China Power International Holding Ltd (CPIH)

Akmola Wind Farm

Project Non-Technical Summary

Project Non-Technical Summary for Akmola Wind Farm, June 2024

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Dated June 2024

1 Introduction

This Non-Technical Summary (NTS) presents a summary of the potential environmental and social (E&S) risks and impacts of a recently constructed portfolio of five (5) wind farms located adjacent to each other in the Akmola Region of Central Kazakhstan. Collectively these wind farms are the "Project". Measures to mitigate key adverse environmental and social risks and impacts that may arise during Project operation and maintenance (O&M) activities are also described.

The developer *China Power International Holding Ltd (CPIH)* is seeking financing from the Asian Infrastructure Investment Bank (AIIB) for the Project. The Project is thus subject to AIIB's E&S Framework (ESF) 2022 and associated E&S Policy (ESP) and E&S Standards (ESS). The Project has been categorized as a Category B project under AIIB's ESP.

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

Name	**Contact information**
FAN Chunfeng	+7 717 279 29 99

2 Description of the Proposed Development

The Project comprises the recently constructed 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 was constructed on a greenfield site.

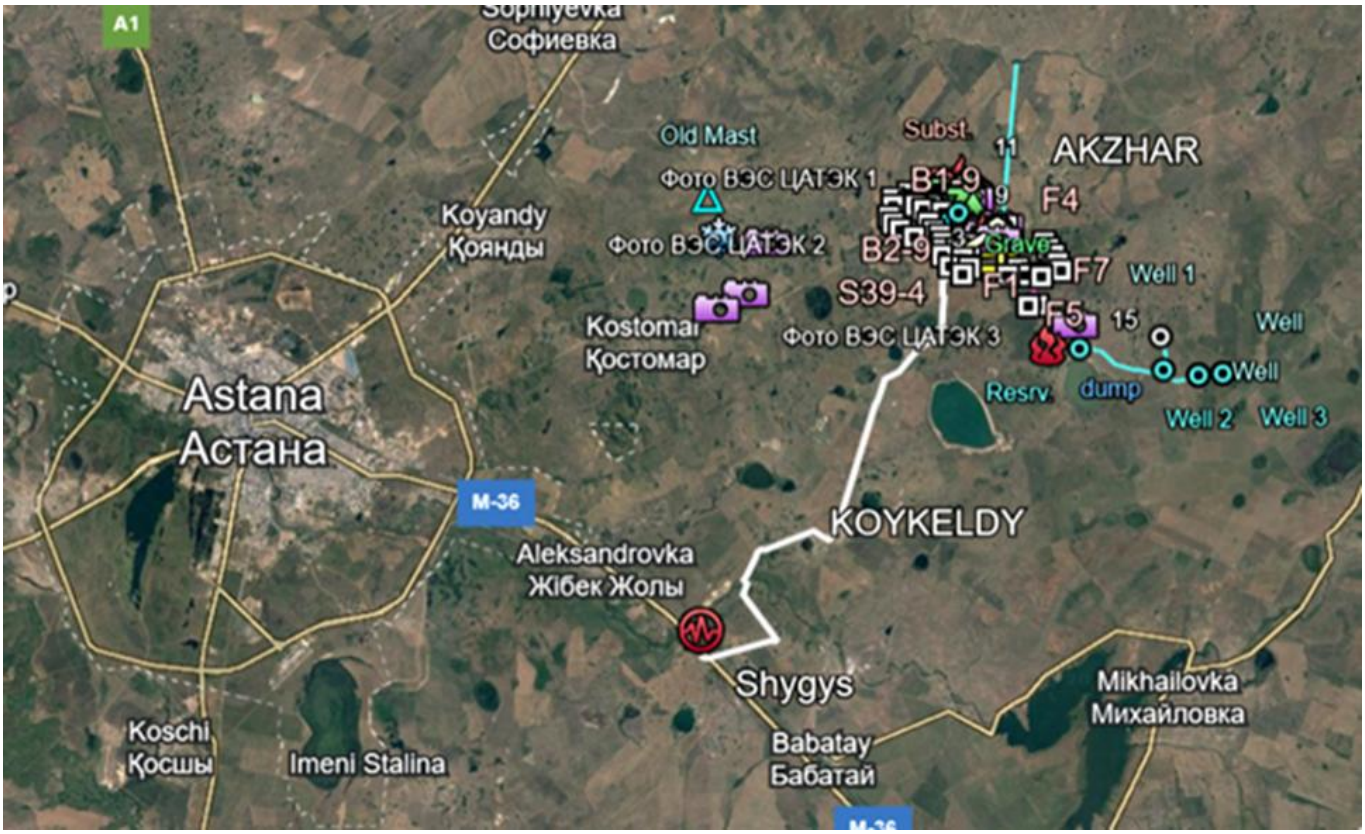
The Project is divided into several companies, each assigned to a separate sub-project:

- 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 of variable condition and in process of being upgraded by local authorities. Access can be 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).
- Access roads (gravelled roads of 4.5 km width to allow vehicular access).

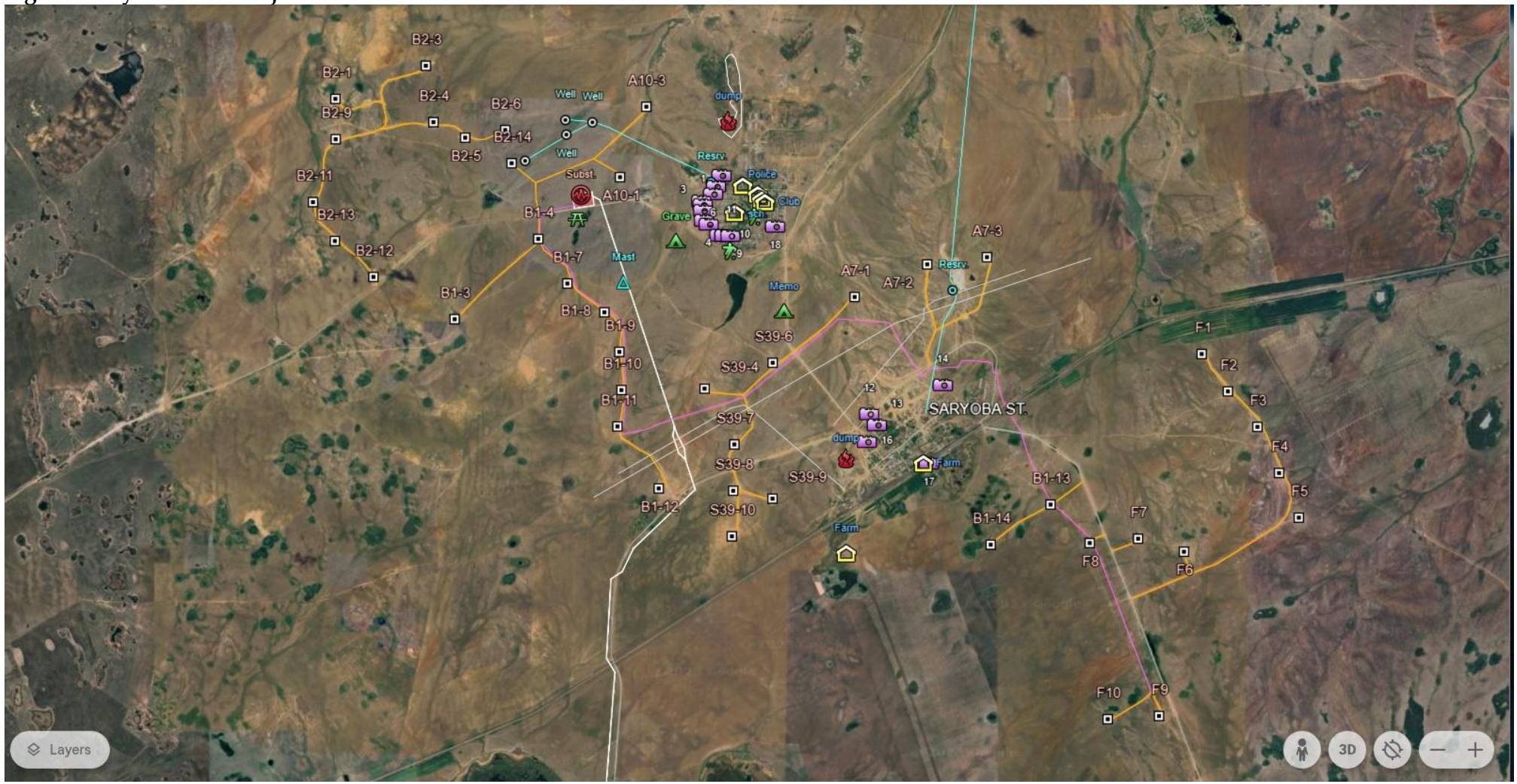
The year 2023 has witnessed the construction completion[1], and all sub-projects have been connected to the grid.

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

By employing 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.

[1] Construction for one of the sub-projects were fully completed in 2024.

Figure 2. Layout of the Project



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 E&S Impact Assessment (ESIA) Scoping Report, and ESIA were conducted in accordance with EBRD's Environmental and Social Policy 2019 (ESP) requirements in 2021 by EcoSocial Analysis LLC[2]. The ESIA covered the 100 MW Borey wind farm (the first sub-Project to be developed), and the Energo Trust, Aralyk and Sofievskaya wind farms. The three turbine JJE sub-project was not explicitly included in the ESIA, but peer-reviewed professional judgement has determined risks and impacts to be commensurate with those predicted for the other sub-projects as presented in the ESIA. CPIH has committed to undertake actions to confirm this judgement as part of an E&S Action Plan (ESAP) that will form part of the financing agreement with AIIB.

The ESIA identified and assessed potential E&S impacts of the Project and all infrastructure associated with it. It was prepared pre-construction in accordance with good practice and considered potential risks and impacts of the construction and O&M phases. Decommissioning impacts are typically similar to construction phase impacts. Mitigation measures were then proposed to reduce and manage potential E&S impacts.

[2] AIIB was not involved in the Project financing at that time hence the reference to and application of different Lender standards. EBRD's ESP is materially consistent with AIIBs ESF.

An ESAP has been developed for the Project which will ensure that environmental and social requirements are implemented at relevant stages in the Project's lifecycle.

A summary of key impacts and mitigations identified by the ESIA process are outlined in the following sub-sections.

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 and red-listed in Kazakhstan) uses the Project area sporadically but is not believed to be breeding within it. Whooper swans, red-listed in Kazakhstan and 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 and it was concluded that there would be no impacts on the species for which these sites were designated.

A Critical Habitat Assessment (CHA) was undertaken by EcoSocio Analysts LLP (2021) against EBRD Performance Requirement 6 criteria. The CHA concluded that no critical habitat[3] is present.

The assessment concluded that impacts on habitats and flora will be low to negligible with impacts primarily associated with vegetation removal.

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

[3] The most sensitive biodiversity features are defined as critical habitat. Critical habitats comprise one of the following: (i) highly threatened or unique ecosystems; (ii) habitats of significant importance to endangered or critically endangered species; (iii) habitats of significant importance to endemic or geographically restricted species; (iv) habitats supporting globally significant migratory or congregatory species; or (v) areas associated with key evolutionary processes.

CPIH is committed to preparing a Biodiversity Management, Monitoring and Evaluation Plan (BMMEP) to ground-truth the impact predictions made in the ESIA and to minimize risks to the extent feasible. The BMMEP will include for example, a post-construction fatality monitoring plan including capacity building for local agents to undertake the monitoring, and a menu of adaptive management and mitigation measures that could be adopted if monitoring demonstrates impacts are more severe than expected.

Land Take

Land taken for the Project was used for non-intensive and unsupervised pasturing of livestock (including cows, sheep and goats). Approximately 45ha of land was required to locate the Project infrastructure. The majority of land was required for the transmission line, including land for poles and anchor towers. No impacts were identified for the tenants, who had all signed agreements with CPIH. No temporary or permanent resettlement was, or will be, caused by the Project.

Social

The Akmola region has a total population of approximately 788,700 (2023)[4], with men making up 48.6% of the population (2021). Kazakhstan's economy is the largest in Central Asia[5],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 2022[6]. The unemployment rate in Kazakhstan has decreased steadily over the past two decades.

During construction, land remained available for pasturing animals and hazard warning tape was used to identify trenches to prevent livestock and human injuries.

Local trade increased during the construction period, and other economic benefits arose 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 CPIH.

Transport and Access

Large turbine components for the Project were delivered by road from China, entering Kazakhstan at Khorgos custom terminal. The turbine components were 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 the Project site. The distance from Khorgos to the Project site is around 1,600 km.

Project traffic during the O&M phase is expected to be light, limited mainly to maintenance vehicles. Project vehicles will only utilise designated tracks / roads for the Project unless prior approval is granted. This is to minimise the potential for soil erosion and damage to grassland.

Landscape and Visual

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. There has been a significant

[4] 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
[5] CIA. The World Factbook, Kazakhstan. Accessed online: https://www.cia.gov/the-world-factbook/countries/Kazakhstan
[6] EBRD. Transition Report 2022-23: Kazakhstan. Accessed online: https://2022.tr-ebrd.com/countries/#

change in the landscape as a result of the Project that cannot be avoided; however the nature of the impact (adverse, neutral or beneficial) is subjective. Whilst not addressing the visual impact, the Project has established a corporate social responsibility programme to go some way to compensating the affected communities.

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 was in place for excavation works. The chance finds procedure set out details of actions to be taken in the event that a previously undiscovered artifact or relict was found during construction.

Noise

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

During construction, noise sources included heavy vehicle traffic, operation of construction machinery and operation of tools and equipment.

During operation, the wind turbines and substation transformers are the primary sources of Project related noise emissions.

Operations phase noise modelling was carried out as part of the ESIA. The modelling predicted that noise levels would be in almost all cases below Kazakh and international[7] thresholds for environmental noise. The modelling did however identify the possibility of night time noise thresholds being exceeded at a small number of properties. CPIH has committed to undertaking noise monitoring of its operational turbines at the potentially affected properties to confirm actual impacts. In the event that noise thresholds are exceeded CPIH will prepare and implement an O&M phase noise management plan detailing the actions it will take to manage the issue.

Any complaints relating to noise will be reviewed and investigated where justified in accordance with the Project grievance mechanism.

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 relevant internationally recommended thresholds[8]. However, this is modelled on a worst-case scenario based on absence of cloud cover, wind and window directions maximising exposure.

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[7] As set by the World Health Organisation (WHO) and referenced in the World Bank Group Environmental Health and Safety (EHS) Guidelines (General) 2008.
[8] World Bank Group EHS Guidelines for Wind Energy 2015

CPIH has committed to undertaking a more detailed shadow flicker study and to commission, develop and implement a shadow flicker management plan - if demonstrated to be needed - that will be informed by the study.

Air quality

The ESIA identified no significant sources of air pollution in the site area except from local coal heated buildings in winter. Potential air emission sources during construction included exhaust emissions from site vehicles and fugitive dust from concrete manufacture and vehicle movement along unpaved roads. Dust suppression measures were employed during construction.

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. Emissions will be minimised to the extent feasible by selection and inspection of appropriate equipment and a programme of preventative maintenance.

Soils and Ground Cover

Prior to construction the Project site had 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 included loss of fertile topsoil and consequent impacts to vegetation quality and diversity and erosion of soils in excavated areas.

In the early O&M phase the Project will develop a BMMEP that will include a programme of habitat regeneration monitoring for all areas disturbed during construction (wind farm, buried cables, access roads, and transmission line amongst others); a menu of actions that may be taken in the event that natural revegetation to baseline conditions does not occur in an ecologically reasonable timeframe (to be defined in the BMMEP); and a decision process for determining what actions would be suitable to be taken, where (in what situations) and when.

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 flow[9].

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.

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

CPIH is committed to undertaking a supplemental E&S assessment to confirm if the JJE sub-project causes any cumulative impacts with the other sub-projects in relation to biodiversity, shadow flicker and noise. Any other Projects that may be planned in the region were not at a sufficient stage of development to be identified and assessed.

5 Environmental and Social Management Systems

Construction phase mitigation, monitoring and performance improvement measures identified within the ESIA were incorporated into the Project construction phase Environmental and Social Management System (ESMS).

During the O&M phase, CPIH has engaged Kazakhstan Energy Investment (KEI) and Windy to manage the O&M of the electrical infrastructure and wind turbines respectively.

CPIH, KEI and Windy each have their own management systems and sub-procedures for managing E&S risks. CPIH is committed to ensuring that the ESMSs of all three parties are aligned with international standards. This will be achieved through a program of audits with any gaps against international standards identified and addressed through developing and delivering a corrective plan.