavy lift machinery.

A temporary workers camp location is being currently finalized. As required under EBRD PR2, the living quarters and office building will be equipped with the utilities and support services necessary to accommodate the workforce, such as water, electricity, shower, laundry, canteen, recreational and medical services.

E&S performance and compliance to national and international requirements and standards during construction stage of the Project will be guided and controlled by a **Construction Environmental and Social Management and Monitoring Plan (C-ESMMP)** (as specified in ESAP, **Appendix B)** which is to be developed by the EPC Contractor.

The primary objective of the C-ESMMP is to avoid, mitigate and minimize potential environmental and social impacts associated with construction activities of the Shokpar wind power plant project in line with industry best practice and to provide a vehicle for implementation of various mitigation activities identified in the Project's E&S Assessment, comprising this report and local screening EIA.

The overarching C-ESMMP will provide guidance on the environmental and social management system approach to be adopted by EPC Contractor and its individual subcontractors during the construction phase of the Project. It is supplemented by various sub-plans and procedures, which will have been developed to address key environmental and social aspects identified during the Project's E&S appraisal. These environmental and social plans/sub-plans and procedures are anticipated to be prepared as separate stand-alone documents.

It will be the responsibility of EPC Contractor (supervised by the Project Company) to implement the requirements of the C-ESMMP and management plans throughout the construction phase and to monitor the performance of its individual subcontractors to ensure they meet the appropriate C-ESMMP requirements. The subcontractor(s) are responsible for developing and implementing their own management plans or procedures in line with the requirements of the C-ESMP and sub-plans as part of their own Environmental, Health and Safety (EHS) Management System or they may adopt the ESMS requirements and management plans and procedures from the EPC Contractor with formal approval from the Project Company and Shareholders.

At a minimum, the C-ESMMP will include the following set of management sub-plans and procedures (some core plans are briefly described with respect to their objectives and contents):

- **Air Quality Management Plan**

  It was noticed by WSP that EPC Contractor has been applying some of the mitigation measures with respect to management of dust emissions – two water trucks (15m^3 and 10m^3) were observed sprinkling the gravel roads with water to supress dust.

  GHG emissions. with respect to GHG emissions – the Project is predicted to produce minimal (less than 25,000 tonnes of CO_2 per year) additional greenhouse gas emissions during construction and operation. There will be back-up generators, but they will be (hopefully) rarely used.

- **Stormwater and Erosion Control Plan**

  This Management Plan will address the management of environmental impacts associated with stormwater drainage and the managements of soil and erosion for the Project Area.

- **Waste Management Plan** (or amended existing Waste Management Program)

  The plan will sets out a systematic approach for the management of wastes in line with Kazakh legislative requirements, international requirements and good practice procedures. The plan establishes guidelines for the management of project wastes, including identification of

applicable Project Standards, mitigation controls and monitoring programs. Specific objectives of this plan will be to (i) outline the applicable standards with regards to waste management; (ii) Identify potential sources of impact from waste for the different phases of the Project; (iii) define the operational procedures for waste management; (iv) define roles and responsibilities; (v) describe waste management facilities; (vi) define monitoring/auditing and reporting procedures

It was noted that construction debris and general waste is temporarily collected in containers in a waste collection designated area on-site. GCD provided a copy of signed contracts with local certified waste collection and disposal company based in Zhanatas.

- **Water and Wastewater Management Plan**

The Plan will systemize the activities associated with management of water and wastewater on-site. The primary source of drinking water supply is bottled water. In order to meet the demand of the construction site in sanitary and technical water, in 2021, GCD engaged a Kazakhstan's registered company BMG to develop a design project for a 22cm diameter under surface water pipeline connecting the construction camp with the existing groundwater withdrawal well located in some 1.6 km south-east of construction camp on the right floodplain of Berkytti stream; as reported, the groundwater well belongs to Kazphosphate. The project is being implemented.

The sanitary wastewater will be collected in septic tanks; periodically pumped by vacuum truck and disposed by a local certified wastewater disposal company "Zhanatas-Su Zhilu" based in the town of Zhanatas. GCD signed agreement with the company for the services.

- **Hazardous Materials Storage and Management Plan**

This Plan will ensure the effective storage, management and disposal of hazardous materials during the construction period is undertaken in a systematic way. The plan will establish guidelines for the management of hazardous materials, including mitigation controls and monitoring programs. The primary objectives of the plan are to (i) Identify potential sources of impacts associated with hazardous materials; (ii) define the procedures for the management of hazardous materials; (iii) define roles and responsibilities; (iv) define monitoring and reporting procedures; and (v) define training requirements.

It is understood, the construction camp involves installation of a 45m^3 (maybe higher capacity) diesel tank (AST), which is yet to be delivered to the site. Currently, all construction equipment and trucks are refuelled from a mobile diesel truck, which arrives on request from the town of Zhanatas. No oils, oil lubricants, paints, solvents are currently stored on-site. EPC Contractor will need to ensure that the storage of liquid hazardous materials (including waste oil and solvents) is be provided with 110% capacity secondary containment and for above ground tanks in excess of 1,000L, provision of secondary containment with a capacity of the larger of 110% of the largest tank or 25% of the combined tank volumes in the storage area is ensured.

- **Occupational Health and Safety Plan**

The Plan is to ensure the protection of laborers, engineers, management personnel, consultants, vendors and visitors during the construction phase of the Project. The plan defines

the procedures and monitoring requirements to promote a safe working environment for all those required to be within the construction site during the construction effort.

- **Refuelling, Spill Prevention and Spill Clean-Up Procedure**

  This plan will in systematic way define how EPC Contractor and its subcontractors will be conducting fuelling/re-fuelling (incl. field refuelling) and what are the defined spill preventive and response measures – spill clean-up kits etc.

- **Community Health and Safety Plan**
- **Labour Management Plan**
- **Retrenchment Policy**
- **HR Policy**
- **COVID Precautionary Measures/Procedures**
- **Traffic and Residents Safety Management Plan**
- **Code of Conduct (to cover all workers, contractors and suppliers)**
- **Contractor Management Plan**
- **Stakeholder Engagement Plan (SEP)**
- **Commissioning Management Plan**
- **Cement Truck Washing Procedure**
- **Emergency Response Procedure**
- **Archaeological Chance Find Procedure**

10.3 E&S MANAGEMENT DURING OPERATION AND MAINTENANCE

The overall lifespan of the Shokpar WPP is set to be about 25 years. As previously discussed, the wind park will comprise twenty-two (22) 4.8 MW, 175 m tall wind turbines, a step-up substation and a 2-storey administrative building, including a control room, canteen, toilets, meeting rooms, resting areas etc.

The wind farm will employ 17 to 25 staff, comprising power facility operators and other personnel on-site, as well as management staff located in HQ in Almaty.

It is suggested the E&S performance and compliance to national and international requirements and standards during O&M phase of the Project to be governed by **Operation Environmental and Social Management and Monitoring Plan (O-ESMMP)** (as specified in ESAP, **Appendix B)**, which is to be developed by the Project Operator (or Project Company) prior to commissioning the facility (i.e. prior to est. January 2024).

Tentative content of O-ESMP is provided below:

- Objectives of the O-ESMMP.
- Regulatory framework (define local and international (EBRD and other IFI regulatory regimes, standards and requirements).
- Summary table presenting a set of measures and activities within O-ESMMP and how the E&S requirements and mitigation measures have been addressed with respect to the operational activities the wind farm (e.g. structured by component/item – air quality,

wastewater, waste management; hazardous materials management (transformer oils, management of SF-6 gas in case of GIS etc.; occupational H&S; fire safety, bird mortality monitoring procedure, stakeholder engagement and others).

- The O-ESMMP may have direct references to stand-alone management sub-plans/procedures, for example:
  - Bird Mortality Monitoring Procedure
  - Emergency response procedure
  - Waste management plan
- Roles and Responsibilities (including reporting lines).
- Monitoring program (site inspections, frequency, reporting etc.).

11 CONCLUSIONS AND ANALYSIS AGAINST EBRD PERFORMANCE REQUIREMENTS

In respect of specific EBRD PRs, the environmental and social appraisal has been conducted against these requirements as presented in the previous chapters. A summary of the Project against the performance requirements is provided in **Table 11-3** overleaf in a compliance summary table in accordance with EBRD guidance.

The details in the compliance table will provide a baseline against which to judge future performance of the project through the annual environmental and social reporting process that is required by EBRD.

11.1 EBRD COMPLIANCE SUMMARY GUIDANCE

For all PRs (indicators with whole number references), a summary of overall compliance (in line with **Table 11-1**) with the PR has been provided. Where there are derogations from a PR, a justification has been provided and supporting documents referenced as required.

For each indicator within a PR, three steps have been completed as below in accordance EBRD guidance:

- Decide whether the indicator is applicable. For **Category B** projects, the starting point is that all indicators are applicable unless the project has no significant aspects relevant to the indicator (i.e. no risks), in which case the indicator should be scored "NA" and a brief summary of the reason given.
- Decide whether an opinion is possible. If not (for example if the indicator will apply, but it is too early in the project) score as "NOP" and provide a brief summary of why. Where lack of opinion represents a material omission to the review refer to where this is addressed in the report and summarise any recommendations.
- Score the indicator as follows and provide brief justification.

Table 11-1 - EBRD Compliance and Scoring

EC	Exceeding compliance – the project has gone beyond the expectations of EBRD's PR requirements. EBRD should be able to use projects rated EC as a role model for positive environmental and social effects.
FC	Fully compliant - The project is fully in compliance with EBRD's requirements and EU and local environmental, health and safety policies and guidelines.
PC	Partial compliance – The project is not in full compliance with EBRD's requirements, but has systems, processes or mitigation measures in place, which are working towards addressing the deficiencies.
MN	Material non-compliance – The project is not in material compliance with EBRD's requirements and the systems, processes and mitigation measures in place are not working towards addressing the deficiencies.

Comments/Issues: Provide a brief commentary on the relevance of this requirement for the project and an explanation of the chosen score.

Actions Required: Where applicable, briefly describe any actions required by the Client to achieve full compliance with each requirement. Where a relevant action is included in the ESAP for this project, please provide a reference to the ESAP.

PR Summary: Provide an overall summary against the PR, using the above compliance definitions with supporting commentary. In some cases, it may be sufficient to address a PR at summary level only.

Note: The Material Non-compliance score (at both Indicator and PR level) has significant implications for Project approval and requires particular care. In judging whether the measures sufficiently address deficiencies the consultant should consider in a structured way both the level of residual (post-approval) risk and the level of confidence that the Project can successfully bring the issue into compliance with the Policy through the ESAP. **Table 11-2** below illustrates the approach to be taken.

Table 11-2 - Compliance Matrix

Risk	Confidence: High	Confidence: Medium	Confidence: Low
High	PC	MN	MN
Medium	PC	PC	MN
Low	FC	PC	PC

Table 11-3 - EBRD Performance Requirement Compliance Summary Table

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
1	**Assessment and Management of Environmental and Social Impacts and Issues** **Summary**: Overall, at the time of issuing this E&S Assessment report, it may be concluded that the Project is **fully compliant** with National environmental legislative requirements and **partly compliant** with EBRD ESP and PRs. Additional steps are required to be addressed/completed in order to achieve full compliance status.				
1.1	Environmental and Social Assessment	PC	The draft EIA screening report has a number of gaps, which are to be addressed to achieve compliance with EBRD ESP and PRs. The following key gaps/or aspects have been identified during national EIA gap analysis against the EBRD ESP and PRs that require follow-up: ▪ Screening EIA report provides no project-specific baseline characterisation, especially for biodiversity (birds) and local social and economic conditions. ▪ Impact analysis on local biodiversity (ornithology inclusive) is generic. The analysis provides a conclusion that impacts on local flora and fauna are characterised as 'acceptable'. No bird migration aspects are examined/addressed. No discussion over cumulative effects, especially taking into consideration plans to develop the total of 400MW of wind power	▪ The baseline needs to be updated to reflect project specific conditions. ▪ Need update for impact analysis on biodiversity and cumulative impact considerations ▪ Need for details on OHS system and its organisation. ▪ Need for a follow-up analysis on project-related risks and adverse impacts to the health and safety of the communities and how these will be managed during construction and operation ▪ Framework ESMP and mitigation measures require expansion. ▪ ESMS organisation needs to be detailed. No organisational structure for ESMS was provided. ▪ Information on management of third-party needs to be expanded (Supply chain risks). ▪ Human resources management and working relationships needs to be addressed. ▪ Child and forced labour aspects need to be covered. The Project Developer should provide information on how compliance with child and	1.3 – 1.4 2.1-2.3 3.1-3.2 4.1-4.5 6.1-6.3 8.1 10.1-10.2

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
			resources on this ridge. Updated impact analysis on biodiversity and cumulative impact considerations are recommended. ▪ Social and Occupation and Community H&S risks and considerations were only partially included in the EIA screening report – need details on OHS system and its organisation. ▪ No discussion over project-related risks and adverse impacts to the health and safety of the communities and how these will be managed during construction and operation (e.g. traffic and safety; emergency response etc.). This needs follow-up analysis. ▪ Framework ESMP and mitigation measures specified are inadequately linked with the "initial impact-mitigation measures-residual impact" analysis in the EIA report. Only limited information about environmental impact mitigation measures has been provided in the EIA screening report. ▪ No information on Environmental and Social Management System (ESMS) established by the Project developer was provided.	forced labour requirements is ensured on the project, including via its supply chain. ▪ The Project Developer should provide information on how compliance with non-discrimination and equal opportunity requirements is ensured. ▪ The Project Developer should provide information on how compliance with labour requirements is ensured. ▪ The Project Developer should provide information on the availability and maintenance of grievance mechanism. WSP produced a SEP for Shokpar Wind Power Plant LLC (a separate to this report document), which defines external Grievance Mechanism and sets out the way the company will communicate with project stakeholder groups.	

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
			No information on Environmental and Social Policy established by the Project developer was provided. Project Developer should provide information on environmental and social objectives and principles to achieve sound environmental and social performance. No information on Project developer's organisational structure was provided. ▪ No information on management of third-party risks has been provided (Supply chain risks). ▪ No information on management of human resources and working relationships has been provided. ▪ Child and enforced labour aspects. No evidence has been provided on compliance with this requirement. The Project Developer should provide information on how compliance with child and forced labour requirements is ensured. ▪ No information on established grievance mechanism has been provided. The Project Developer should provide information on the availability and maintenance of grievance mechanism. WSP		

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
			produced a SEP for Shokpar Wind Power Plant LLC (a separate to this report document), which defines external Grievance Mechanism and sets out the way the company will communicate with project stakeholder groups.		
1.2	Permitting to be acquired	FC	It is understood the Project Company obtained all required permits and licenses required for construction.	No actions.	n/a
1.3	Environmental and Social Management Systems (ESMS)	PC	The ESMS for construction and operation and maintenance phases are not in place.	The Project needs to set up an effective ESMS, in particular for the construction stage, since all potentially major adverse effects are expected during the construction phase of the Project. The ESMS system should effectively address/manage all environmental, health & safety and social aspects of the Project. A H&S risk assessment, risk register, Hazard and Operability Analysis (HAZOP), Hazard Identification (HAZID), Job Safety Analysis (JSA) are to be carried out (by EPC). EHS management plans, sub-plans, policies, procedures and/or method statements are required to be developed and approved by Shokpar Wind Power Plant LLC prior to construction works commence on-site.	1.2-1.5 2.1-2.3 3.1-3.3 4.1-4.5 5.1 6.1-6.3

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
1.4	Environmental and Social Policy[25]	PC	There is no formal and published Environmental and Social Policy for Shokpar Wind Power Plant LLC.	Shokpar Wind Power Plant LLC should develop an Environmental and Social Policy (as a core internal ESMS document) and make it publicly available on the Shokpar website (if it has been set up).	1.3.1
1.5	Environmental and Social Management and Monitoring Plan (ESMMP)	PC	There is no Contractor's Construction Environmental and Social Management Plan (C-ESMMP) in place.	The Project ESMS should ensure that EPC/Contractor's Construction-ESMMP is developed/or approved by Shokpar Wind Power Plant LLC as soon as possible. Construction Environmental Management Plan (C-ESMMP) should be developed by EPC Contractor and should comprise at a minimum the following sub-management plans/procedures or method statements: ▪ Air quality management plan ▪ Stormwater and erosion control plan ▪ Waste management plan (or amend existing Waste Management Program) ▪ Wastewater management plan ▪ Noise management plan ▪ Hazardous Materials Storage and Management Plan ▪ Community Health and Safety Plan ▪ Labour Management Plan ▪ Retrenchment policy	1.3.4-1.3.5

[25] Where the project represents a substantial extension to the client activities, confirm that Policy and supporting management systems and plans are appropriate for the new activities.

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
				▪ HR Policy ▪ COVID precautionary measures/procedures ▪ Traffic and Residents Safety management plan ▪ Emergency preparedness and response plan ▪ Workers Occupational Health and Safety Management Plan ▪ Worker Code of Conduct ▪ Stakeholder engagement plan (SEP) ▪ Facility Commissioning Plan Develop detailed method statements/procedures on: ▪ Refuelling and Spill Prevention and Clean-up ▪ Cement truck washing ▪ Archaeological Chance find procedure	
			There is no Operational Environmental and Social Management Plan (O-ESMMP) in place.	The Project ESMS should ensure that Facility Operator develops an Operational ESMMP comprising the following management sub-plans and procedures: ▪ SEP ▪ Biodiversity Management Plan incl. bird mortality monitoring procedure ▪ Biodiversity Management and Monitoring Plan ▪ Waste management plan ▪ Occupational Health & Safety Plan ▪ Hazardous Materials Storage and Management Plan	
1.6	Organisational Capacity and Commitment	PC	EPC Contractor provided a number of EMS documentation partially addressing OHS management issues e.g. ('instructions on labour and safety protection', OHS briefing instructions; OHS induction training	Shokpar Wind Power Plant LLC to consider appointing an E&S Supervision specialist (engineer) for construction phase to provide oversight of HSE performance of EPC Contractor and subcontractors	1.3.2 and 1.3

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
			instructions and others. There is no systematic set of E&S and OHS documentation available to inform and ensure an effective ESMS for the Project. Recommendations for establishing Project's ESMS were provided in this report and ESAP (**Appendix B**). Shokpar Wind Power Plant LLC will ensure that EPC Contractor and its subcontractors are committed in implementing C-ESMMP and reciprocal management subplans and procedures during construction and commissioning stages. Shokpar Wind Power Plant LLC will be responsible for overseeing the construction activities including all HSE matters and will also be regularly updating the Shareholders on the overall HSE performance. Shokpar Wind Power Plant LLC or whoever the project company assigns as a Project operator will hold responsible for development and implementation of O-ESMMP. And provide regular updates to the Project stakeholders and shareholders.		

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
1.7	Supply Chain Management	PC	Shokpar Wind Power Plant LLC as reported conducts E&S and H&S screening of potential contractors.	Compliance is to be addressed through a robust Supply Chain management system to identify, manage and remediate material supply chain risks associated with social and environmental impacts.	2.2
1.8	Project Monitoring and Reporting[26]	PC	Suitable E&S and H&S monitoring staff and reporting mechanisms in place.	The first level of monitoring during construction should be conducted by the EPC in routine management of ongoing activities. This may be supplemented by periodic audits by the EBRD (or an independent consultant retained by EBRD). Shokpar Wind Power Plant LLC will be responsible for submitting periodic (twice a year) reports on E&S performance during construction; Project Operator will be responsible for reporting E&S performance during the operation of the Project.	1.1
1.9	Assessment of social and economic impacts	NC	Local Screening EIA provides inadequate level of social impact analysis	It is advised to undertake a Social Impact Assessment of the Project in order to address any potential risks associated with negative impacts on local business, social infrastructure, health & community wellbeing while identifying and highlighting positive social and economic impacts of the proposed activities	1.4

[26] At appraisal stage there will be limited information. Compliance assessment should address specific plans for monitoring and reporting (against for example ESAP requirements) and also consider whether there is evidence of weak monitoring/reporting by client on other relevant projects - which may reduce confidence in future performance.

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
2	**Labour and Working Conditions**				
	Summary: Partly compliant with EBRD PR2.				
2.1	Human Resource Policies and Working Relationships	PC	EPC contractor has HR policy in place.	Shokpar Wind Power Plant LLC will need to evaluate EPC Contractor's HR management system and procedures against EBRD requirements and Kazakh law, including specifically provisions covering the terms of employment and dismissal, freedom of association/collective bargaining, proscription of forced and child labour, retrenchments, mandatory medical checks for new hires, social leave/benefits, etc. As necessary, Shokpar Wind Power Plant LLC to update system/policies to ensure compliance.	2.1-2.2
2.2	Child and Forced Labour	PC			
2.3	Non-Discrimination and Equal Opportunity	PC			
2.4	Workers Organisations	PC			
2.5	Wages, benefits, and conditions of work and accommodation	PC	Assumed EPC contractor will be fully in line with Kazakhstan's legislation and all workers are formally contracted, covering wages, benefits (such as health insurance), working conditions, probation period, working hours, overtime and annual leave.		
2.6	Retrenchment	PC	No programmes of retrenchment are anticipated, nor have been completed.	Shokpar Wind Power Plant LLC to ensure that EPC contractor or the Project Company has retrenchment policy in line with EBRD retrenchment guidelines to minimize social and economic impact of staff reductions, if such are required.	2.1
2.7	Grievance Mechanism	NC		Shokpar Wind Power Plant LLC will need to develop and implement a grievance procedure for all workers,	2.1

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
2.8	Non-Employee Workers	NC	Internal grievance mechanism was not observed in place.	including contractor employees and include in formal HR policy.	
2.9	Supply Chain	PC	Shokpar Wind Power Plant LLC as reported conducts E&S and H&S screening of potential contractors.	Develop and implement a robust supply chain management system to identify, manage and remediate material supply chain risks associated with environmental and social impacts. The management system should consist of policy statement, CoC and associated procedures aimed at supply chain traceability and assurance.	2.2
2.10	Security Personnel Requirements	FC	Guards and security services were contracted through EPC (4 guards are currently on-site).	No action required.	n/a
3	**Resource Efficiency and Pollution Prevention and Control**				
	Summary: Resource efficiency and pollution control is not expected to be a significant issue. The C-ESMMP for this Project should therefore incorporate preventive measures to avoid or reduce potential risks of contaminating environment.				
3.1	Resource Efficiency	FC	General resource use and demand on the Project is generally low.	No action required.	n/a
3.2	Pollution Prevention and Control - Air emissions	PC	Low sources of air emissions are relevant to the Project – mainly dust and vehicular emissions of SOx, NOx and CO through construction activities – control will be through the C-ESMMP during construction phase.	C-ESMMP (Air quality management plan) to include measures ensuring that dust and other emissions are limited.	3.1

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
3.3	Pollution Prevention and Control - Waste waters	PC	Limited water use and wastewater generation during both construction and operation and maintenance.	C-ESMMP and O-ESMMP to include measures ensuring that any wastewater created is properly disposed and that water use is minimised.	3.1-3.2
3.4	Greenhouse Gases[27]	FC	The Project will not result in substantial releases of GHGs (i.e. above 25,000 tonnes CO_2e/year)	No action required.	N/A
3.5	Wastes	PC	Most of waste amounts (including hazardous waste) will be generated during construction activities on-site.	Fully implementing C-ESMMP (e.g. Waste management plan) and O-ESMMP will considerably reduce potential adverse effects, associated with waste streams mismanagement and risk of contaminating environment.	3.1-3.2
3.6	Hazardous Substances and Materials	PC	Majority of hazardous materials will be used during construction (oils, diesel, chemicals, solvents). Limited use of hazardous materials is expected during operation and maintenance.	C-ESMMP and O-ESMMP to include measures ensuring hazardous materials management is properly introduced and practiced by the Project.	3.1-3.2

[27] Particular attention should be given to client demonstration of consideration of alternatives. Projects expected annually to produce more than 25,000 tonnes of CO_2 equivalent should provide an emission inventory and plans for annual reporting.

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
4	**Health and Safety**				
	Summary: EPC contractor (Project Developer) and Project Operator will need to develop Project-specific Occupational H&S Policy, and a number of OH&S and community H&S actions e.g. through management plans.				
4.1	Occupational Health and Safety	PC	EPC contractor to expand existing or develop new plan; to submit "Occupational Health and Safety Management Policy (OHS Policy) and OHS Management Plan".	Shokpar Wind Power Plant LLC will need to ensure that EPC contractor developed "Occupational Health and Safety Management Policy (OHS Policy) and OHS Management Plan for construction and commissioning phase The detailed OHS Plan will typically define management structure, the combined risk assessment, audits and inspections, and key H&S instructions/method statements already in place.	4.1 -4.4
			Project Operator to develop "Occupational Health and Safety Management Policy (OHS Policy) and OHS Management Plan".	Shokpar Wind Power Plant LLC will need to ensure that Project Operator developed "Occupational Health and Safety Management Policy (OHS Policy) and OHS Management Plan for operation & maintenance phase of the Project	
4.2	Community Health and Safety and security	PC	The main risks relate to traffic movement (increased during construction), some limited noise and dust pollution, contractor workers operating close to the public, and waste removal. Most significant risks to the community are from increased construction traffic and higher risks of road accidents involving local residents or their cars or animals.	The C-ESMMP (mainly through Community Health and Safety Plan and Traffic management plan) should reduce community H&S risks, in particular during the construction phase of the Project.	4.3 and 1.3.1

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
			During operation, all WTGs will be fenced and access road closed by a barrier with “danger/no trespassing’ signs on it		
		NC	Noise Impact Assessment of Shokpar wind park has not been undertaken during project appraisal. Noise impact should be assessed in accordance with the following principles: • Receptors should be chosen according to their environmental sensitivity (human, livestock, or wildlife). • If no sensitive receptors are within 2,000 meters of any of the turbines in a wind energy facility, a noise impact assessment is generally not required. • If one or more sensitive receptors are within 2,000 meters of any turbine, 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).	Undertake a Preliminary Noise Impact Assessment (modelling) to determine whether more detailed investigation is warranted. If the assessment results in 35dB(A) magnitudes of ambient noise levels at all wind speeds during day and nightime, then it is required to undertake a more detailed noise modelling, including development of mitigation measures (e.g. turbine siting, noise barriers around affected houses; stopping turbine operation above a certain wind speed and some others).	4.2

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
			• If the preliminary model suggests that turbine noise at all sensitive receptors is likely to be below 35 dB(A) at all wind speeds during day and night times, noise is unlikely to be an issue; otherwise more detailed modeling should be carried out. • All modeling 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 receptor is also close to other significant noise sources, a more distant receptor may need to be chosen.		

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
		NC	Shadow flickering effects of WTG EN-10 as per the revised Shokpar wind park layout. Searches undertaken in local language highlight that there do not appear to be any official Kazakhstan regulations in place for shadow flicker. However, international sddfefef dies28 cite distances of 10 rotor blade diameters or 500-1,000 metres distance should minimise the potential for shadow flicker. The closest house to Shokpar WWP is advised to be 1,120 metres from the nearest wind turbine (WTG EN-10), and Project Company reported that shadow flicker would not be an issue at that distance. IFC guidelines state "If it is not possible to locate the wind energy facility/turbines such that neighboring receptors experience no shadow flicker effects, it is recommended that the predicted duration of shadow	It is recommended to undertake a flicker shadow simulation test for EN-10, the closest WTG to the residential housings of the Zhanaaryk village.	4.1

[28] Parsons Brinkerhoff (now WSP) (2011) Update of UK Shadow Flicker Evidence Base [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48052/1416-update-uk-shadow-flicker-evidence-base.pdf

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
			flicker effects experienced at a sensitive receptor not exceed 30 hours per year and 30 minutes per day on the worst affected day, based on a worst-case scenario". Based on the international studies cited above, distances of 10 rotor blade diameters or 1,560 metres distance should minimise the potential for shadow flicker. The rotor blade diameter of Envision wind turbine is 156 m, although the distance of 1,120 m to the nearest residential property falls within the distance range cited.		
4.3	Hazardous Materials Safety	PC	As per 3.5 and 3.6.	As per 3.5 and 3.6.	As per 3.1 and 3.2.
4.4	Product and Services Safety	PC	There are no current programmes/plans developed.	The C-ESMMP (mainly through Community Health and Safety Plan and Traffic management plan) should reduce community H&S risks, in particular during the construction phase of the Project. The SEP should be an effective mechanism for communicating with stakeholders and public, as well as, for example, organizing a small information centre near the entrance to the construction site, where interested residents would be able to obtain Project information, status of construction works and raise concerns.	1.3.1
4.5	Traffic and Road Safety	PC	The Project activities may affect local roads, potentially increasing traffic by restricting access in certain areas.	A Traffic Management Plan should be developed under C-ESMMP by EPC contractor and approved by the Project Company.	1.3.1

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
				Ensure Traffic Management Plan provides detailed procedures and safety measures for transportation of heavy weight, oversized equipment, such as WTG towers, blades and nacelles. Require local logistical transportation company to adopt all requirements specified in the Traffic Management Plan developed for long distance in-country transportation routes.	
4.6	Natural Hazards	FC	No risks.	No action required.	n/a
4.7	Exposure to Disease	PC	COVID procedures are not formalized in documents.	Within C-ESMMP, develop COVID precautionary measures/procedures and made them available to all workers at the construction site.	1.3.4
4.8	Emergency Preparedness and Response	PC	Evacuation plans or any kind of emergency response procedures are not in place.	Within C-ESMMP, develop an Emergency response procedure and train workers for actions during emergencies (e.g. fire, explosions). In a similar fashion, include Emergency response procedures into the O-ESMMP.	1.3.1 and 1.3.2

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
5	**Land Acquisition, Involuntary Resettlement and Economic Displacement**				
	Summary: : It has been reported that acquisition of land to date has been done on a voluntary basis. As a result PR5 requirements are not currently relevant. Should it become apparent that involuntary resettlement has taken place PR5 actions would require to be implemented. Land acquisition and specifically economic displacement aspect should be always tracked by the Project Developer and Operator.				
5.1	Avoid or minimise displacement	NA	It has been reported that acquisition of land to date has been done on a voluntary basis. As a result PR5 requirements are not currently relevant. Should it become apparent that involuntary resettlement has taken place PR5 actions would require to be implemented. Land acquisition and specifically economic displacement aspect should be always tracked by the Project Developer and Operator.	Replacement or compensation at replacement value should continue to be provided to any person who suffers economic losses caused by loss of use of land (whether use was authorized or not), damage to crops, pasture lands, injury or death to animals, loss of access to fields, etc. Continue to provide replacement or compensation at replacement value to any person who suffers economic losses caused by loss of use of land (whether use was authorized or not), damage to crops, injury or death to animals, loss of access to fields, etc.	5.1 and 5.2
5.2	Compensation for displaced persons	NA			
6	**Biodiversity and Living Natural Resources**				
	Summary: Baseline surveys for birds, bats, mammals, reptiles and invertebrates and habitats are partially complete and require to be updated due to partial data or lack of existing up to date data. The collision risk modelling for birds needs to be completed and an assessment of the potential impacts of mortality on regional and global populations of the target species. There is a requirement for a Critical Habitats Assessment and the production of a Biodiversity Action Plan and Biodiversity Management and Monitoring Plan. Protocols for monitoring and evaluation need to be produced.				

6.1	Biodiversity Baseline Surveys	PC	The biodiversity baseline has gaps: ▪ There is no habitat survey and no Critical Habitats Assessment. ▪ Ornithology data is partial and undertaken over a single year only. It is however good quality but requires an update in Autumn 2022 to cover an area not previously visible. ▪ The collision risk model is not standard and need to be reconsidered and updated using existing data and the updated information from Autumn 2022. ▪ Bat data has not been collected. ▪ There are no surveys for mammals, reptiles and amphibians or invertebrates The collection of baseline data should follow the best practice guidelines (Gullison *et al*. 2015) and the relevant species-specific survey guidance documents that are internationally accepted standards.	Develop a habitat survey of the Shokpar WPP using the relevant EUNIS classifications should be undertaken at an appropriate scale and a Critical Habitat Assessment /Biodiversity Priority Features undertaken. It is recommended that more contemporary ornithology data is collected to update the assessment and the collision risk model. As a minimum the Autumn 2022 migratory period is required for flight activity data. Breeding bird surveys are not required for 2023. The collision risk modelling will need to be updated as it currently does not follow the recommended modelling methods methods. A spreadsheet is available from the NatureScot website to allow all the model outputs to be calculated and collision risk to be clearly shown for each target species. Data from the correct 'risk window' should be used for this modelling and should represent the dimensions of the chosen turbine e.g. the Envision (EN-156) 4.8MW WTG. It is recommended that the most recent guidance from NatureScot on bird avoidance rates is followed for raptors. It is recommended that bat data is collected at the site using static detectors as per the relevant guidance, Rodriques et al. (2015) and NatureScot (2021) to ascertain if there are currently bats using the site. A mammal survey of the site and an appropriate buffer is required. A reptile and amphibian survey of the site and an appropriate buffer is required. An invertebrate survey of the site and an appropriate buffer is required.	6.1-6.3
6.2	Mitigation Design	PC	No current Biodiversity Action Plan.	Produce as 'A Biodiversity Management Plan' and a 'Biodiversity Management and Monitoring Plan'.	1.3.4 and 6.2

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
6.3	Biodiversity monitoring and evaluation plan	PC	Full details required for ongoing monitoring to include pre, during and post construction monitoring for flora and fauna (specifically birds and bats).	Design in-field monitoring, for monitoring implementation and effectiveness of mitigation, monitoring external threats to high biodiversity values. Details of carcass search protocols for birds and bats to include search efficiency and carcass removal trials.	6.1-6.3
7	**Indigenous People**				
	Summary: Not applicable as there are no indigenous people in the vicinity of the Project as defined by EBRD.				
8	**Cultural Heritage**				
	Summary: No significant issues, associated with Cultural heritage were identified. The Project E&S appraisal involved full scale archaeological survey. The only recommendation will be to develop a chance find procedure for construction phase of the Project.				
8.1	Assessment and Management of Impacts on Cultural Heritage	PC	It cannot be guaranteed that areas of cultural significance will not be present when construction works advance on-site	It is recommended therefore, within the overarching C-ESMMP to develop a Chance Find Procedure to be implemented in case construction workers discover/excavate any objects with potential to be classified as cultural heritage objects.	8.1
10	**Information Disclosure and Stakeholder Engagement**				
	Summary: No formal SEP was developed within the EIA process. WSP produced a Stakeholder Engagement Plan (SEP) which can be adopted by the Project Company and EPC contractor for the construction phase and by Project operator during operation.				
10.1	SEP including Grievance redress mechanism	PC	No SEP nor grievance redress mechanism in place.	Adopt and implement SEP for construction and operation and maintenance phases. Disclose information through a range of stakeholders to increase the level of engagement with them. Regularly (once per three months) review the effectiveness of the grievance mechanism.	1.2, 10.1 and 10.2

KPI Ref.	Performance Requirement	Score	Comments/ Issues	Actions Required	ESAP Ref.
10.2				Develop and implement an IT system for logging and solving grievances and the response time provided in SEP.	
11	**Overall Compliance**				
	Summary: The Project is seemingly compliant to National Kazakh legislative requirements. Some areas can be improved to achieve compliance with EBRD PRs, namely PR1, PR2, PR3, PR4, PR6, PR8 and PR10.				
11.1	EU Environmental, Social, Health and Safety Requirements	PC	The above compliance table has highlighted a number of areas to reach EBRD PR standards, particularly in H&S, biodiversity and stakeholder engagement.	See above.	

11.2 CONCLUSION & WAY FORWARD

Overall, many or most potential impacts of construction and operation and maintenance of the Project are considered to be generally **insignificant (negligible)** or **of minor importance** and would not typically require specific measures to avoid or mitigate the impact other than the implementation of routine good international industry practices.

However, there might be potentially *moderate* to *major* adverse impact(s) associated with this Project that would require specific measures to avoid, reduce, or otherwise mitigate impacts. These are primarily associated with:

- Uncertainty regarding potential impacts on biodiversity, specifically critical habitat, bats and migratory birds; and
- Cumulative aspect with regard to impact on local and migratory birds (considering the fact, there are initiatives to carry on development of wind power resources on the northern slope of the Ulken Aktau Ridge along the Karatau-Zhanatas highway (approximately +200MW, in addition to operational Zhanatas WPP and planned Shokpar WPP, as it was reported).

As indicated earlier, cumulative impacts on biodiversity of Shokpar WPP with other wind power plants have not been considered. With regard to birds these impacts are:

- Collision with turbine towers, blades (moving or stationary) and/or associated infrastructure;
- Displacement of birds due to loss of suitable feeding and/or breeding/wintering habitat;
- Disturbance within and around the turbine envelope; and
- Creating a barrier to dispersal, regular movements or migration.

Other impacts include cumulative habitat loss and fragmentation of migratory corridors. These impacts can be - additive; or - antagonistic (i.e. the cumulative impact is less than the sum of the multiple individual effects); or synergistic (i.e. the cumulative impact is greater than the sum of the multiple individual effects.

***WSP Recommendation**: It is advised to commission an experienced ornithologist to continue birds and bats monitoring to complete through the year assessment of the WPP territory usage. Develop methodology and train the plant staff to monitor birds and bats site usage and mortality with a focus on protected species. If annual mortality exceeds the industry statistics for the given turbines: 100 bats, 20 birds and 1 prey birds per 10MWh generated or more than 1% of the population of protected species using the site and implement additional mitigation measures in liaison with AIIB/IFC.'*

It should be possible to produce a cumulative assessment using the predicted effect of the adjacent Zhanatas project and the predicted effects of the Shokpar project combined by using data and information from the respective ESIA's and monitoring reports.

In order to address potential E&S and H&S risks and impacts of various degree and importance, WSP developed an **Environmental and Social Action Plan (ESAP)**, which contains specific recommendations and action items how to close the gaps and/or considerably improve the Project's overall E&S performance during its different stages of implementation.

The majority of adverse impacts are predicted to take place during construction stage of the Project, WSP considers it important to develop and implement the Construction **Environmental and Social Management and Monitoring Plan (C-ESMMP)**, which will be an **overarching plan** providing a guidance on the environmental and social management system approach to be developed or adopted by EPC Contractor and its individual subcontractors during the construction phase of the Project and approved by the Company. It must be supplemented by various sub-plans and procedures/method statements, which will need to be developed to address key environmental and social aspects identified during the E&S appraisal of the Project (inclusive of local EIA) process for which detailed control procedures and associated responsibilities are defined for implementation by EPC Contractor and its subcontractors. These environmental, occupational health & safety and social sub-plans/procedures/method statements will need to be prepared as separate documents and on 'as soon as possible' basis, due to the fact that construction activities have already commenced on-site (commenced in June 2022).

The C-ESMMP will clearly identify measures that must be implemented by the EPC Contractor and its sub-contractors to avoid, reduce, or otherwise mitigate potential moderate adverse impacts as identified in the EIA and this E&S Assessment report. It should also identify best management practices (BMPs) and other mitigation measures that will minimize, reduce or eliminate many of the potential risks/impacts of minor or even negligible significance, which could escalate to become more important if they are not handled properly.

The C-EMMP should cover the following EHSS risks at a minimum for this Project:

- EHSS roles and responsibilities;
- Training and communication;
- Standards and requirements;
- Construction Health and safety (H&S) controls: noise, vibration, safety in design, PPE, working at height (including worker permitting system), and electrical safety;
- Construction environmental controls: air quality, noise, dust, waste management ;
- Plans for Community Health and Safety, including sufficient notice to communities about the construction work; developing specific routes to ensure community right of way is not affected; considerations of avoiding pedestrians whilst working; and to minimise disruption to road traffic (following the Traffic Management Plan prepared);
- Project-specific emergency preparedness and response plans for the construction phase, particularly taking into account the risks and management of fire and storm events;
- Site security arrangements; and
- Inclusion of a grievance mechanism for contractor workers and others.

The C-ESMMP is expected to be developed by the EPC Contractor and approved by Shokpar Wind Power Plant LLC; it should be shared and communicated to all contractor workers and cascaded to sub-contractor workers (if engaged), ensuring adherence with standards and requirements.

It will the responsibility of EPC Contractor to implement the requirements of the C-ESMMP and sub-plans throughout the construction phase and to monitor the performance of its individual Subcontractors to ensure they meet the appropriate C-ESMMP's elements and requirements.

Operational Environmental and Social Management and Monitoring Plan (O-ESMMP) is advised to be developed by the Project Operator (when selected, prior to the completion of construction activities on-site i.e. prior to January 2024).

12 ENVIRONMENTAL AND SOCIAL ACTION PLAN (ESAP)

Based on the results of E&S Assessment, WSP prepared a ESAP in line with EBRD PR 1. The ESAP (presented in **Appendix B** to this report) determines key environmental and social issues and risks that were identified during the course of the Project's E&S appraisal and are discussed across the different sections of this report.

The ESAP contains PR-specific action items required to be implemented by either Project Company (Shokpar Wind Power Plant LLC)/ EPC Contractor and/or Project operator in achieving compliance with EBRD standards and performance requirements.

The ESAP is necessary to ensure there is close scrutiny over actual environmental and social performance so that prompt action can be taken if mitigation measures are not being implemented or if the measures are not adequately mitigating actual impacts. Implementation of the ESAP is anticipated to enhance the overall Project E&S and H&S performance and provide closer alignment to EBRD requirements, international and best industry standards. When third parties, including contractors or subcontractors, perform work under contract to Project Company or EPC Contractor, the Project company will be responsible for those third parties and contractors' compliance with the requirements of the ESAP.

This ESAP is expected to be reviewed during Project implementation with any proposed amendments or changes in compliance with Kazakh laws and/or EBRD requirements for environmental, health and safety and social performance.

Appendix A

SUMMARY SITE VISIT FINDINGS REPORT AND PHOTOLOG

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SUMMARY OF KEY FINDINGS AND PHOTOLOG

E&S REVIEW OF A 100MW SHOKPAR WPP PROJECT, ZHAMBYL REGION, KAZAKHSTAN

Shokpar Site Visit 15/08/2022 – 19/08/2022

THE PROJECT

The Project. Greenfield construction. 100 MW installed capacity wind power plant (WPP) comprising 22xEnvision (EN-156) 4.8MW WTGs, three of which will be limited to 2.93MW of operational capacity in order to meet the overall 100 MW set limit. The total annual electricity production – approximately 350 mln kWh. Connection to the National Grid operated by state company “KEGOC”. Power Purchase Agreement (PPA) was signed in January 2019. The lifespan of Shokpar WPP – 25 years; PPA is issued for 15 years;

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Prospective developments of wind resources. WSP found out (from meetings with stakeholders in Zhanatas Akimat) that local authorities welcome and support further development of wind resources potential in the areas along these ridges; the perspective being announced now involve prospective development of wind power resources totalling to 4 phases @100MW each, starting from Zhanatas WPP and onwards.

LOCATION



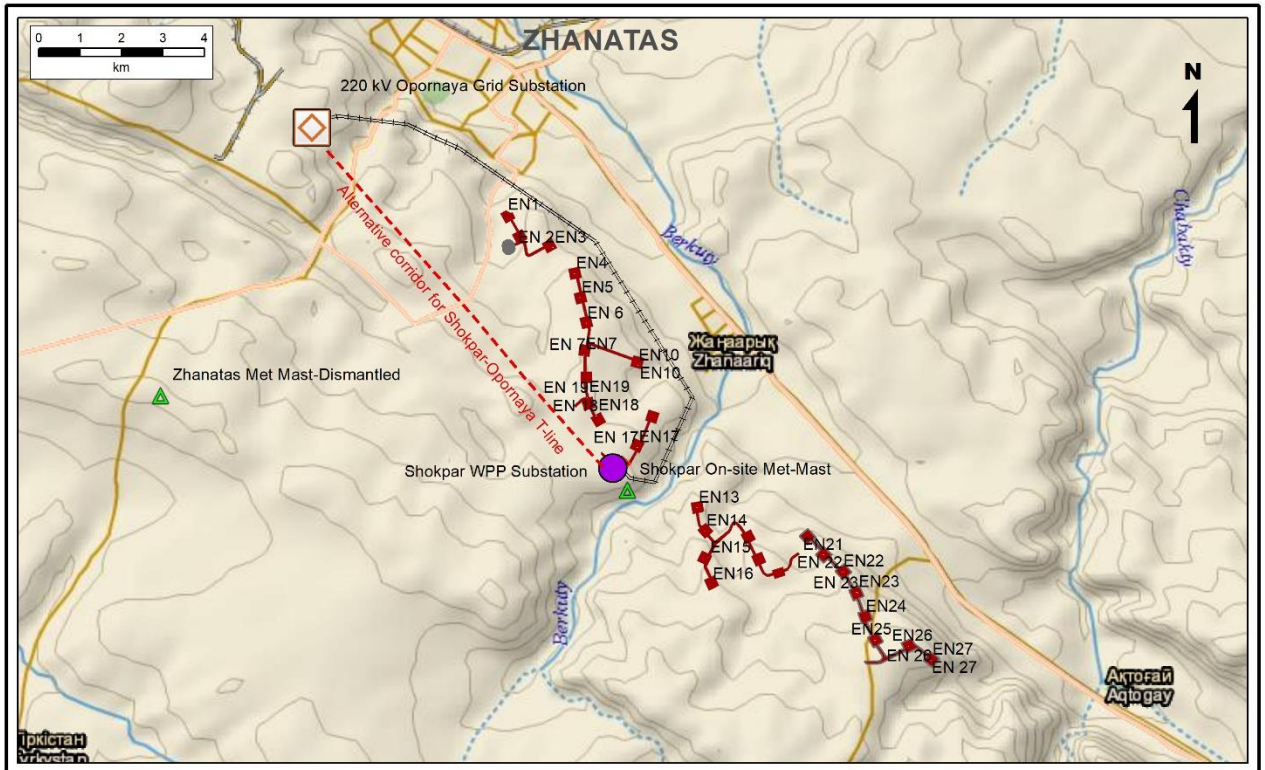
The Project is located in Sarysu district, Zhambyl region near city of Zhanatas – approximately 660 km west from the city of Almaty; the WWP site is located in the transition zone from the shallow hills to the denudation-accumulative plain and is characterized by a weakly dissected relief and steppe landscape-like (*Appendices A.1 and A.2*); climate of the region is sharply continental, with large fluctuations in annual and daily air temperatures.

The Project site is accessible throughout the year by asphalt roads connecting with the main highway road between Zhanatas town and Taraz city (regional highway R-43). Zhanatas town is also accessible by railway.

PROJECT OVERVIEW

Key project components are presented in Figure 1 and listed as below:

- 22 Envision (EN-156) WTGs @4.8MW; three of which will be limited to 2.93MW.
- MV cabling @35kV: over 4 cable lines. Mostly underground cabling + overhead passage across the stream's valley
- Construction of a New Step-Up Substation 35/220kV including administrative facilities (admin and control building)
- Double line (single pole) 220kV OHTL linking the WPP substation with the existing grid connection point called "Opornaya" substation. Currently two alternatives for the OHTL corridors are being considered. The T-line will be about 11 km in length.
- Extension of KEGOC's "Opornaya" 220kV substation to include 220kV feeders (all within the already reserved area of the KEGOC substation)



AUGUST 2022	100 MW SHOKPAR WIND FARM PROJECT, KAZAKHSTAN
wsp	General Schematic Layout of the proposed 100MW Shokpar Wind Farm, Kazakhstan

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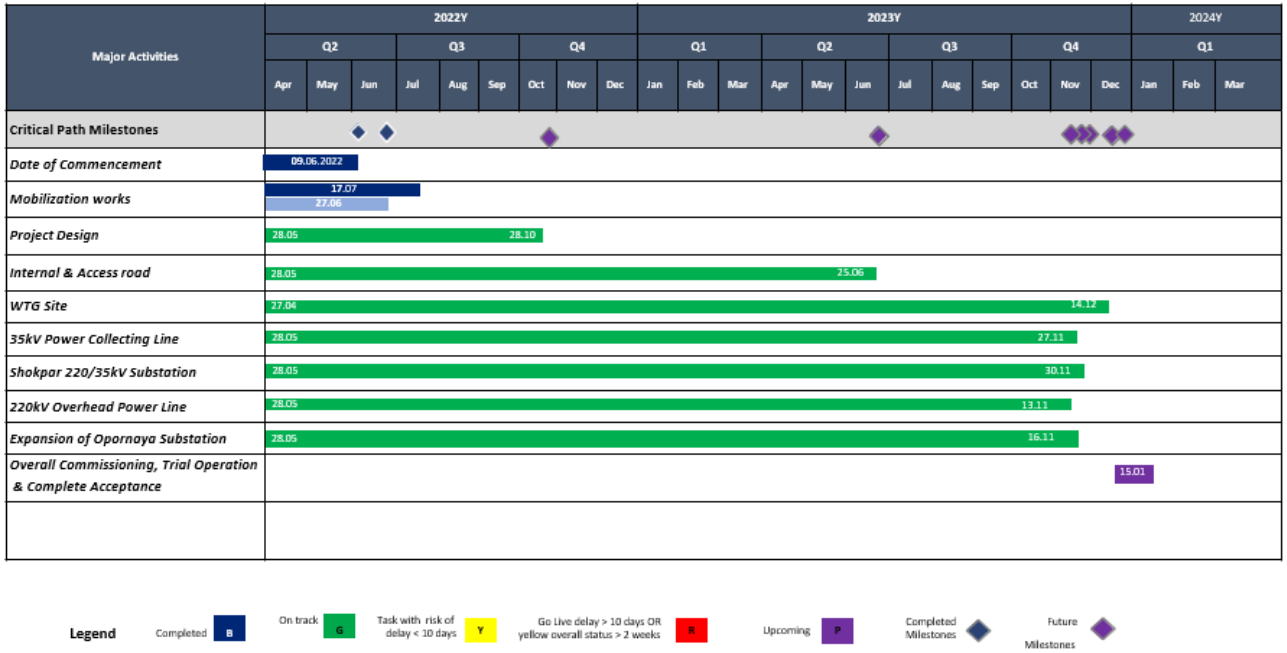
Figure 3 General location of Shokpar WPP Project, Kazakhstan[29]

PROJECT SCHEDULE AND CURRENT STATUS

Project phase: The Project is currently at the early construction phase; The construction activities commenced in June 2022. The construction phase is scheduled for 19 months with the wind park commissioning to take place in January 2024.

The overall Project Road Map (to date) is provided below:

[29] Note the numbering of WTGs provides EN23, EN24, EN25, EN26 and EN27. It is not a mistake – the numbering layout is based on the initial Project Company's plan to place more turbines; however during feasibility study, WTGs EN2, EN8, EN9, EN11 and EN12 were excluded reducing the number to the total of 22 WTGs.



Project organisation. The diagram below shows the project organisation for the construction stage.



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EPC Contractor. EPC contract between GCD & Shanghai Institute of Mechanical and Electrical Engineering (SIMEE) and LLP Shokpar WPP was signed on 14 December 2021. The contract is based on the FIDIC Silver Book template and conditions. WSP noticed separate sections of the contract addressing Occupational H&S obligations, requirements for protection of the environment and obligation towards archaeological and cultural heritage findings during construction works. WSP will review and comment on the clauses relevant to E&S conditions as specified in the EPC Contract (2021).
Build Master Group (BMG) Ltd. Kazakh company based in Nur-Sultan. The main role of BMG in Shokpar project will be providing necessary supervision over construction.
Dostar Story (DSG). As required by Kazakh local legislation for construction sector, DSG will be technically supervising the construction of the Project, which mainly refers to regular (quaternary) construction site audits and check-ups for project technical compliance to the Project design documentation.
Permitting and licensing. As WSP was informed, the Project is locally compliant. It has been appraised to an advanced level, including all stages of technical appraisal (Preliminary FS, FS) and environmental appraisal (screening EIA); other permits and licenses as required to meet the Kazakh legislative requirements (WSP will provide a full list of permits and licenses in the E&S analysis report). The Project Estimate Documentation (PED) was formally approved by the State Expertise in January 2022.
Electricity supply. Electricity to the construction site is sourced from the Kazfosphate LLC electrical network – the neighbouring mining company. For this, GCD developed a design project for a 6kV 1.33km long transmission line which is to link the construction site and a switchyard belonging to Kazphosphate. In May, 2022, GCD signed an agreement with Kazphosphate for purchase of electricity.
Land acquisition: Land rights have been secured (land state acts obtained, land lease agreements signed for a period of 49 years; the intended purpose includes construction and operation of wind power stations, access roads. The total land area acquired is 163.6822 ha. Land for high voltage overhead transmission lines is secured via land easement. No land acquisition issues have been identified with the Project.
Local EIA Requirement. In accordance with Kazakh new 2021 Environmental Code #400-VI (Article 65, Article 49, p.3, Appendix 1 and 2), Shokpar WPP facility falls under Category-2 facilities requiring EIA screening of potential E&S risks and negative impacts. In 2021, The Project Company retained services of a local environmental consultancy company “EKO-2” LLC to undertake a screening EIA of the proposed Project. The Screening EIA report, after formal public hearings, was submitted to the Ecology Department of the State Ecological Regulation and Control Committee for approval and issuing conclusion. In October 2021, the authority issued an approval to the screening EIA without a need to conduct a full EIA based on provisions of Article 49,

p.3 of the 2021 Environmental Code). Later, in February 2022, the Company obtained a formal Environmental Permit for Category-2 facilities with validity throughout year 2031. The screening EIA report then was used to inform the Project Documentation package as being an "Environmental Protection" chapter of the Project Feasibility Study report. The outcomes of the screening EIA comprised: (i) a generic/framework level ESMP; (ii) a waste management program; (iii) an environmental monitoring program; and (iv) a project for air emissions and loads. In the main E&S report, WSP will provide a review and gap analysis of available E&S project appraisal documentation.

Site overview and current works on-site. EPC contractor has cleared the land for the construction camp and completed erection of some temporary facilities, including living quarters for construction workers, administrative building, canteen, laundry rooms, storage hangars and area for rebar workshop, welding workshop, areas for warehouses, and a parking lot for heavy construction equipment (refer to photographs in *Appendices A.3 through A.5*). Reportedly, 53 construction workers are currently engaged in construction activities on-site, including EPC Contractor HSE Manager, who conducted an OH&S induction briefing to WSP team upon arrival to the site. Approximately 160 construction workers are anticipated to be engaged on-site at construction peak times.

Project operation: The Shokpar WPP (which, as reported to WSP may likely be renamed in the future by the Project Company to Sarysu WPP, has a design lifespan of 25 years. It is expected that during operation, the WPP will employ around 17 to 25 staff, comprising power facility operators and other personnel on-site, as well as management staff located in HQ in Almaty. As reported, it is envisaged at a minimum 7 women to be permanently employed at the WPP.

MANAGEMENT SYSTEMS

Project Company capacity: All construction and supervision tasks will be outsourced to contracted firms.

EPC Contractor (GCD and SIMEE). WSP requested available HSE documentation from SIMEE and GCD. Form the interviews, WSP understands that EPC Contractor has developed certain HSE-related documentation. WSP received the documents and will provide a review and gap analysis on adequacy of developed documents to IFI requirements and standards. LLC Shokpar WPP does not have any overarching policies or the capacity to monitor the practice of the core E&S and H&S documents. After initial review of existing E&S and H&S documentation, it appears the EPC Contractor and/or the Project Company will need to develop a fair number of key HSE documents to complete the ESMS for the construction and, further for operation phases of the Project (e.g. C-ESMP and reciprocal management plans, sub-plans, procedures and method statements). WSP will provide recommendations and action items in the draft ESAP to close these gaps.

Contracting: EPC Contractor (GCD and SIMEE) have full responsibility for procurement methods and contracting. GCD procures local services from local subcontractors, such as drinking water supply, waste collection and disposal, wastewater collection and disposal, internet and mobile network, electricity and others. SIMEE is the prime contractor to Envision, China – the wind turbines manufacturer. Security during site construction is contracted to a private security firm (2 guards are currently on duty).

ENVIRONMENTAL ASPECTS

The construction of the Project and its facilities will involve activities that will create E&S impacts. These disturbances are normally encountered in construction projects, such as traffic congestion, noise, dust, and gaseous emissions of construction equipment and vehicles, impacts on community health and safety (increased project traffic, accidents, emergencies, poor workers behaviour), impacts on cultural heritage and others. The disturbances during construction are transient and most are confined to the construction site or to the areas of close vicinity to the construction site.

Good construction management practices and construction methods will be able to minimise potential environmental and physical disturbances.

Site biodiversity: this review has considered the following reports all of which detail the surveys undertaken to inform the impact assessment:

- *EcoSocial Analysts LLC (2020) Shokpar Windfarm Wildlife Monitoring, Part 1: Spring 2020*
- *EcoSocial Analysts LLC (2020a) Shokpar Windfarm Wildlife Monitoring, Part 2: Summer-Autumn 2020*
- *EcoSocial Analysts LLC (2021) Shokpar Windfarm Wildlife Monitoring, Part 3: Winter 2020-2021*

These documents detail the biodiversity surveys undertaken, the methods used and a brief assessment of impacts of the project on biodiversity. Contextual information on the project area is available in the EIA for the neighbouring Zhanatas Project in CPID (2019)[30] and this report has been reviewed for further information.

Key comments on the biodiversity monitoring reports

Ornithology data has been collected during the period March 2020 to February 2021 i.e. one full year. The recommended minimum for bird surveys is two full years unless justification is provided. Total observation time for flight activity at the vantage points appears to exceed to minimum required. It is not clear however how much time has been spent on flight activity surveys as opposed to the range of other surveys that have been undertaken.

The data collection has been limited to bird surveys only with little or no structured surveys for any other species groups. That is, no surveys have been undertaken for mammals, reptiles, or invertebrates. Occasional records are noted, however.

Two red book species Steppe Eagle and Booted Eagle were recorded as potentially at risk of collision. Other species have also been considered. Although the *NatureScot* collision risk model has been referred to, the model does not appear to have been followed and mortality estimates appear to refer to outputs from other projects.

[30] China Power International Development (CPID) Ltd (2019) Zhanatas Wind Power Plant Environmental and Social Analysis.

The main raptor passage route through the site is identified as the Burkitti River Valley. This runs along the ridge where N14 to 17 are to be constructed. All these turbines are not properly visible from a vantage point. Bat surveys have been limited to roost and hibernation inspection. No use of bat detectors has been noted. Mammals records appear to be occasional and no structured surveys appear to have been undertaken. No reptile records are given.

A visit to the Shokpar WPP site was conducted on Tuesday August 16th and an extensive walkover of all the areas where turbine construction is proposed was undertaken to inspect the habitats and to record an inventory of species that were observed on the day. Both vantage point locations used in the bird surveys were visited and an assessment made of their suitability. The proposed route of the powerline was also inspected.

Habitats

A fine scale habitat survey has not been undertaken and EcoSocial Analysts LLC (2020a) states that only one habitat has been identified. The habitats noted were dry boulder fields with sparse xeric vegetation (photographs in *Appendices A.6 and A.7*).

Species recorded

Mammal activity was limited to field signs and no mammals were seen. Evidence of mole activity was seen across the site and droppings from Lepus (rabbit or hare) and Vulpes (fox) species were found including recent latrines. With regard to invertebrates there were large number of unidentified butterflies passing through the site (possibly migrating). They were using the boulder fields for shelter. There was also evidence of large spider species who had extensive web systems in sheltered scrubby areas. No reptiles were noted.

Common passerines are seen using the habitats including: pied wheatear, tawny pipit, yellow wagtail, common raven. All of these species were seen on previous surveys. Raptor species present included common kestrel and a pair of golden eagle. Golden eagle have been recorded breeding within 3km of the site but until now not seen within the WPP area. A group of six little bittern were also seen resting on the site and then heading off west in the direction of Lake Kyzylkol.

Vantage points (same as shown in monitoring reports)

- Vantage Point 1: Located on slightly elevated ground with suitable views of N23 to N26. T21 and 22 are between 2 and 2.5km from the VP. Although the accepted viewshed distance is 2km visibility if reasonable for N21 to N26. N20 is with 2km but N19 and N18 are up to 3km distant.
- Vantage Point 2: Located on a large tailing pile elevated at 50m above the surrounding habitats with sweeping views of the land area containing N1 to N12. N3 to N12 are all within the 2km viewshed but N1 to N3 are up to 3km from the vantage point albeit with clear views. N14 to N17 are greater that 3km from both VP 1 and VP 2. Ideally a third vantage point should have been used for surveys covering N14 to N20.

Lake Kyzylkol IBA site visit

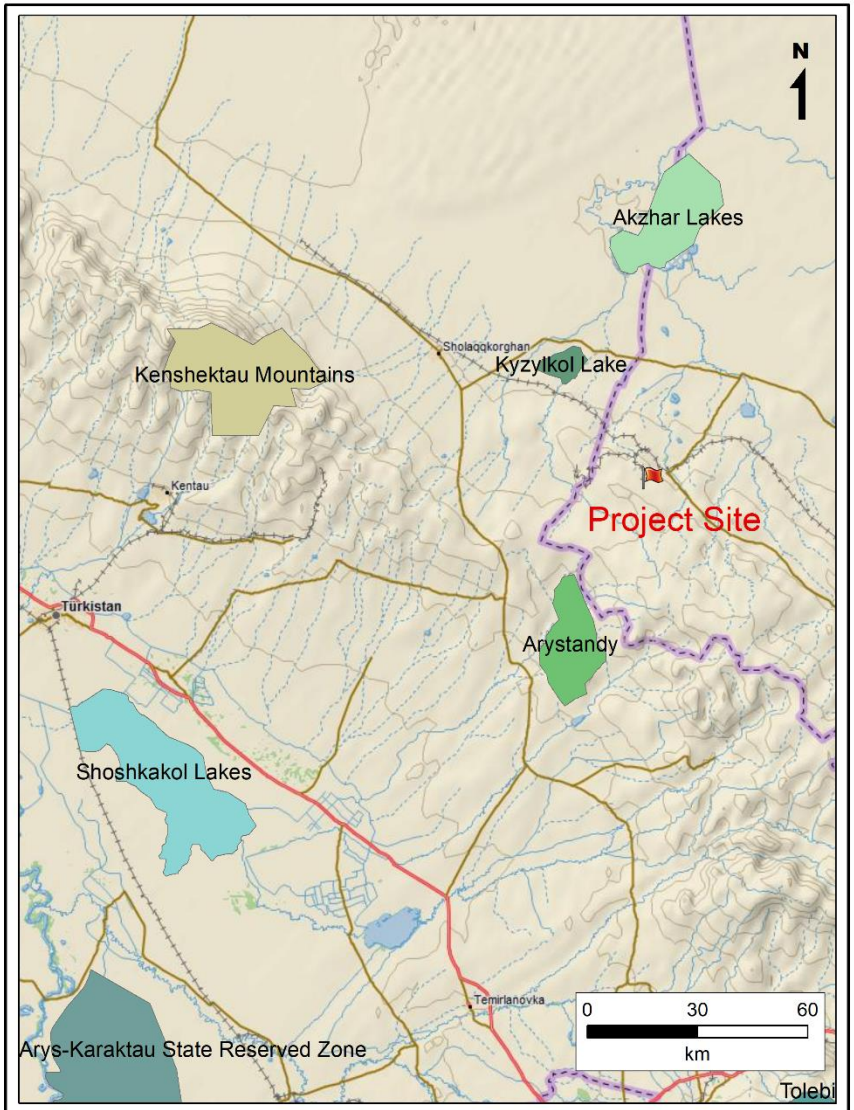
On Wednesday August 17th the important bird area (IBA) at Lake Kyzylkol was visited. This site is c 30km for the nearest turbine but is a major stopover and wintering area for large numbers of waders and wildfowl. A broad range of species were recorded including: black necked grebe, green sandpiper, little stint, northern shoveler, mute swan, red necked phalarope, ruddy shelduck, gadwall, slender billed gull, turnstone, terek sandpiper, ruff and black

winged stilt. It is expected that numbers and species diversity will increase through the autumn and winter months. As ruddy shelduck has been recorded on the Shokpar surveys and little bittern noted on the WSP site visit, there may be some level of migratory connectivity between this IBA and the Shokpar site. The turbines of Zhanatas Wind Farm were visible from the lake edge (*Appendix A.8*).

Arystandy IBA site visit

This site was also visited on August 17th. This area consists of hilly steppe foothills and adjacent cereal fields at the western slope of the Karatau ridge. It is noted for being a wintering area for great bustard. No great bustard have been recorded on the Shokpar surveys (*Appendix A.9*).

Figure 2 below shows the locations of both IBA visited by WSP.



AUGUST 2022	V1	SHOKPAR WIND POWER PLANT, KAZAKHSTAN
wsp		Biodiversity areas (incl.IBAs) around Shokpar Wind Farm Project, Southern Kazakhstan

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Figure 10 Designated IBAs in the project surrounding area, Zhambyl region, Kazakhstan

WSP Comment and Initial Recommendations:

Supplement the lack of survey information with a detailed desk study. This would apply to habitats, reptiles, mammals and invertebrates. Conduct species specific surveys if possible.

There is some doubt about the visibility of N14 to N17 in the initial bird surveys. Although only a single year has been collected the amount of survey hours appears to exceed the minimum so it is likely to be representative. It is suggested that a sample VP is set up for N14 to N17 (which can also take in N12 and N18 to N20) as this river valley has been identified as the passage route of raptors through the site. An update survey for flight activity can be undertaken in October to see if this is an important area for migration.

Dust generation: It was observed by WSP, the EPC Contractor carries out dust suppression measures by using two ($15m^3$ and $10m^3$) water sprinkling trucks.

GHG emissions: Predicted to be minimal additional greenhouse gas emissions during construction and operation. There will be back-up generators, but they will be (hopefully) rarely used.

Water resources. The primary source of drinking water supply is bottled water. In order to meet the demand of the construction site in sanitary and technical water, in 2021, GCD engaged a Kazakh company BMG to develop a design project for a 22cm diameter under surface water pipeline connecting the construction camp with the existing groundwater withdrawal well located in some 1.6 km south-east of construction camp on the right floodplain of Berkytti stream; as reported, the groundwater well belongs to Kazphosphate. The project is being implemented. No significant impacts on groundwater and surface water resources are expected due to small withdrawal amounts.

Wastewater management. All wastewater at construction camp is collected in septic tanks for further collection and disposal by a local certified wastewater disposal company “Zhanatas-Su Zhilu” based in the town of Zhanatas. GCD signed agreement with the company for the services.

Waste management. Construction debris and general waste is temporarily collected in containers in a waste collection designated area on-site. GCD provided a copy of signed contracts with local certified waste collection and disposal company based in Zhanatas.

Hazardous waste storage and management. The construction camp involves installation of a $45m^3$ (maybe higher capacity) diesel tank (AST), which is yet to be delivered to the site. Currently, all construction equipment and trucks are refuelled from a mobile diesel truck, which arrives on request from the town of Zhanatas. No oils, oil lubricants, paints, solvents are currently stored on-site. EPC Contractor will need to ensure that the storage of liquid hazardous materials (including waste oil and solvents) is be provided with 110% capacity secondary containment and for above ground tanks in excess of 1,000L, provision of secondary containment with a capacity of the larger of 110% of the largest tank or 25% of the combined tank volumes in the storage area is ensured.

Reportedly, at some WTG locations there will be explosive works applied. As reported, GCD contracted a regional contractor for all activities, associated with explosive works. There will be no explosive storage facility located within the construction site and/or nearby. As WSP was informed, the contractor would be working on a call-in basis involving arrival; preparatory works for blasting(s); completing the works and leaving the site until the next call. WSP noted that a special procedure for explosive works on-site should be developed to include community H&S aspects (informing communities in advance; restricting access to the site during explosion work activities).

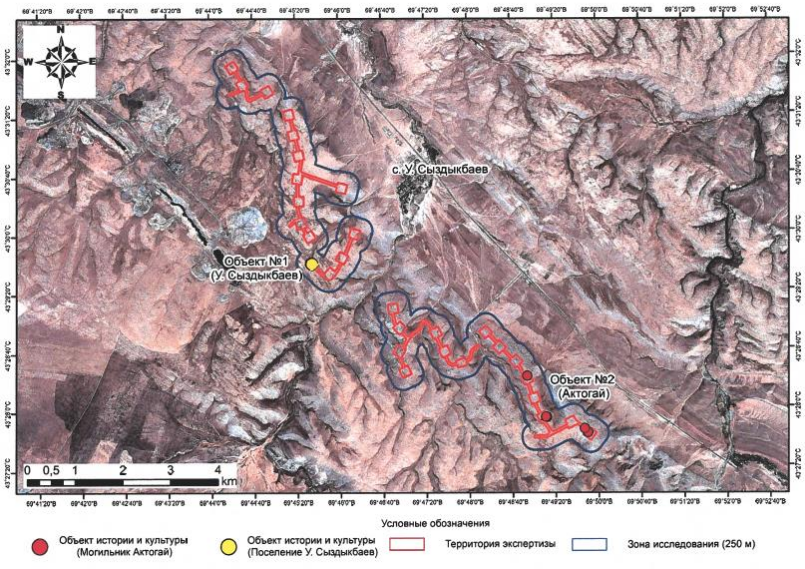
HEALTH & SAFETY

HSE matters. WSP witnessed no violations/observations or non-conformances with respect to OHS aspects while visiting the construction camp and surroundings; all workers were observed wearing PPE. WSP noticed proper H&S signage across the construction camp. EPC Contractor HSE Manager provides regular HSE induction trainings to newcoming personnel, as well as regular tool-box-talks to all working personnel on-site.
Site Security during site construction is contracted to a private security firm (2 guards are currently on duty).
Transport and traffic and security: WSP noticed that the main access road was considerably upgraded to accommodate increased heavy traffic. As reported, 3.5 to 5 km of internal roads will require soil stripping and graveling.
WSP noticed absence of an information billboard and a road sign to the construction site from the main Zhanatas-Taraz R-43 highway road. In addition, the Project Company should consider installing a barrier with an information sign about on-going construction activities with potential danger/no trespassing sign. WSP will provide recommendations and action items in draft ESAP with respect to building up a solid OHS management system on-site and addressing Community H&S aspects associated with the Project.

SOCIAL ASPECTS

Land use, land acquisition, physical and/or economic displacement. As reported, the land of the ridge is occasionally used for grazing (horses, sheep, goats) by local herders/residents. During the site visit, WSP was able to observe grazing going in some places across the wind farm site; seasonal shelters (so-called winter shelters) have been observed in several places across the wind farm area. Land rights for all lands allocated for wind farm have been secured (land state acts obtained, land lease agreements with the local herders and Kazphosphate LLC signed for a period of 49 years with the intended purpose includes construction and operation of wind power stations, access roads. The total land area acquired is 163.68 ha. Land for high voltage overhead transmission lines is secured via land easement. No issues associated with land acquisition, physical and/or economic displacement and livelihood restoration issues have been identified with the Project.
Labour/workforce management: WSP inspected the worker's accommodation rooms (*Appendices A.10*). The living quarters seem adequate to the accepted international standards for the workforce living conditions. The Project Company will need to ensure that workforce is effectively managed throughout the construction phase by having developed and implemented a comprehensive labour/workforce management plan.
Human Resources: No overarching policies are currently available at the Project Company or EPC Contractor, and they do not monitor the labour standards of any contractors engaged.

Cultural heritage/Archaeology: During the EIA process, presence of archaeological/cultural heritage objects was identified within the Project allocated land plots. The archaeological survey of the Project area (completed by Almaty based consultancy in 2020) revealed/confirmed presence of two cultural heritage objects, namely (i) Aktogay Burial Ground (dated appr. IV-I cent. BC) and (ii) ancient settlement Syzdykbaeva (est. ~40m2; dated appr. IV-I cent. BC). Following the local legislative requirements (in line with the procedure defined in the Kazakh Historic and Cultural Protection Law, 2019), the Project Company submitted the findings of archaeology survey report to obtain a formal Archaeological Expertise conclusion. All archaeological finds have been collected from both sites and are currently temporarily stored at LLC Archaeological Expertise awaiting the Ministry of Culture and Sport decision to which museum the findings be delivered for collection and exhibition. On July 2020, the Project Company received a formal expertise conclusion stating that the cultural objects identified during the survey are not culturally and/or historically significant, therefore, the area is not restricted for further development activities.



The Project Company and EPC Contractor and its subcontractors engaged in activities on-site must develop a clear Chance Find procedure and ensure that relevant personnel among contractors are trained in its use. This document will establish the procedure for actions in case of discovering objects that are classified as of having archaeological importance. Such discoveries of suspected archaeological value must be immediately reported to the construction managers and the social/environmental manager who must then report the findings to the relevant authorities.

STAKEHOLDER ENGAGEMENT

Consultation with local communities: Some consultation has been carried out, but nothing structured. The Project Company plans to create a website and social media page for the community to observe ongoing construction and submit grievances.

Engagement with key stakeholders and public: As noted earlier, Screening EIA process involved public consultations and meetings. The Project Company have undertaken engagement with the following institutions and stakeholders to provide inputs into the Project design:

- Zhanatas Akimat
- Zhanaaryk Akimat
- Aktogay Akimat
- Kazphosphate LLC
- EuroChem LLC
- Local public (residents of Aktogay and Zhanaaryk)

Key issues/concerns raised by local public during public hearings included the issue of noise as a result of construction activities; another aspect was the expectations from local residents for job opportunities during the construction phase of the Project. WSP was informed that for some positions/roles (qualified or non-qualified) the Project Company has plans for hiring local workforce.

During the course of the site visit, WSP, with assistance from the Project Company, conducted the following meetings with key project stakeholders:

- August 17: Meeting with the Akim of Zhanatas.
- August 17: Meeting with the Akim of Akotgay
- August 17: Meeting with the Akim of Zhanaaryk

During the meetings with Akims, WSP noticed a good and constructive relationship the Project Company and the Project Investor managed to build with the local authorities. Akimats expressed deep interest in wind power development taking place in the region and promised full support as needed to the wind developers and investors.

Akim of Zhanatas shared information about prospective plans for wind power resource development in the region. According to his information, there is a memorandum between local authorities and (collectively) investors and wind developers to expand the total wind resource development capacity to 400MW – all attached to this ridge. Zhanatas WPP (existing wind farm) is seemed to be the first phase of this development prospective, followed by Shokpar WPP project and onward by others.

Appendix A – Site Visit Photos

A.1. Typical landscape within the Shokpar Project site (view from adjacent operational Zhanatas WPP)

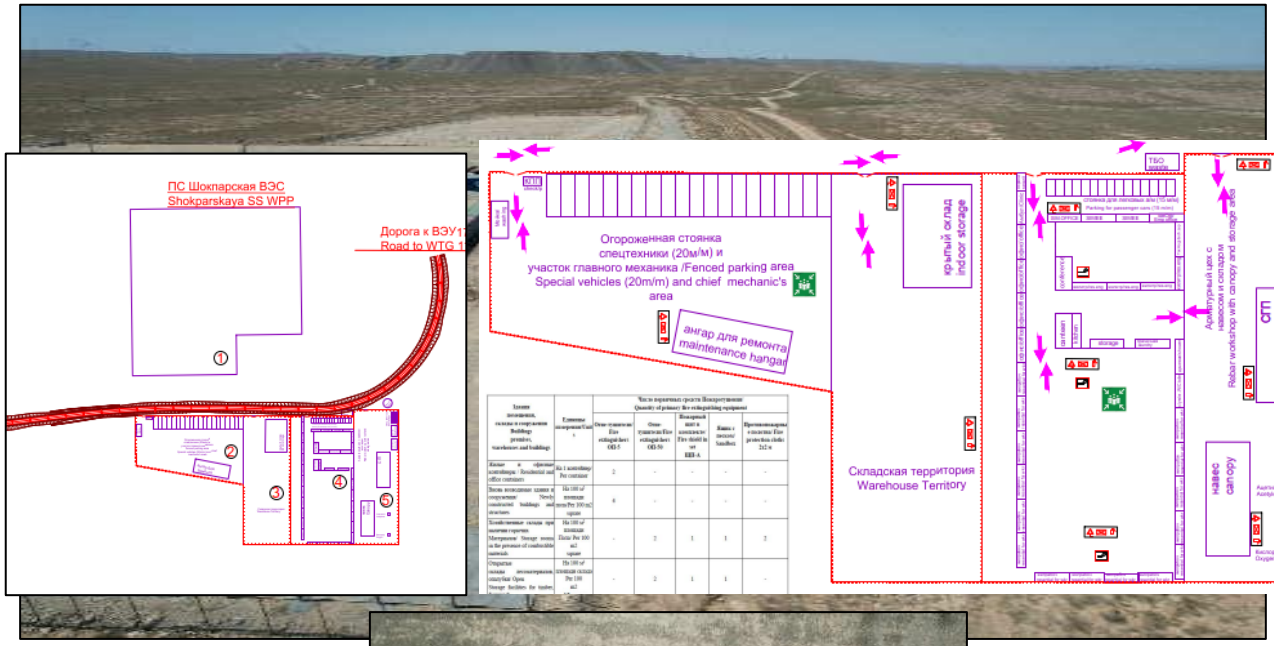


A.2. Shokpar WPP Project – the ridge where WTGs will be installed (view from Zhanatas-Taraz R-43 highway)



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A.3. Construction site – general view



A.4. Construction site – Schematic layout and main facilities

A.5. Construction site – on-going works





A.6. Shokpar WPP Site - boulder habitat



A.7. Shokpar WPP - Site habitat (steppe)



A.8. Lake Kyzylkol IBA (site visit)



A.9. Arystandy IBA (site visit)



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APPENDIX TITLE