

China Power International Holding Ltd (CPIH)

Akmola Wind Farm

Project Non-Technical Summary



Project Non-Technical Summary for Akmola Wind Farm, December 2023

Akmola Wind Farm Non-Technical Summary

Dated December 2023

1 Introduction

This document provides a non-technical overview of the proposed development of the portfolio of five (5) sub-project wind farms, collectively referred to as “the Project”.

This Non-Technical Summary (NTS) presents a summary of potential environmental and social impacts and other environmental and social issues relevant to the project activities. Appropriate measures to mitigate key adverse environmental and social effects that may arise during project construction and operation are also described.

The project developer *China Power International Holding Ltd (CPIH)* has funding from the European Bank for Reconstruction and Development (EBRD) for financing this development. The project is thus subject to EBRD’s 2014 Environmental and Social Policy and has been determined as a Category B project.

Any interested party is encouraged to provide comments and suggestions on the environmental, social and other aspects of the Project. For further information or comments please contact:

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2 Description of the Proposed Development

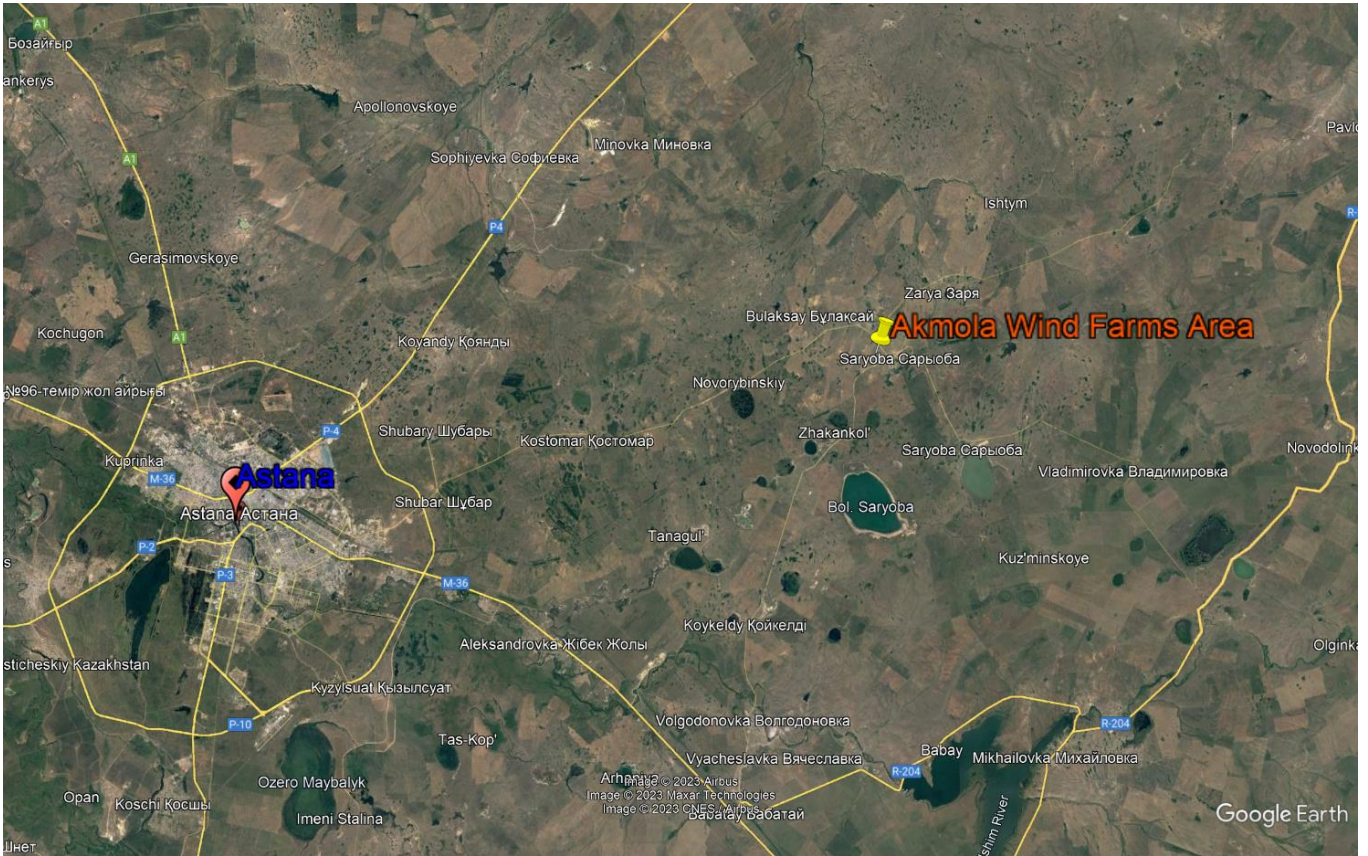
The Project is a greenfield development of a 220 MW installed capacity wind farm with 44 turbines located near the villages of Bulaksay and Saryoba in the Akmola Region of Central Kazakhstan, approximately 30 km northeast of Astana (Figure 1).

The Project is divided into several companies, each assigned to a separate sub-project:

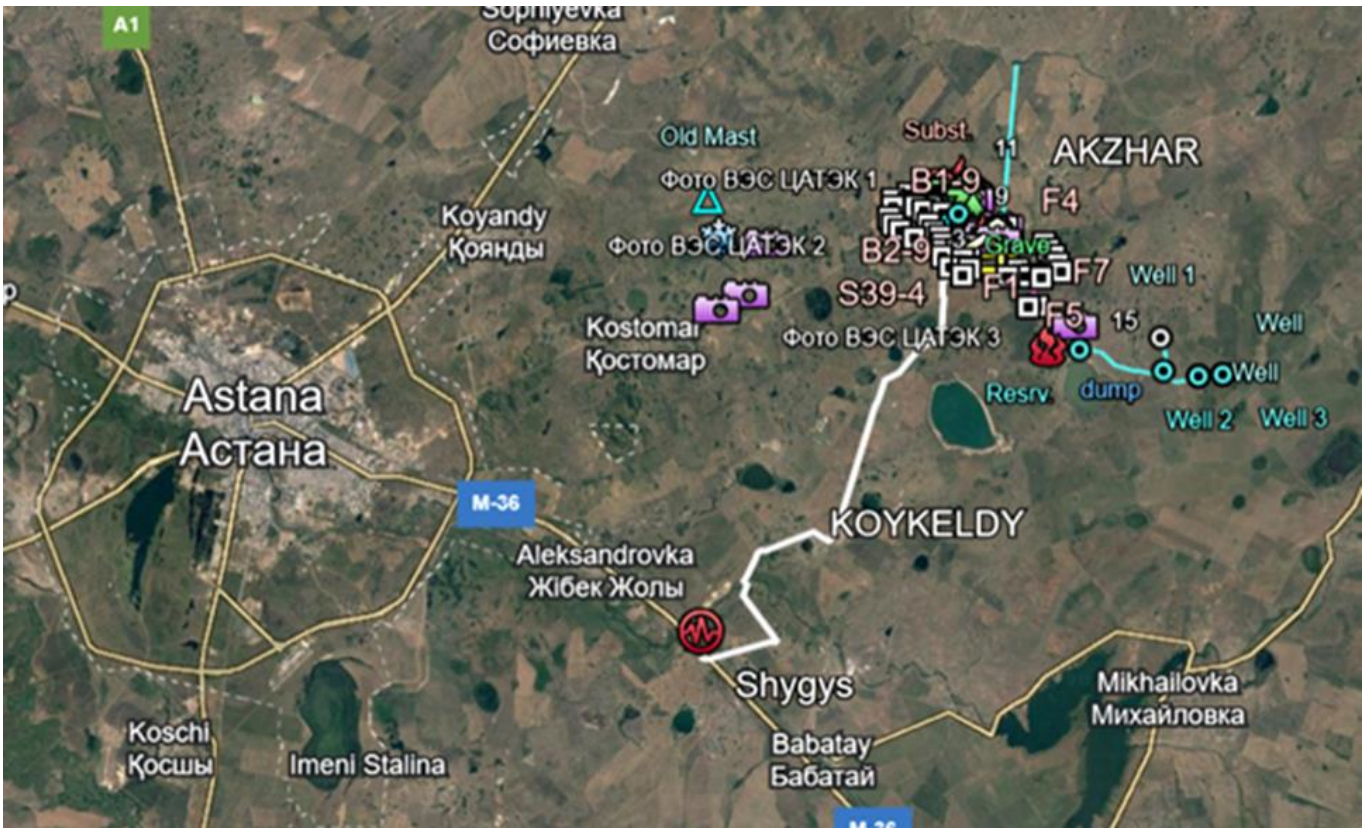
- Borey Energo LLP (Borey) – 20 wind turbines.
- Energo Trust LLP (Energo Trust) – 10 wind turbines.
- Sofievskaya Wind Power Plant LLP (Sofievskaya) – 8 wind turbines.
- Arkalyk Wind Power Plant LL (Arkalyk) – 3 wind turbines, and
- Jasyl Jel Energy (JJE) – 3 wind turbines.

The Project site is accessible throughout the year although roads are in very poor condition, with access affected by poor weather. The area is also accessible by railway. The surrounding area consists of flat farmland and pastureland used to graze livestock including sheep, goats and cows.

Figure 1. General map view



Source: Google Earth



The nearest residential areas surrounding the Project are:

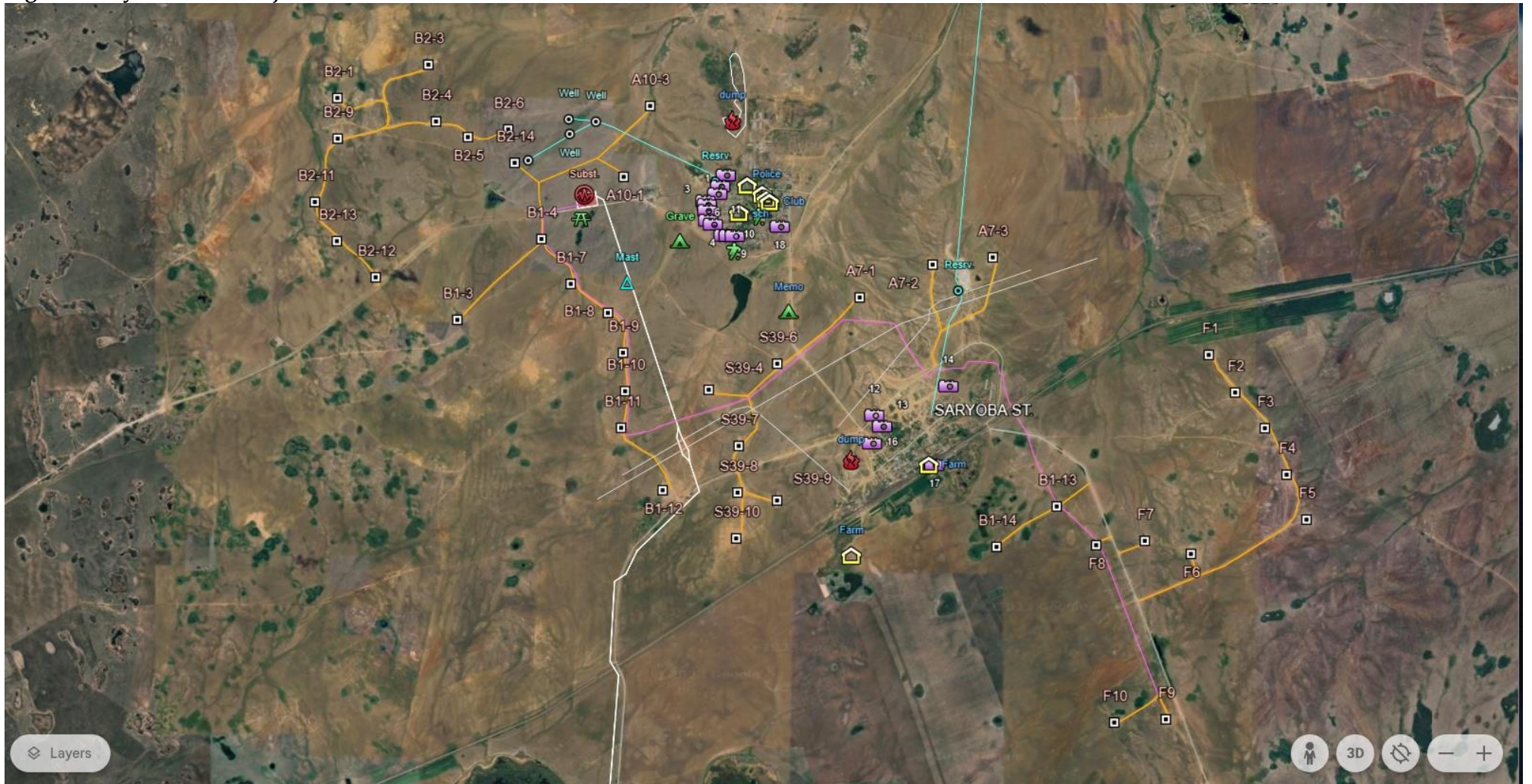
- The village of Bulaksay – around 1 km south-east.
- The village of Saryoba – around 750 m south-east.
- The village of Saryoba Station – approximately 1 km north-west.

The Project is comprised of the following key components:

- 44 turbines, each with rated power 5 MW,
- Underground cabling of 35 kV,
- Step-Up Substation including administrative facilities (admin and control building),
- Overhead Transmission Line (2 x 110 Kv lines linking Borey Step-Up Substation with national grid (Shygys substation), and
- Access roads (gravelled roads of 4.5 km width to allow vehicular access).

Construction activities have largely been completed, and all sub-projects have been connected to the grid.

Figure 2. Layout of the Project



The Principal Contractor for the construction phase is SunGrow Qurylys (SunGrow), a Kazakh subsidiary of the Chinese based company SunGrow Power. Construction subcontractors include BuildExpert and Guldenstory, the principal construction and foundation contractors, and a range of specialist contractors providing relevant technical expertise.

By employing the renewable wind power, the project will provide significant environmental benefits over other types of energy generation, such as those using fossils fuels (gas, coal) or nuclear. It will contribute to the reduction of emissions of greenhouse gases, create temporary and some permanent jobs, and improve the security of energy supply in the area.

3 Wind Power

Wind power is energy obtained from the wind. To be able to produce electricity from wind, a wind turbine is used. The turbines will have a tower and three blades with a total height to the tip of the blade of 186m. Typical wind turbines are illustrated in the photograph below.

Figure 3. Typical Wind Turbines in Operation



4 Environmental and Social Impact Assessment

An Environmental & Social Impact Assessment (ESIA) Scoping Report, and ESIA were conducted in accordance with EBRD requirements in 2021 by EcoSocial Analysis LLC. The ESIA covers the original 100 MW Borey wind farm, plus the later added Energo Trust, Aralyk and Sofievskaya wind farms, which increased the capacity to 206 MW.

The ESIA was developed to identify and assess potential environmental and social impacts of the wind farm and all infrastructure associated with it. Mitigation measures were then identified to reduce and manage potential environmental and social impacts.

An Environmental and Social Action Plan (ESAP) has been developed for the Project which will ensure that environmental and social requirements are implemented at relevant stages of the Project's life.

A summary of key impacts that have been identified by the ESIA process during the construction and operational phases of the wind farm are outlined below. Decommissioning impacts are typically similar to construction phase impacts and have not been summarised. Key mitigation measures are also outlined within the sections below.

4.1 Project impacts and their mitigation

The evaluation of potential environmental and social impacts has determined that, in addition to its benefits, the project may have some negative impacts on the environment and people, if not managed carefully. Therefore, *CPIH* will implement certain actions (called "mitigation measures") to prevent or reduce potential negative impacts of the project as outlined in the ESAP. Key mitigation measures are included in the information below.

Local Fauna

Survey work was carried out between 2020 and 2021 within the site allocated for the Project and a 2km buffer zone was also applied. The surveys identified that species diversity and numbers were low across the whole Project area.

Migrant birds are attracted to waterbodies in the area during their spring and autumn passage. However, overall bird diversity and numbers are low. Eastern imperial eagle; (internationally classified as Vulnerable; red-listed in Kazakhstan) uses the Project area sporadically but is not believed to be breeding within it. Whooper swans; red-listed in Kazakhstan; (classified as Least Concern internationally) use the area intermittently during migration and winter.

Eleven breeding birds were recorded including coots, moorhen, mallard, skylark, tawny pipit and bearded tit amongst others. No raptor nesting was recorded however there were occasional sightings of Imperial eagle, Steppe eagle and Pallid harrier.

No bats were recorded in or around the Project site. Mammal species noted included steppe marmot, Corsac fox, Siberian roe deer and European badger amongst others. In relation to reptiles and amphibians, sand lizard and common toad have been reported.

The closest protected area is the Ereymentau Mountains Key Biodiversity Area (KBA) / Important Bird Area (IBA). This is located circa 50 km east of the Project area.

A Critical Habitat Assessment has been undertaken by EcoSocio Analysts LLP (2021) against EBRD criteria. This concludes that no critical habitat is present.

The assessment concludes that impacts on habitats and flora will be low to negligible with impacts largely considered to be associated with vegetation removal.

The level of risk associated with collision of birds (notably raptors) into turbine blades is calculated to be around one raptor death during the Project life and so is not considered significant. No significant impacts to breeding birds have been identified. With regards to bats, mammals, reptiles and amphibians, a conclusion of no likely harm has been reached.

Land Take

There is land take, totaling 45ha, required for infrastructure related the Project, primarily for the transmission line, including land for poles and anchor towers. No impacts are identified for the tenants, who have signed agreements with the Company. The majority of the land around the Project is used for non-intensive and unsupervised pasturing of livestock (including cows, sheep and goats). No temporary or permanent resettlement is, or will be, caused by the Project activities.

Social

The Akmola region has a total population of approximately 788,700 (2023)¹, with men making up 48.6% of the population (2021). Kazakhstan's economy is the largest in Central Asia², with a GDP per capita of 10,401 USD and an annual GDP growth rate of 3.6% year on year in the first half of 2022³. The unemployment rate in Kazakhstan has decreased steadily over the past two decades.

During construction, land has remained available for pasturing animals. Hazard warning tape will be used to identify trenches to prevent livestock and human injuries.

Local trade has increased during the construction period, and other economic benefits have arisen from the rent paid by Project employees for accommodation in the local villages.

A Stakeholder Engagement Plan is in place for the Project which identifies key stakeholders, current consultation activities and proposed consultation activities going forward. A grievance procedure is also in place for communities and workers to submit concerns or comments to the Company.

Transport and Access

The ESIA details that large turbine components for the Project are delivered by road from China, entering Kazakhstan at Khorgos custom terminal. The turbine components are then transported via A351 motorway to Almaty, then via M36 highway bypassing Balkhash and Karagandy cities and on the outskirts of Nur-Sultan city turning to the local partially surfaced KC31 road to WPP site that does not enter any settlements. The distance from Khorgos to the WPP site is around 1,600 km.

The roads around the Project site are in a very poor condition and it will be ensured that any damage to local roads caused by heavy plant movement during construction, will be repaired or compensated to enable repairs to be carried out.

Operational Project traffic around local roads is not expected to be significant, limited mainly to maintenance vehicles.

Project vehicles will only utilise designated tracks / roads for the Project unless prior approval is granted in order to minimise the potential for soil erosion and damage to grassland.

¹ Results of the development of the Akmola region for January to September 2023. Accessed online: <https://www.gov.kz/memleket/entities/aqmola/documents/details/537382?lang=en>

² CIA. The World Factbook, Kazakhstan. Accessed online: <https://www.cia.gov/the-world-factbook/countries/Kazakhstan>

³ EBRD. Transition Report 2022-23: Kazakhstan. Accessed online: <https://2022.tr-ebd.com/countries/#>

Landscape and Visual

The main visual impacts during construction on the character of the landscape and its visual amenity are as a result of temporary construction works, the on-site storage of construction equipment and materials i.e., wind turbines and excavators, construction waste, and access road construction. These impacts are not significant as they are low rise and not close to residential areas.

During operation, the key visual impact is from turbines which will be visible in clear conditions from significant distances in all directions against an open, largely treeless and flat landscape which currently is devoid of engineered structures other than other wind farms. It is predicted that impacts could be significant however compensatory measures will be implemented under the corporate social responsibility programme.

Archaeology and Cultural Heritage

The Center for the Protection and Use of Historical and Cultural Heritage of the Department of Culture, Archives and Documentation of the Akmola region reported no presence of historical or cultural objects in the area of the Project. A chance finds procedure is in place for remaining excavation works which sets out details of actions to be taken in the event that a previously undiscovered artifact or relict is found during construction.

Noise

The ESIA identified no significant sources of noise pollution in the Project site area.

During construction, noise sources include heavy vehicle traffic, operation of construction machinery and operation of tools and equipment. During operation, noise pollution relates mainly to the noise of the wind turbines and transformers and any traffic relating to maintenance and operational activities. Noise modelling was carried out as part of the ESIA. This showed that noise levels would be below Kazakh and IFC performance standards limits for environmental noise.

Any complaints relating to noise will be reviewed and investigated where justified in accordance with the grievance mechanism in place. Measures will then be implemented where required to minimise adverse noise impacts on affected residences.

Shadow Flicker

Shadow flicker is an effect produced when rotating wind turbine blades obstruct light from the sun, casting a moving shadow which is perceived as a 'flicker' due to its repeated movement. In most cases this effect may only occur for at most tens of hours in a year, however it has the potential to create a nuisance for residents in proximity to the turbines, particularly at times when the sun is low on the horizon in the mornings and evenings.

Modelling has been completed which demonstrates that several residences in Bulaksay could experience shadow flicker effects in excess of 30 minutes per day and/or 30 hours per year, the recommended limits in the International Finance Corporation (IFC) Wind Energy Guidelines. However, this is modelled on a worst-case scenario based on absence of cloud cover, wind and window directions maximising exposure.

Proposed measures to resolve exceedances in IFC recommended limits include turning off specific turbines at periods when shadow flicker is expected to occur and investigating any complaints from affected residents to refine the process.

Air quality

The ESIA identified no significant sources of air pollution in the site area except from the coal heated buildings in winter. Air emissions during construction include exhaust emissions from site vehicles and fugitive dust from concrete manufacture and vehicle movement along unpaved roads. Very limited air emissions are anticipated during the operation phase, mainly limited to exhaust emissions from site vehicles and fugitive dust from vehicle movement along unpaved roads. Dust suppression measures are employed during construction.

Air emissions during operation will be minimised by selection of appropriate equipment and a programme of preventative maintenance and inspection of equipment.

Soils and Ground Cover

The Project site ground has continuous vegetative cover with no signs of erosion. No sources or ground contamination or visible contamination were found through the area allocated for the wind farm.

Potential impacts on soils resulting from the Project include loss of fertile topsoil and consequent impacts to vegetation quality and diversity and erosion of soils in excavated areas.

Re-seeding and planting will take place in protected zones around the Project and measures implemented to prevent pollution of soils. A programme of regular monitoring of previously disturbed areas will be implemented to review the progress of rehabilitation.

Climatic Conditions and Change

The climate of the region is sharply continental. Winter is harsh, with snowstorms and blizzards, with unstable snow cover. Summers are relatively short, dry and moderately hot. The region belongs to a zone of low humidity. 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 glaciers which is projected to increase river flow and also flood risk towards the middle of the century, followed by a long-term decline in flow⁴.

Cumulative Impacts

Cumulative impacts occur as from the combined effects of a project or activity when considering other existing, planned and / or reasonably anticipated future developments in the area. This includes the collective impacts of all sub-projects within the Project and also other wind farms or development that could potentially create cumulative impacts.

It is possible that cumulative impacts could occur as a result of the Project with a number identified in the ESIA. These include bird, landscape and visual, shadow flicker and noise impacts. A further cumulative impact assessment is proposed to further understand these impacts.

5 Environmental and Social Management Systems

⁴ World Bank Climate Knowledge Portal risk profile: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15834-WB_Kazakhstan%20Country%20Profile-WEB.pdf

The mitigation, monitoring and performance improvement measures identified within the ESIA are incorporated into the Project Environmental and Social Management System (ESMS). The measures and actions to address identified impacts and risks will favour the avoidance and prevention of impacts over minimisation, mitigation or compensation wherever technically and financially feasible. Where risks and impacts cannot be avoided or prevented, mitigation measures and actions are identified so that the Project can operate in compliance with applicable laws and regulations in addition to meeting international standards. As construction is nearing completion, the focus is on the development and implementation of the operational ESMS.

The scope of the ESMS for the Project includes:

- The operational standards to be applied to the Project.
- The Company's policy for environmental management, occupational health and safety, labour and community health, safety and security.
- Organisational chart for environmental, social, health and safety (ESHS) elements, roles and responsibilities and Contractor management.
- ESHS reporting – both of routine and incidents / accidents.
- Audit, review and management of non-conformances.
- Community grievance mechanism (alongside the Stakeholder Engagement Plan).
- Workers' grievance mechanism.

A number of management plans (sub-plans) are produced as part of the ESMS. The operational ESMS will constitute the overarching document referring to a number of sub-plans required for the Project. These include plans such as Occupational Health and Safety Plan, Emergency Response and Preparedness Plan, Transport Management Plan, Biodiversity Management Plan etc.

Management plans consist of a combination of operational policies, procedures and practises. These plans will provide a system against which to monitor and audit environmental and social performance. In addition, they detail the practical methods required to ensure work is completed in accordance with current best practice, the mitigation measures in the ESIA and legislative and regulatory requirements.

A programme of Environmental and Social Monitoring during the remainder of construction and into operation will be undertaken by the Company in order to verify the effectiveness of the proposed mitigation and management measures.