Bash 500MW Wind Farm

Republic of Uzbekistan

Environmental and Social Impact Assessment (ESIA)

Volume 1 - Non-Technical Summary

Prepared for:

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LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
ADB	Asian Development Bank
CESMP	Construction Environmental & Social Management Plan
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
ESIA	Environmental & Social Impact Assessment
GBVH	Gender Based Violence & Harassment
IFC	International Finance Corporation
NEGU	National Grid of Uzbekistan
OESMP	Operational Environmental & Social Management Plan
OHTL	Overhead Transmission Line
PCFM	Post Construction Fatality Monitoring Plan
RAP	Resettlement Action Plan
SEP	Stakeholder Engagement Plan
5 Capitals	5 Capitals Environmental and Management Consultancy

1 INTRODUCTION

1.1 The Project

The government of the Republic of Uzbekistan through the Ministry of Energy aims to increase the electricity production in the country from 12.9GW in 2019 to 29.3GW by 2030 in order to foster economic growth as part of the Uzbekistan 2030 Energy Strategy. One of the objectives of the Energy Strategy include the development and expansion of renewables use and their integration into the unified power system. In regard to the development of wind farms the Energy Strategy states the following as priority:

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

The Bash 500MW Wind Farm aligns with the above statement and the 2030 Energy Strategy. The 500MW Wind Farm in Bash (herein after referred to as 'the Project') will be developed on a plot of land in Gijduvon District by ACWA Power through a Project Company 'FE ACWA Power Bash Wind LLC' registered in the Republic of Uzbekistan with registration number 839862. The Project will also include the development of a 162km single circuit 500kV Overhead Transmission Line (OHTL).

ACWA Power Bash Wind LLC has entered into a 25-year Power Purchase Agreement (PPA) with JSC 'National Electric Grids of Uzbekistan.

ACWA Power has appointed 5 Capitals Environmental and Management Consulting (5 Capitals) as the lead E&S Consultant to undertake the independent Environmental Impact Assessment (EIA) and Environmental and Social Impact Assessment (ESIA) processes, to attain the relevant National regulatory permits and approval from the international lenders required for project finance.

This Non-Technical Summary (NTS) of the ESIA provides a description of the Project and the anticipated impacts (both positive and negative) associated with its construction, commissioning, operation and decommissioning phases. It also describes the design process taken to prevent impacts and the mitigation and management measures identified to minimise or manage negative impacts and where possible to enhance beneficial impacts.

The NTS has been prepared for the potential financing of the Project by the European Bank for Reconstruction and Development (EBRD) and the Asian Development Bank (ADB). The Project will comply with the environmental and social policies and safeguards of these banks including EBRD's specific Performance Requirements , ADB Environmental and Social Safeguards and

IFC's Performance Standards, the latter being applied by ACWA Power on all their projects. Such requirements comprise the disclosure of the Project's environmental and social documentation for consultation with relevant stakeholders and those people that might be affected by the project. The public disclosure period for ADB commenced in March 2022 and will extend for 120 days while the disclosure for EBRD is 60 days commencing in May 2022.

1.2 Background and Rationale

1.2.1 National EIA

5 Capitals appointed a local consultant, 'Juru Energy' (based in Tashkent, Uzbekistan) to undertake baseline surveys, consultations, and preparation of the project specific Stage I EIA Preliminary Statement of Environmental Impact for submission to the local regulator.

The Stage I EIA was submitted to the State Committee on Ecology and Environmental Protection (SCEEP) of the Republic of Uzbekistan on 30th June 2021 by Juru Energy. This was reviewed by SCEEP and comments were received on 2nd August 2021 to update this report to include preliminary Biodiversity Conservation Plan and Biodiversity Monitoring Programme and a tree report summarizing the qualitative & quantitative survey of trees and shrubs conducted by the Bukhara Regional Department of Ecology & Environmental Protection.

The updated National EIA (Stage I) was resubmitted to the State Committee on 7th September 2021 and approved on 30th September 2021 allowing for project construction works to commence without the need to prepare a Stage II "Statement for Environmental Impact". However, a Stage III 'Statement on Environmental Consequence' is required to be submitted, and approved, prior to commencement of project operations.

1.2.2 Lenders' ESIA

An *Environmental and Social Scoping Report* was completed on 11th March 2021, which identified the likely risks and impacts of the project, and provided the terms of reference for the ESIA, including consultations and the scope and methods for baseline surveys, laboratory analyses and modelling that will be used to determine the impacts and establish the required mitigation measures. The ESIA was undertaken in line with lender requirements[1] (as well as Uzbekistan requirements). Since ACWA Power implements the E&S requirements of IFC as a

[1] 'Lender Requirements' includes: EBRD Environmental & Social Policy (2019); ADB SPS (2009) and Safeguard Requirements, Equator Principles IV (2020); IFC Performance Standards 2012; IFC & EBRD *Worker's Accommodation, Processes and Standards (2009)*; and ILO Conventions.

minimum on all its projects, the ESIA has also been prepared in accordance with the IFC Performance Standards and IFC Environment, Health and Safety Guidelines.

The key objectives of the ESIA include the following:

- To provide an overview of the Project design, identification of sensitive receptors in the Project's area of influence and assessment of Project alternatives
- Assessment of baseline conditions prior to the development of the Project through review of available data and conducting surveys;
- Assessment of the project's environmental & social impacts for the construction and operational phases;
- To review of compliance obligations, including applicable Uzbekistan regulations and international regulations & standards as well as international lender requirements;
- To engage with key stakeholders and project affected people to disclose Project information, study outcomes, gain lay knowledge about the local environmental & social context, seek feedback on proposal and to understand & map any resettlement requirements.
- Determination of applicable mitigation and management measures including monitoring requirements to be implemented in order to avoid or minimise potential impacts and maximise potential environmental and social gains;
- Consideration of design alternatives that can reduce impacts and/or provide greater social and environmental gains.
- To prepare an Environmental & Social Framework from which the construction phase and operational phase respective environmental & social management systems and plans can be developed and implemented.

The ESIA has been divided into several volumes as follows:

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

1.3 Related Project Environmental & Social Documents

The Project's Environmental & Social documentation also includes the following:

- Stakeholder Engagement Plan (SEP), Including Grievance Mechanism; and
- Resettlement Action Plan (RAP).

1.4 Key Project Information

Table 1-1 Key Project Information

Project Title	Bash 500MW Wind Farm
Project Developer	ACWA Power
Project Company	FE "ACWA Power Bash Wind" LLC
Offtaker	JSC National Electric Grid of Uzbekistan
EPC Contractor	To Be Confirmed
O&M Company	First National Operation and Maintenance Co. Ltd (NOMAC)
Environmental Consultant	5 Capitals Environmental and Management Consulting (5 Capitals) PO Box 119899, Dubai, UAE Tel: +971 (0) 4 343 5955, Fax: +971 (0) 4 343 9366 www.5capitals.com
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Point of Contact	Ken Wade (Director), Ken.wade@5capitals.com

2 Project Summary

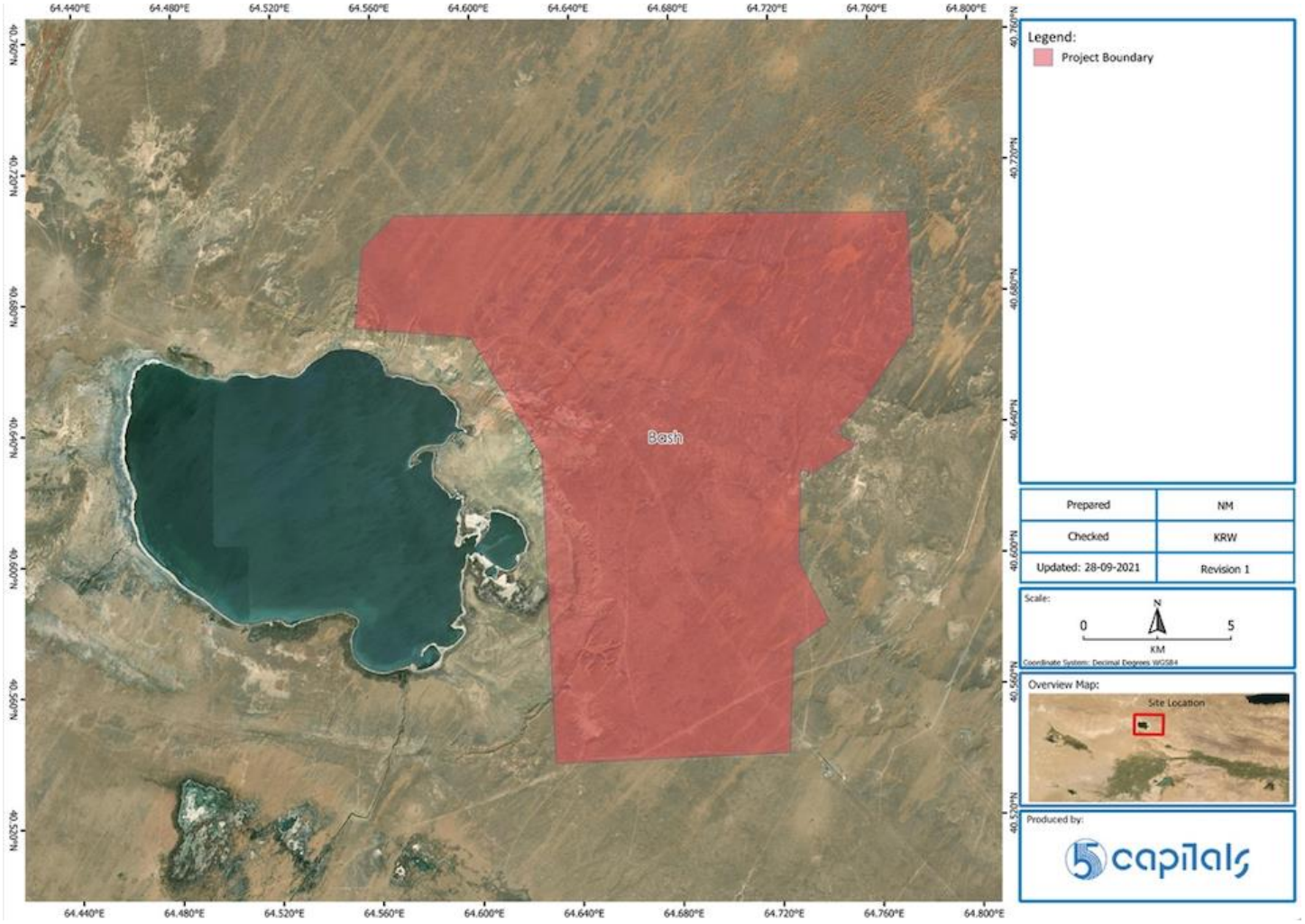
2.1 Project Location

2.1.1 Wind Farm

The Bash 500MW Wind Farm Project will be located on land allocated by the Ministry of Energy to the east and north-east of Lake Ayakagitma (reservoir) in Gijduvan district of Bukhara region. The site boundary is approximately 0.5km east of Lake Ayakagitma at its closest point. The proposed Project location is provided in the figure below.

The wind turbines will be sited within the allocated land where the wind resource is most reliable but the siting has also taken account of environmental and social issues which are described in this NTS, to ensure that impacts are prevented, minimised or mitigated in accordance with Uzbekistan laws and environmental standards and the E&S policies and safeguards of the international banks funding the project.

Figure 2-1 Project Location – Local Context

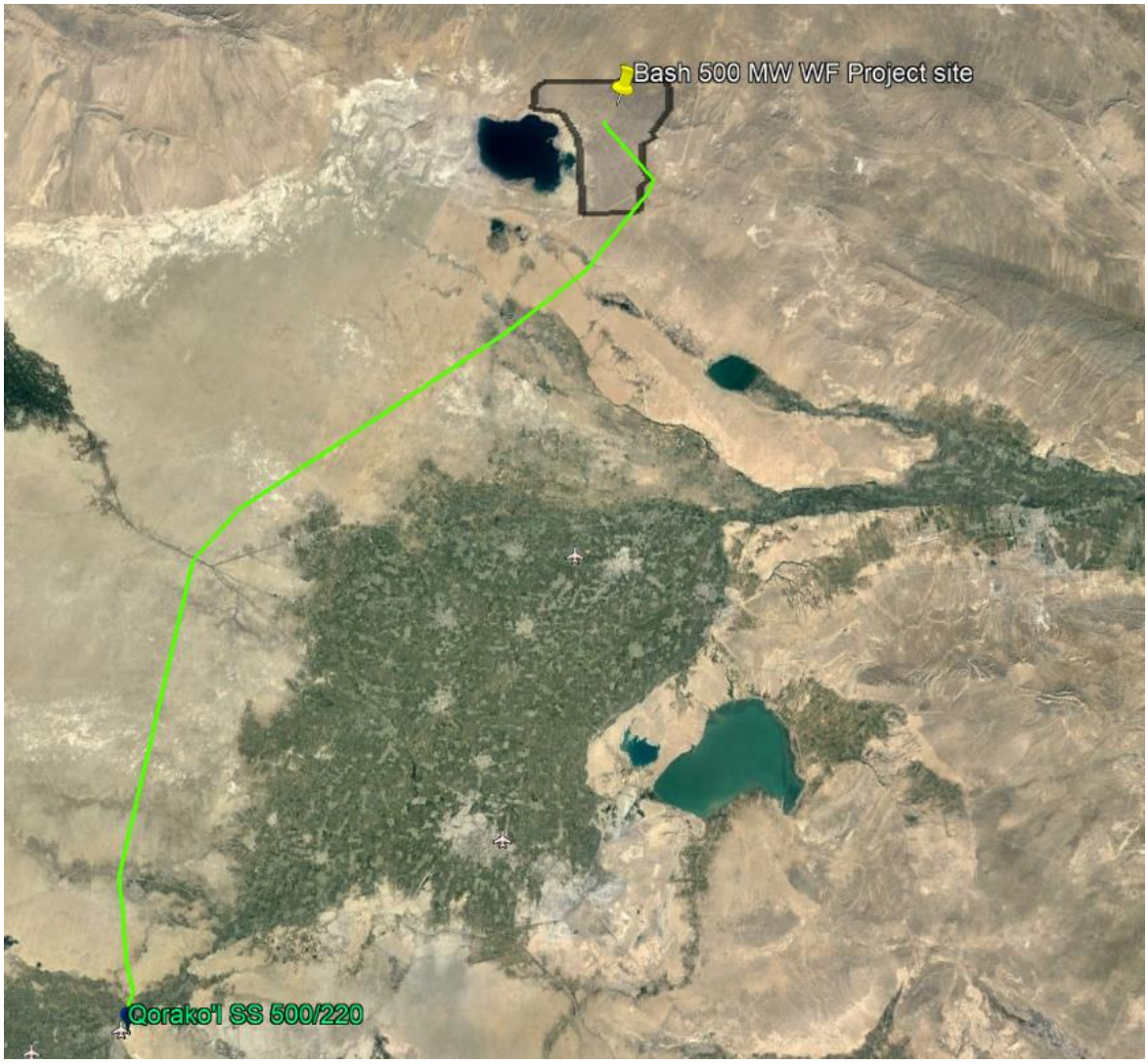


2.1.2 Overhead Transmission Line

A 162km single circuit 50kV OHTL will run from the Bash Wind Farm site to the existing Karakul substation located south of the Bash Wind Farm site. The OHTL will be developed as part of the Project by the FE "ACWA Power Bash Wind" LLC and the alignment is presented in the figure below.

The alignment of the OHTL has been modified following a review of ecology baseline data to avoid habitats that are most sensitive and to minimise impacts on migrating birds, most notably large birds of prey such as eagles and buzzards and other species that occur or breed within the area.

Figure 2-2 Alignment of 162km OHTL from the Bash Wind Farm to Karakul Substation



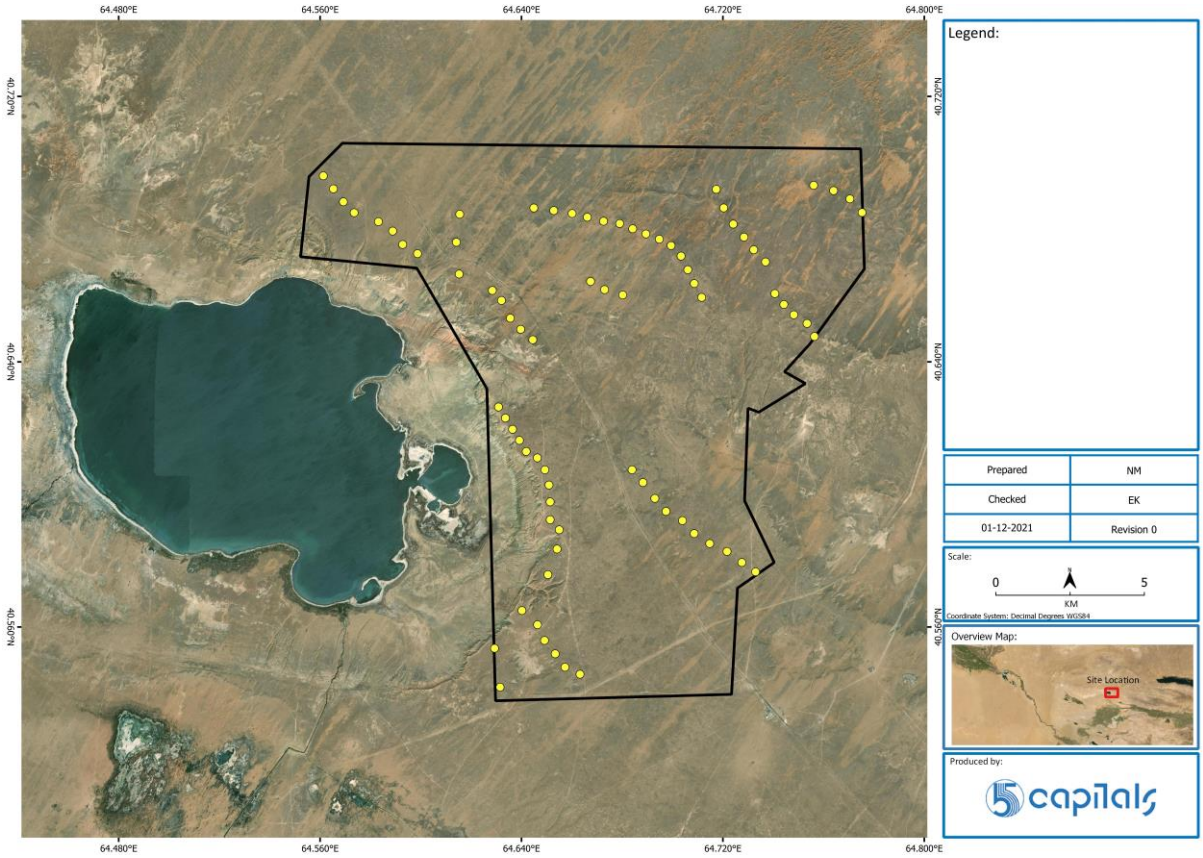
2.2 Project Description Summary

2.2.1 Wind Farm

The Bash Wind Farm final configuration will comprise 79 Wind Turbine Generators (WTGs), which will be 6.5MW each, based on Envision "EN 171" specification. The WTG configuration shown in the figure below (November 2021) previously comprised 111 WTGs and this was reduced by 32 units during the design review to reduce environmental and social impacts, particularly on sensitive habitats and migrating /nesting birds of prey including the IUCN critically endangered Egyptian Vulture. Further measures to reduce impacts on birds has included micro siting of WTGs to ensure a minimum distance of 2km between Lake Ayakagitma and a 750m buffer between active bird nests (principally Egyptian Vulture) and the construction areas.

The proposed location of the WTGs within the Project site are presented in the figure below.

Figure 2-3 Proposed Location of the WTGs within the Project Site (November 2021)



The wind turbine chosen for the Project will have a hub height of 100m and a rotor diameter of 171m and adopts variable speed control, variable pitch control and advanced control strategies. The variable speed control is adopted when the wind speed is below the rated value, variable-pitch control is adopted when the wind speed is above the rated value, and advanced control strategies are adopted to reduce WTG load and increase power

generation. This flexible and advanced control mechanisms also allow for short term temporary stopping of the wind turbine rotation when birds such as the Egyptian Vulture are approaching the danger zone and can be quickly restarted when the birds are at a safe distance.

Compared with existing direct drive wind turbines in the current international market, the direct drive chosen for this wind farm has a higher generator efficiency and wide speed (7.1rpm to 9.94rpm). The pitch system adopts the inner ring HVSM gear pitch scheme which has high control accuracy and high bearing capacity. The pitch system also pitch system employs brushless AC motor and uses ultra-capacitor as standby power supply, achieving a longer service life and less maintenance.

The main Wind Farm components and facilities will include:

- Turbine Blades, generator, generator rotor, generator stator, nacelle, brake system, yaw system, tower, converter system, transformer for grid connection.
- Ancillary/support facilities: security building, administration building, offices and amenities, warehouse and stores, lighting, security, central control room, etc.
- Internal access roads between turbines: To enable easy access and transportation of project components within the site
- 33/500kV sub-station: To be developed at the centre of the project with an approximate area of 204,860m^2.
- External access road: To enable access to the Project site from Highway A379
- Electrical connection facilities comprising a 500kV switchyard and the 33/500kV substation that will enable connection of the Wind Power Plant to the single circuit 500kV OHTL (see details below).

2.2.2 OHTL

In order to enable connection of the Bash Wind Farm to the grid, the Project will connect to a 162km single circuit 500kV OHTL that will run from the Bash wind farm (the 500kV substation) to the Karakul substation. The switchyards will be designed to accommodate planned interconnections from Navoi-Muruntau LILO and the line from Sarymay to Dzhankeldy.

The design of the OHTL will include bird protection features, most notably anti-electrocution design features to avoid mortality of raptors resting on the lines and towers.

Power generated by the wind farms will be exported to the National Electric Grid Uzbekistan (NEGU) via the plant electrical interconnection facilities/500kV Air Insulated Substation (AIS).

It is understood from ACWA Power that the Bash 500kV pooling switch sub-station will be operated by both the FE "ACWA Power Dzhankeldy Wind" LLC and FE "ACWA Power Bash Wind" LLC. This is because the 128.5km single circuit OHTL that will run from Dzhankeldy project

site approximately 94km west of the site (subject of a separate ESIA) will connect to the Bash 500kV pooling switch sub-station.

To allow independent project implementation, the substation at Bash Wind Farm will be equipped with section disconnector that will be connected after commissioning both Wind Farms.

Associated Facilities[2] of the OHTL include:

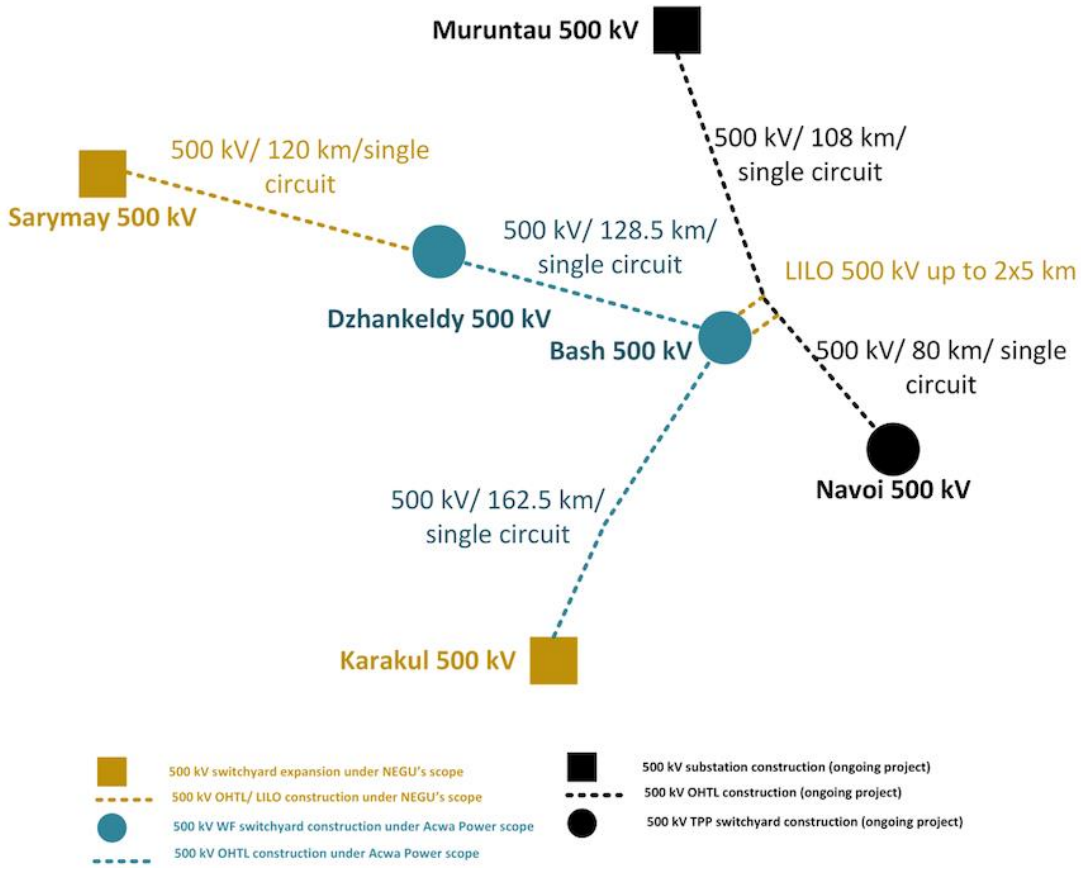
- A 500kV single circuit OHTL from Dzhankeldy to Sarymay: This OHTL will be approximately 120km and will also include the expansion of the existing 500kV Sarymay substation
- 500kV LILO to Navoi – Murantau: The LILO will be up to 2X5km. This will connect to the:
  - 500kV single circuit 108km OHTL to Murantau 500kV sub-station and
  - 500kV single circuit 80km OHTL to Navoi 500kV TPP switchyard
- The expansion of the existing Qurako'l 500kV sub-station

The National Grid of Uzbekistan (NEGU) will be responsible for the construction and operation of the above-mentioned OHTL associated facilities. During a meeting held between Ministry of Energy (MoE), NEGU, ACWA Power & Juru Energy, NEGU stated they will follow official procedure with banks such as EBRD for securing funds and ensuring timely implementation of Sarymay – Dzhankeldy 500kV OHTL and Sarymay 500kV switchyard commissioning in line with planned Dzhankeldy WF (subject of a separate ESIA) Early Commercial Operation Date (ECOD). It is noted that NEGU also stated that they have started discussions with EBRD on the financing of this alignment.

The figure below shows the Grid Interconnection Option to accommodate planned interconnections from Navoi-Muruntau LILO and the line from Sarymay to Dzhankeldy.

[2] Associated Facilities (in this case the OHTLs and substations) are necessary for the Bash Wind Farm to operate and transmit the generated power to the National Grid of Uzbekistan for required distribution.

Figure 2-4 Grid Interconnection Option for 1GW ACWA Power Wind Farms (Dzhankeldy & Bash)



Source: Selection of Interconnection Option

Note: *The length of the OHTLs shown in the figure above have since been revised. The figure is included to illustrate the interconnectedness between the Bash and Dzhankeldy Projects and their associated facilities.*

2.3 Project Construction

Construction works will include transportation of wind farm components to the site, site preparation, construction of temporary laydown facilities, land clearance at tower footprint & OHTL right of way, transportation of OHTL components and construction of platforms for pylons/tower, etc.

A concrete batching plant will be located at the wind farm but the exact location of the batching plant is not known at this point. However, it is expected that it will be located at a distance of over 500m from the on-site worker accommodation camps and from nearby local communities in order to mitigate against potential impacts.

All temporary construction working areas and facilities will be located within the Project footprint including the lead engineering contractor's accommodation facilities. Any temporary construction laydown area established along the OHTL right of way will be for the storage of OHTL materials such as pre-assembled tower sub-structures, for the further assembly of these sub-structures into final tower structures, for storage of foundation reinforcement steel or steel tower metal bars, tools & equipment to be used by the Engineering Procurement and Construction (EPC) contractor as well as sub-contractors responsible for OHTL construction.

It is expected that the EPC Contractor will engage several sub-contractors and there will be a peak workforce of about 700-1000 personnel for the construction of the wind farm and OHTL. Out of these 700-1000 personnel, about 350 - 500 will be employed from within Uzbekistan while approximately 60% of the workers will likely be recruited from China, Turkey, India and Europe.

2.4 Project Operations

The duration of the Power Purchase Agreement (PPA) is 25 years from the Project's Commercial Operation Date. The operations and maintenance activities of the Wind Farm will be undertaken by The First National Operations and Maintenance Company Ltd. (NOMAC), a wholly owned subsidiary of ACWA Power. The operational workforce is expected to include approximately 35-40 personnel for the wind farm, excluding local personnel employed by NOMAC to undertake monitoring of bird activities during operations ensuring that WTGs are stopped when there is a risk to endangered species, most notably the Egyptian Vulture.

The OHTL will be operated and maintained by NEGU. Dedicated/full-time personnel are not required for this purpose, however, both preventive & corrective maintenance will be undertaken at the OHTL.

2.5 Project Milestones

Based on the details provided by ACWA Power, the milestone for the wind farm and the OHTL are provided below

Table 2-1 Key Project Milestone/Timeline Dates

MILESTONES	DATE
Signing Project Agreements (PPA; Investment Agreement)	24th January 2021
Presidential Decrees	22nd February 2021
Land Allotment Orders	19 & 23 March 2021
Limited Notice to Proceed (LNTP)	1st April 2022
Full Notice to Proceed (FNTP)	1st July 2022
Site Mobilisation	8th July 2022

MILESTONES	DATE
WTG Installation	2nd November 2022
Transmission Line Construction	1st December 2022
Substation Electrical Installation	1st April 2023
Grid Connection	23rd July 2023
Scheduled Commercial Operation Date (COD)	31st December 2023
Required Project COD	31st March 2024

2.6 Project Decommissioning

Potential impacts relating to decommissioning will be similar to those encountered during the construction phase. There are likely to be few decommissioning related risks to wind turbines such as minor quantities of hazardous components. Due to the small footprint of the project WTG, all structures and infrastructure could feasibly be dismantled for material recovery.

Given that the decommissioning phase is not expected for at least 25 years from COD, there are no specific requirements for decommissioning at this time, since future environmental and social regulations have yet to be developed. As such, it is not considered practical to speculate on future environmental and social conditions including the sensitivity of current or future receptors at this time.

It is proposed that the decommissioning process will be managed via an updated ESIA and ESMS to identify measures for the prevention, avoidance or minimisation of impacts. This will also require a specific Decommissioning Plan. The studies should be undertaken at least 12 months prior to the time of decommissioning to reflect changes in regulations and standards, and requirements for compliance with the expected "circular economy" that is likely to be a condition at that time. This will require maximising the re-use, recovery and recycling of components and materials to provide resource for future use.

It is anticipated that a specific requirement of decommissioning will be to restore habitats lost by the WTG footprints and this will be assessed in the future ESIA and Restoration Plans to identify the critical habitats and rare, endemic or endangered species that will benefit most from the newly restored habitats.

2.7 Project Alternatives

2.7.1 No Project Option

The government of the Republic of Uzbekistan through the Ministry of Energy aims to increase the electricity production in the country to foster economic growth, develop and expand use of renewables and develop public-private partnership in the country's energy sector. The Bash

Wind Farm project forms part of the Ministry of Energy's plan to develop and expand renewable use and increase electricity production in the country to 29.3GW by 2030.

The generating capacity of the Project will be 500MW and this will contribute to the 3GW estimated wind power contribution to the total renewable power generating capacity (wind & solar) of 8GW by 2030. Given the national strategy for additional renewable energy contribution to the total power generating capacity, a 'No Project' option has not been considered further as considering this option would delay and possibly prevent the Government of Uzbekistan from meeting its 2030 renewable energy target.

2.7.2 Alternative Project Sites

The process of site selection commenced in 2019 by the Ministry of Energy, State Geology Committee of the Republic of Uzbekistan and ACWA Power. In March 2020, ACWA Power considered five (5) potential sites for the development of wind power projects in the country as follows:

- Dzhankeldy: 7km west of Ayakguzhumdy;
- Bash: 30km west of Kokcha;
- Kanimekh 1: 20km northwest of Nurmakhan;
- Kanimekh 2: 50km north east of Aznek; and
- Kulkuduk area: 30km north of Uchkuduk.

ACWA Power selected the Bash site based on its high wind potential after reviewing the vortex data, wind campaign measurements, geological factors, existing infrastructure, and interconnection to the grid.

On 27th October 2021 the Ministry of Energy provided the key steps of the site identification/selection process and a summary of this is outlined below.

ID	KEY STEP	DATE
1	Participation of ACWA Power in the International Conference on the development of oil and gas in Uzbekistan followed by the meeting in the Ministry of Energy of the Republic of Uzbekistan	Q2 2019
2	The delegation consisting of the specialist from the Ministry of Energy and NEGU visited ACWA Power's facilities in UAE and Saudi Arabia	Q2 2019
3	Proposal from ACWA to do a wind farm in Nurota mountains	July 2019
4	After the State Geology Committee of the Republic of Uzbekistan rejected giving the land in Nurota district and proposed land by SGC as not accepted by ACWA Power, Ministry of Energy proposed that ACWA comes up with new site in Bukhara and Navoiy regions	Q3 - Q4 2019
5	Based on the analyses of ACWA Power on Bukhara and Navoiy regions, the negotiations on Head of Terms started	July 2019

ID	KEY STEP	DATE
6	Head of Terms signed on the 20th September 2020 which includes the site coordinates for various wind power plants in Uzbekistan	September 2019
7	List of potential wind sites provided by Ministry of Energy based on satellite wind atlas, proximity to the national grid network	Q4 2019 – Q1 2020
8	Implementation Agreement signed on 5th March 2020 between ACWA Power and Ministry of Energy which includes a shortlist of 5 wind sites (including Dzhankeldy & Bash sites)	March 2020
9	Final Selection of the 2 sites (Dzhankeldy & Bash) following the final discussion with: • State Geology Committee (specifically in consideration of existing and future mining activities); • National Electric Grid of Uzbekistan (specifically in consideration of the length of the evacuation and future grid expansion plan); and • Environmental & Social experts (in consideration of minimizing [potential environmental & social impacts).	June 2020
10	Project Agreements (PPA & IA) signed on 24th January 2021 which included the site coordinates for Dzhankeldy & Bash	January 2021

2.7.3 Project Technology

Different turbines were considered for the Project which would have required 111 WTGs for the site, but this was reduced to 79 Envision EN 171-6.5 MW model resulting in a much smaller footprint than was originally proposed, reducing the impact on critically important habitat for vulnerable and endangered species. The chosen technology finally selected also achieved the following:

- Technology allowing flexible use and maximising energy generation during high and low wind conditions;
- Ability to quickly slow and stop the rotating blades, called "shut down on demand" (SDOD) to prevent impacts with critically endangered birds of prey such as Egyptian Vulture and then restart quickly after the bird(s) are at a safe distance. This flexibility significantly reduces energy losses and risk of bird mortality;.
- Least Cost of Energy (LCOE) which results in highest generation at lowest cost;
- Site Suitability of the chosen WTG Model and least footprint on natural and critical habitats and species; and
- The Project Schedule agreed with the Ministry of Energy,

2.7.4 Wind Farm Project Layout

Several changes were made to the positioning of the WTGs based on the wind measurement campaign, due to potential environmental & ecological impacts, due to location of existing infrastructure and utilities and due to potential social impacts to land users, existing houses, settlements and commercial facilities.

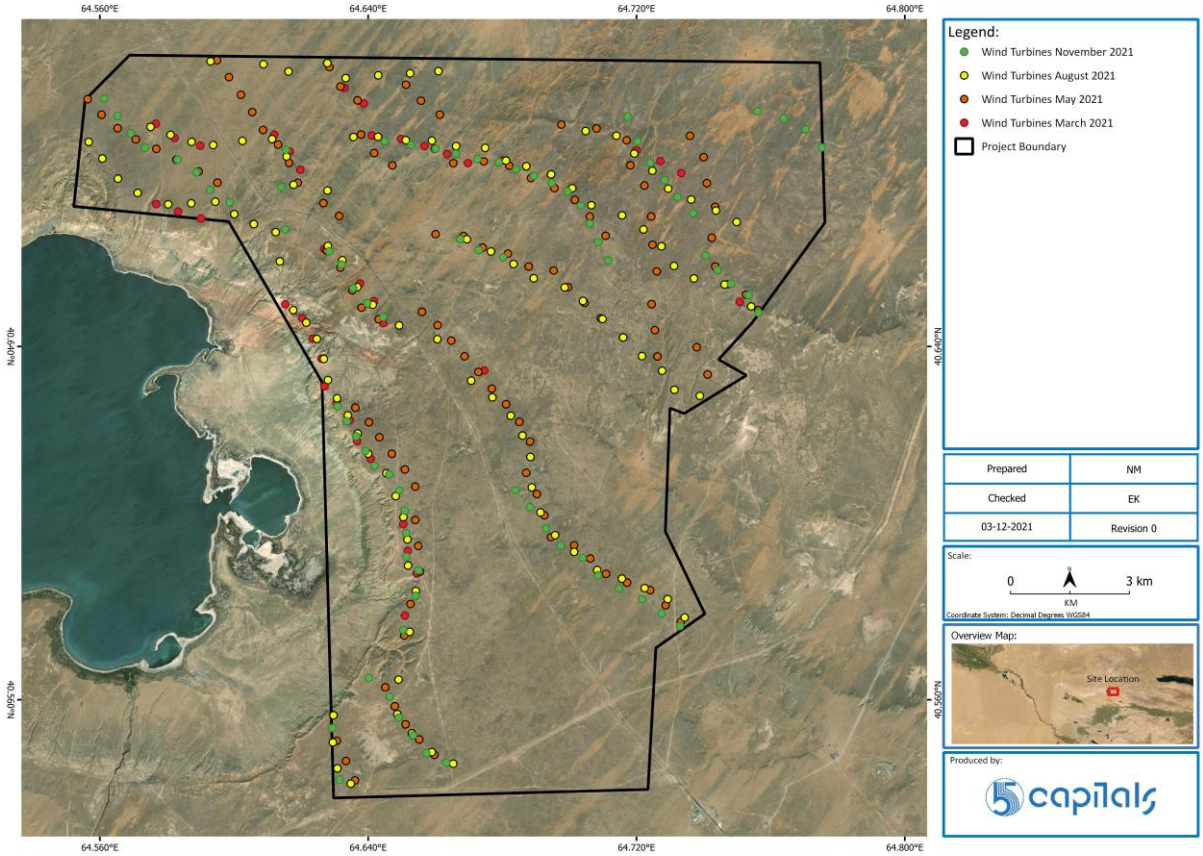
ECOLOGICAL CONSIDERATIONS

Due to the proximity of the Bash WF to Lake Ayakagitma (IBA site) a number of design changes were undertaken over 9 months including the final reduction of WTGs to the current 79 WTGs as shown in the table and figure below.

Table 2-2 Optimisation of WTGs for the Bash WF

MONTH	NUMBER OF WTGS
March 2021	91
May 2021	111
August 2021	111
November 2021	79

Figure 2-5 Overlay of WTG Considered in March, May, August and November 2021 Showing Difference in WTG Location



These changes were undertaken not only to optimise the wind potential but also based on the following ecological considerations:

- Establishment of a 2km buffer zone between Lake Ayakagitma and the nearest WTG.
  - As a result, ACWA Power undertook micrositing of 3 WTGs in order to align with a 2km buffer zone from the lake.

Table 2-3 WTGs moved due from 2km buffer zone

WTG ID	Distance Moved (m)
BAS50	147
BAS51	175
BAS52	208

- Micrositing of WTGs within 750m of active Tier 1 bird species' nests (such as Egyptian Vulture);
  - 4 WTGs located within 750m of known active Tier 1 species' nests have also been microsited.

Table 2-4 WTGs moved due to Active Tier 1 Species nests

WTG ID	Distance Moved (m)	Remark
BAS59	30	WTGs moved from an Egyptian Vulture nest
BAS60	173	
BAS70	101	WTG moved from a Golden Eagle nest
BAS62	84	WTG moved from an Imperial Eagle nest

- Avoidance of the Southern Even-fingered Gecko habitat.
  - The suitable habitat for the Southern Even-fingered Gecko lies in the valley adjacent to the lake while the Wind Farm BoP and infrastructure is on the highland area.

Existing Infrastructure & Utilities

Stakeholder consultations were undertaken between April to August 2021 before the finalisation of the 79WTG layouts in order to ensure that the Wind Farm facilities are located within the required buffer zones for existing infrastructure and utilities. As a result, the 79 WTG layout ensures that:

- All Wind Farm facilities are within 350m of Asian Trans Gas facilities which includes gas pipeline.
- The design adheres to a 12m and 15m buffer zone between the Wind Farm facilities and the railway line and railway station respectively.
- No Wind Farm structures located below existing OHTLs.

Human Settlements & Land Use Considerations

The Wind Farm boundary is located 1.6km to Kuklam village and 4.9km from Ayakagitma village. The siting of the 79WTGs ensures that a distance of 1000m is in place which is required as part of the noise health protection zone (from nearest WTGs).

In order to minimize the impact on grazing land owned by Kokcha LLC and used by herders at the Project site, only the BoP area will be permanently impacted and this accounts for approximately 158.9ha of the total 285.1ha allocated to the Project under the Presidential

Decree. This 158.9ha only impact accounts for 0.059% of the total land allocated to Kokcha LLC within and outside the Project boundary. This means that there will be minimal disruption to herding activities during the construction and operational phase of the Project.

In order to assess and mitigate any impacts on people's livelihoods (known as "Project Affected Persons), the Project will implement a project specific Resettlement Action Plan (RAP) which identifies alternative land for herders from Ayakagitma village and those employed by Kokcha LLC (it is noted herders under Kokcha LLC have stated that they prefer cash compensation to the identified grazing land). Additional information is provided in the project specific RAP.

2.7.5 OHTL Route

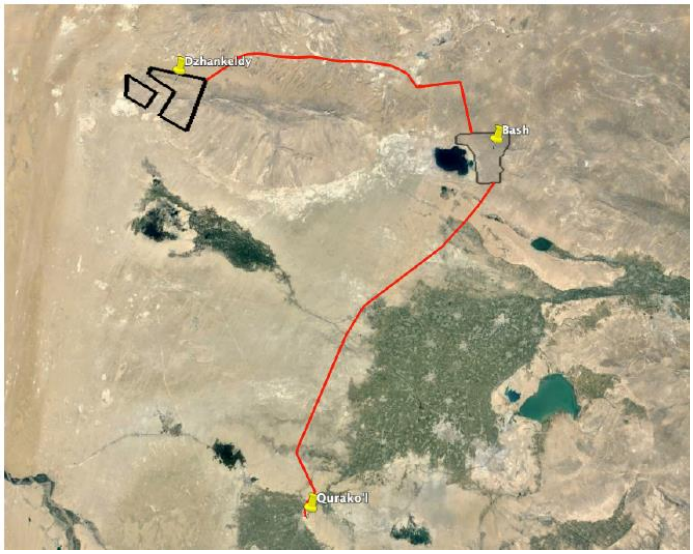
In March 2021, two (2) OHTL options were considered for the routing of the proposed OHTL as presented below:

- **Option A**: 95km OHTL from the Project site either with a rating of either 220kV double-circuit or 500kV single-circuit.
- **Option B:** 250km OHTL (from Dzhankeldy Project site to Bash Project site to an existing substation at Karakul) with a rating of 500kV single circuit

Option B was selected and increased to 290.5km. Approximately 128.5km of the OHTL runs from Dzhankeldy project site to Bash project site and approximately 162km runs from Bash site to an existing substation in Karakul. This Option was also revised in May 2021 to change its routing due to the following reasons:

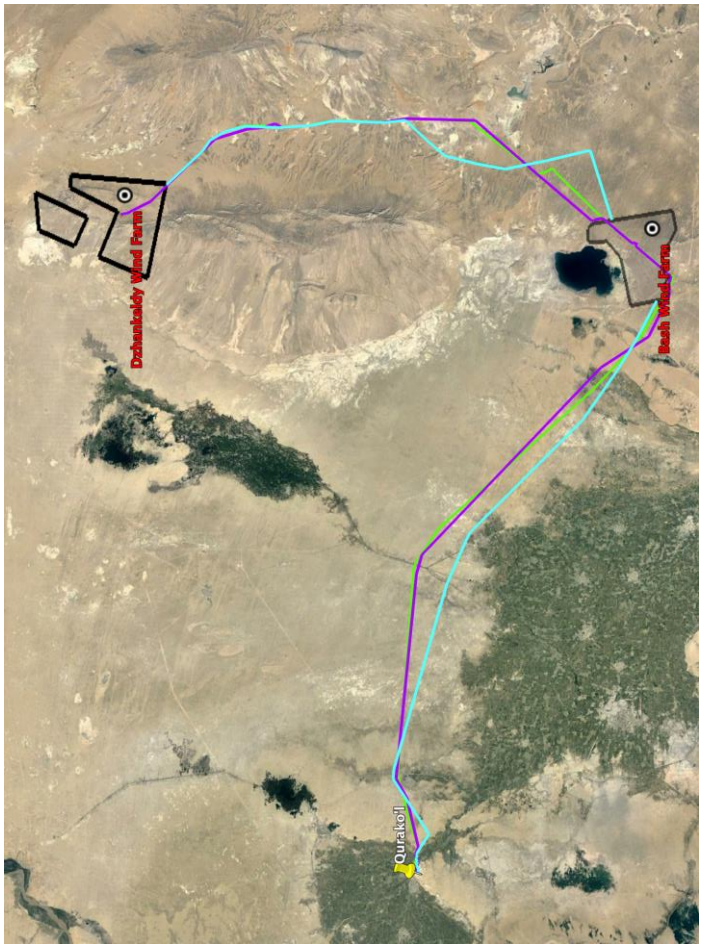
- To avoid proximity of the OHTL to the Ayakagytma lake; an IBA drainage lake approximately 500m west of the Project site.
- To avoid the Kuldjuktau mountain cliffs along the Dzhankeldy to Bash route which are used by nesting birds of prey and for roosting and breeding bats
- To avoid proximity of the OHTL to agricultural zones/ farmlands, water bodies (lakes, ponds, canals, irrigation channels, etc.).
- To avoid human settlements and to avoid the need for any physical displacement & resettlement;
- To avoid proximity to bird migratory flyways
- To select areas for the routing that is close to existing roads and railway and;.
- To select areas for the routing that is close to the existing EBRD approved 500kV Navoi- Muruntau transmission line.

Figure 2-6 Revised Option B OHTL Alignment & Substation – May 2021



By mid-May 2021, technical studies (OHTL pre-feasibility studies) were being undertaken by Juru Energy on behalf of ACWA Power along three (3) OHTL alignments as shown below.

Figure 2-7 The three (3) OHTL Alignment Options – May 2021



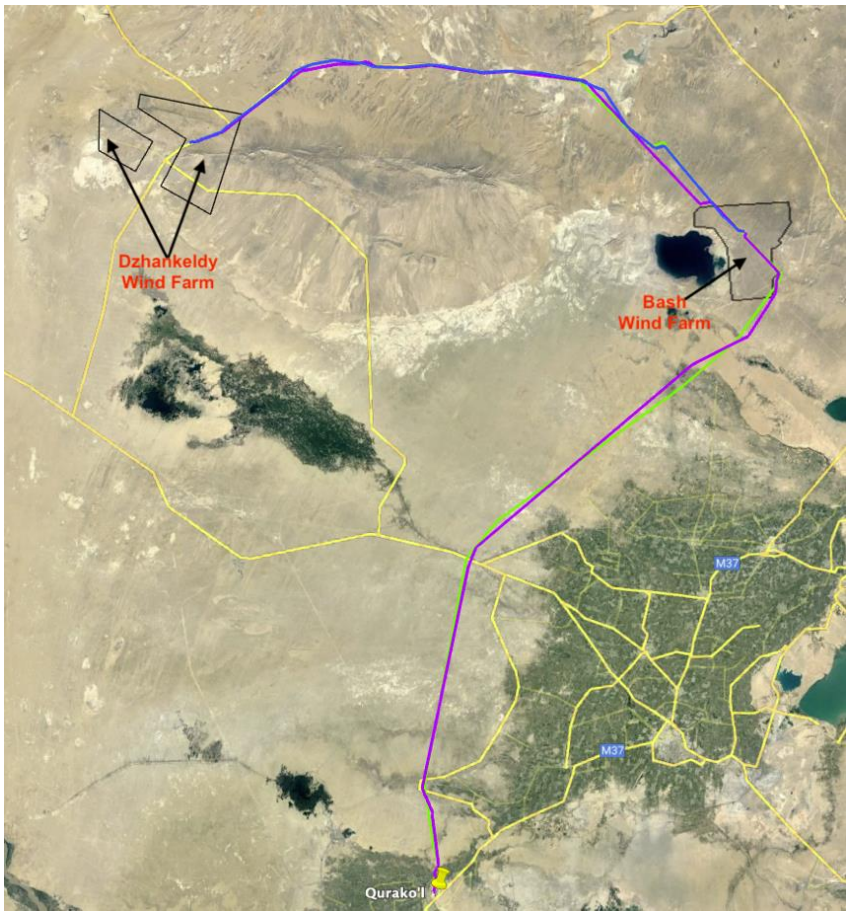
Key to OHTL Alternatives

- **Green Line**: OHTL 500kV Line 1
- **Violet Line:** OHTL 500kV Line 2
- **Cyan Blue Line:** OHTL 500kV Line 3

Studies along the Cyan Blue Line-Line 3 were discontinued along the Bash to Karakul substation and a new route was considered for the Dzhankeldy to Bash OHTL due to the environmental and social constraints identified along the proposed alignment.

The figure below shows the new alignment options considered in August 2021.

Figure 2-8 The Three (3) OHTL Alignment Options - August 2021



Key to OHTL Alternatives

- **Green Line**: OHTL 500kV Line 1
- **Violet Line:** OHTL 500kV Line 2
- **Dark Blue Line:** OHTL 500kV Line 3

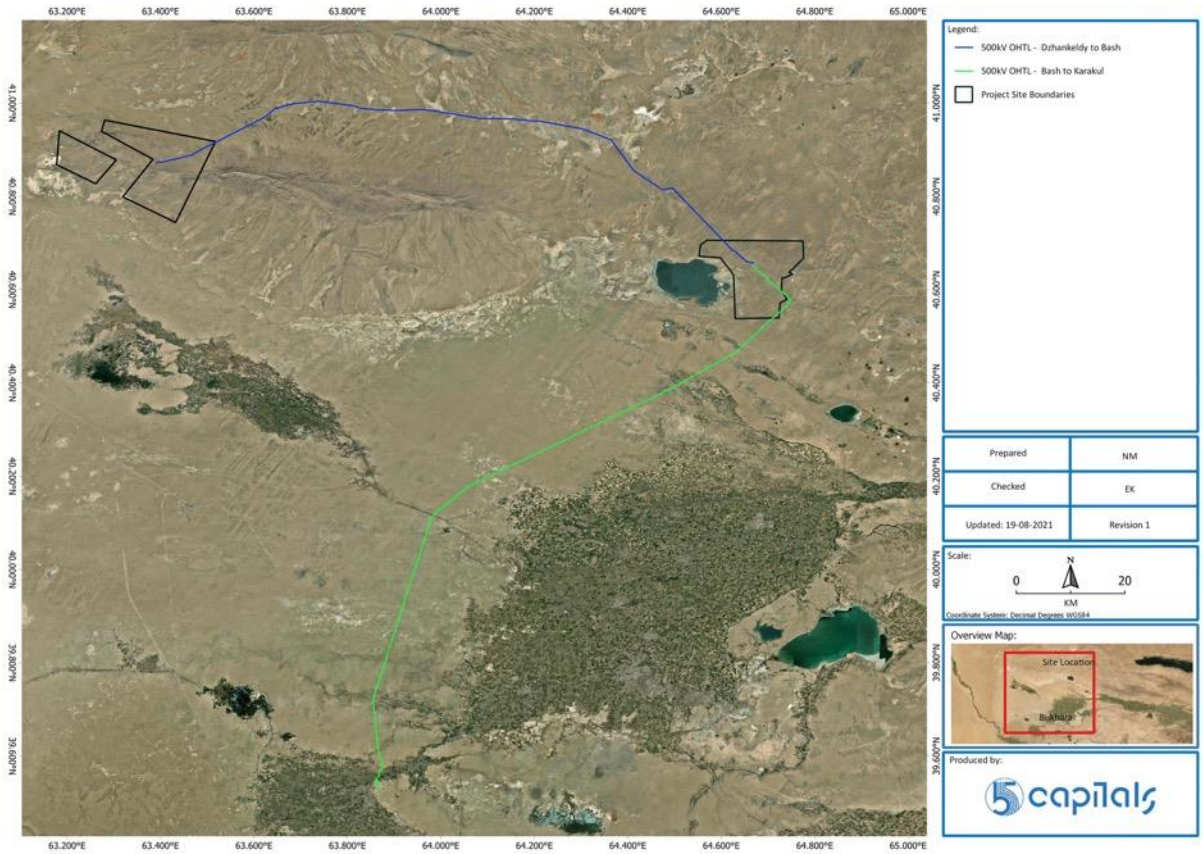
Based on the findings from site visits, ecological surveys undertaken along the route and E&S Constraint analysis conducted by 5 Capitals, the pre-feasibility study recommended that Line 1 (green line) would be the best alignment between Bash to Karakul due to the limited number

of crossings. In August 2021, this OHTL Line 1 was slightly revised to avoid small farmlands along the route as far as practicable and to ensure the line connects to the available spare bay at Karakul substation.

For the Dzhankeldy to Bash route, the pre-feasibility study recommended that Line 3 (dark blue) would be the best alignment as it runs parallel to the highway, existing transmission line and access road. The highway and access road will provide easy access during the construction phase and maintenance work during the operational phase. Line 3 is also located as close as possible (approximately 100-140m) of the existing highway where the gecko habitat overlaps with the highway, and is more aligned with the existing railway and existing 220kV OHTL corridor. This allows for minimal additional habitat loss of the gecko, and minimizes the amount of ground disturbed by construction vehicles and machinery.

The proposed Dzhanekldy – Bash – Kurakul OHTL alignment was submitted to NEGU by ACWA Power in August 2021 and this was approved by NEGU in November 2021 following their review of the OHTL pre-feasibility study and consideration of environmental & social impacts of other OHTL alignment options (see the figure below).

Figure 2-9 Proposed OHTL Alignment – August 2021



3 Overview of Local Environment & Social Context

3.1 Land Ownership

3.1.1 Wind Farm

The Land Allotment Order (see Appendix C in Volume 4) issued to the Project on 19th March 2021, states that "*the Deputy Mayor F.Jabbarov and Department of State Cadastre of Gijduvan district (O.Khakimov) should allocate 285.1ha land from state reserve in Baraka community in Gijduvon district for "ACWA Power Bash Wind" LLC construction of wind power plant with a capacity of 500 MW considering the following:*

- Change status of allocated land for the Project from category of "agricultural land" to the category of "industry, transport, communication and other";
- Land lease agreement should be prepared based on rules and requirements of the investment agreement on "Construction of Bash wind power plant with capacity of 500MW in Gijduvan district, Bukhara region" and PPA agreement"
- Take into consideration exemption from compensation (compensation payments) for losses of agricultural and forestry production within the framework of the implementation of investment projects of FE "ACWA Power Bash Wind" LLC in accordance with the Resolution of the President of the Republic of Uzbekistan dated 23rd February 2021 PQ-5003.

Following issuance of the land allotment order, ACWA Power Bash Wind LLC will enter into a Land Lease Agreement (LLA) with The Government of The Republic of Uzbekistan as represented by the Khokimiyat of Bukhara Region.

It is understood from ACWA Power that the LLA will only be for land within the Project footprint (i.e., switching station area, turbine pad area, access road etc) and not the entire 285.1ha. Analysis of the Project BoP shows that approximately 158.9ha will permanently be impacted by the Project footprint while the laydown areas will have temporary impact on 19.28ha of Kokcha land. As such the LLA for the Project will be for the 158.9ha while a land easement will be issued for the laydown areas.

3.1.2 OHTL

The 162km OHTL route is located is an area of desert typology, forestry, agricultural and commercial land. The OHTL route cuts across six different districts of the Bukhara region. These districts include Gijduvon, Shofirkan, Peshku, Romitan, Jondor and Karakul districts.

3.2 Land Lease and Land Use

3.2.1 Wind Farm

The wind farm is used by Kokcha LLC who are a cluster under the Committee for the Development of Sericulture and Wool Industry. Multiple consultations were held with Kokcha LLC regarding information on their land lease with Sericulture Committee and land use and responses provided revealed that the LLC have been allocated 267,398.1ha of grazing land under their management which includes the land within the Project site and in the wider Project area. The permanent land impact from the Project footprint will only account for 0.059% of the total land owned by the LLC while the temporary impact accounts for 0.007%. Based on this, it is expected that the Project will have limited impact on Kokcha LLC activities and operations. These impacts are addressed in the Project specific RAP.

A copy of a letter between the Committee for the Development of Sericulture and Wool Industry and the Bukhara regional municipality regarding the land ownership dated 31st December 2020 was provided to Juru Energy. Of importance to the project, the letter stated "*In order to implement the 4th part of the Presidential Decree No. 4422 dated 22.08.2021 for development of alternative energy, the request by Bukhara region municipality for 1100ha of land in Peshku and Gijduvon districts will be allocated to the Projects only if it is not interrupting Karakul farming activities*".

Signing of the Land Lease

On 20th September 2021, ACWA Power sent a letter to the Bukhara Region Khokimiyat seeking clarification on whom the land lease agreement should be concluded with. The Bukhara Region Khokimiyat provided ACWA Power with a letter from Gijduvon District Municipality Mayor dated 20th January 2021 which states that "*land in on north-western part of Ayakagitma lake examined by representatives of Ministry of Energy will be allocated to investor as per request*".

On 30th September 2021, Bukhara Region Khokimiyat provided ACWA Power with response to the letter ACWA Power sent on 20th September 2021. This letter states that " *As per paragraph 8 of Presidential Decree-5003 on 23.02.2021 "On construction of wind power plant with a capacity of 500 MW in Gijduvon district of Bukhara region", local authorities are obliged to allocate required land plots to Investing company for realisation of these projects. Based on the instructions given in PD-5003 on 23.02.2021 "ACWA Power Bash Wind" LLC as well as in signing investment agreement and PPA, Gijduvon municipality has issued an order by allocating 285.0ha for project implementation under order No 173 dated 19th March 2021. Considering the above mentioned, we inform you that land lease agreement should be signed with relevant district municipality as per land lease orders*".

As such, the land lease agreement will be signed between ACWA Power and Gijduvon Municipality as per the land allotment orders. It is understood from the Client that, that SWID have been informed of this decision by the Bukhara Region Khokimiyat.

3.2.2 OHTL

Land Lease

ACWA Power will transfer the operation of the OHTL to NEGU after completion of the construction phase. As such, ACWA Power will only be granted land usage rights during the construction phase of the OHTL and the required land will be allocated to NEGU on a permanent basis through a government decree. It is understood from ACWA Power that the allocation of land to NEGU will be undertaken once the required land is taken into state reserve. This process is still on-going.

Land Use

There are a total of 28 land users along the OHTL which include 6 clusters under the Committee for Sericulture & Wool Industry, 6 commercial enterprises, 7 farmers, 5 districts that own forestry land, 1 district that own commercial land 3 leased directly from the municipalities for pastoral use.

There are 6 PAPs with structures within the OHTL 100m Area of Interest (AoI) that will require to be moved. The 6 PAPs include 1 herder, 2 farmers and 3 commercial enterprises. Consultations have been undertaken to determine whether these structures can be moved to other areas of land that they own. However, all the PAPs have communicated that they prefer cash compensation and they will rebuild the structures in another location.

The OHTL AoI will also partially impact 6 farmers who grow wheat, barley, cotton and fruit trees. Temporary impacts will relate to erection of pylons and movement of materials while permanent impacts will be limited to where the pylons are located. It is expected that the farmers will still be able to farm under the OHTL outside of the RoW though such farming activities may include restrictions on the type of crops and trees that can be cultivated. Any loss and/or damage of crops and trees will be compensated in line with the Project specific RAP.

Among the 6 commercial enterprises located along the OHTL in Kurakul district, 4 are located on undeveloped land. 5 of these commercial enterprises (including 4 on undeveloped land) will experience permanent impact because the OHTL AoI will affect more than 50% of their land making it unviable. These PAPs have expressed concern that this will impact their future income prospects and those with undeveloped land may potentially be fined by the government if the land is not commercially developed within the stipulated timeline.

As such, consultations have been undertaken with Bukhara Regional Municipality to identify suitable alternative land. However, the Municipality has informed the Project that commercial land is allocated based on a competitive auction process and the impacted PAPs will have to individually apply for this process. Additionally, 3 out of the 5 affected PAPs have stated they want cash compensation instead of land replacement while the other 2 have been informed of the Municipality's decision and will be provided with compensation and support in line with the Project specific RAP.

3.3 Local Receptors

3.3.1 Wind Farm & OHTL

The ESIA identifies the main sensitive receptors within 5km radius of the Wind Farm and 1km of the OHT and along the access roadL. The receptors within the defined Area of Influence (AoI) include residential, agricultural, structural, infrastructure, commercial and industrial. In addion, there are three accommodation structures located within the Wind Farm and used by herders and their workers. The nearest communities to the Wind Farm include Kuklam village (1.6km to the south east) and Ayakagitma village (4.9km to the west). The nearest residential receptors along the OHTL is located approximately 250m to the west though it is noted that there are herders' and farmers' structures along the alignment which will require to be relocated in accordance with the Project specific Resettlement Action Plan (RAP).

Details of the identified receptors, and potential impacts including mitigation measures are provided in ESIA Vol 2. A summary of these impacts and the key mitigations is provided below in Chapter 4.

4 SUMMARY OF MAIN ENVIRONMENTAL & SOCIAL IMPACTS

4.1 Terrestrial Ecology

4.1.1 Wind Farm

BASELINE CONDITIONS

Biodiversity baseline studies were undertaken to understand the existing biodiversity and ecosystem services in the area that may be affected by the project. Survey boundaries were determined by understanding both the potential AoI of the proposed project as well as the Ecologically Appropriate Area for Analysis (EAAA) for various species.

Flora

Habitat mapping exercises and botany transect surveys were undertaken to understand land use and land cover and to identify biodiversity including rare and endemic floral species. The Bash wind project is situated in south-western part of the Kyzylkum, desert in the Bukhara Province of Uzbekistan. The dominant habitat type in the survey area is "sandy and sandy-loamy desert plain" followed by "fixed and semi-fixed sands".

The plants recorded within the project site during the field survey in April and June includes 49 species of which one species is nationally red-listed; *Tulipa leihmanniana*. White Saxaul and Black Saxaul, which are nationally protected trees were also recorded during the survey. National red listed and endemic range restricted species were noted as "species of concern" for which potential impacts of the wind farm were assessed.

Birds

The project site is located within the convergence of two major migratory flyways; the Central Asian Flyway and the West Asian/East African Flyway. In order to analyse the potential impacts on migrating birds, the spatial context around the project site was assessed including Important Bird Areas (IBAs). A number of Important Bird Areas were highlighted that exist in the immediate area of the wind project as well as several in the larger region; Karakyr Lakes, Sarmysh Nature Park, Aydarkul Lake and Tudakul and Kuymazar Reservoirs all lie within 80-100 km of the project site.

Based on the location of various lake and river deltas, and the mountain landforms to the north and east of the project site, the predicted migratory flight paths analysis anticipates that migratory birds would cross the site from the northeast heading towards Ayakagitma Lake or further south.

Given the potential for threatened species and the sensitivity of birds to wind farm developments, vantage point and transect surveying were undertaken utilising the Scottish Natural Heritage (SNH) guideline methods to provide adequate data for the development of Collision Risk Models (CRM). With specialised nest searching studies also conducted, the wind farm area and associated OHTL alignment route was comprehensively surveyed year-round to ensure that seasonal changes in avifauna abundance and diversity due to migration and breeding were captured.

During the initial desktop review, a number of vulnerable (VU), endangered (EN) and critically endangered (CR) birds of prey (raptors), ground birds and waterbird species on the Global IUCN Red List, as well as endemic, range restricted, and migratory species were anticipated to occur in the project area.

Among the IUCN endangered species, the Steppe eagle and Egyptian Vulture were recorded during the survey. Other threatened and sensitive species of note include the Saker Falcon (EN) and Houbara Bustard (VU).

Waterbird surveying of Ayakagitma Lake found relatively low numbers in comparison to earlier reports from public databases (>20,000 birds in 2000). 76 species were recorded at the Lake over the course of one year of which the Common Coot and Gadwall were the most abundant species.

Specialised surveys were undertaken to assess the presence of the "vulnerable" Houbara Bustard during the peak mating season, when this species can be easily observed. Stakeholder engagement exercises indicated that the wind farm area lies within both prime breeding ground as well as a migratory corridor of this species.

Nest search surveys of the cliffs that border the Lake Ayakagitma basin were recorded to support 16 breeding bird species; of which three are threatened raptor species: Imperial Eagle, Steppe Eagle and the Egyptian Vulture. During the 2022 Spring nesting survey, active nests of 6 species were found of which Common Kestrel was the most numerous.

Bats

The EAAA was surveyed with passive and active acoustic detectors to capture bat echolocation data over time. Bat calls parameters known for European bat populations and bat species from neighbouring countries of Uzbekistan were used for identification and analysis. Specialized bat roost searches were undertaken within the project boundaries to identify residential bats roots, wintering roosts, maternity colonies and mating colonies.

A total of 7 species of bats were identified during the surveys. No globally threatened species were registered during the survey. Moderate levels of bat activity were recorded, characterized by sporadic highs and lows likely driven by weather conditions. Typically, bat activity is higher during warmer nights, post-rain, with low wind speeds.

Common pipistrelle (*Pipistrellus pipistrellus*) roosts were identified during the roost survey near the lake and in the Ayakagitma village.

Mammals (Non-Volant)

Surveying for non-volant mammals was undertaken in the spring and summer seasons, the periods of most activity. Using a combination of diurnal and nocturnal transect surveying a total of 13 mammalian species have been recorded in the Bash wind farm project area. Among these were one IUCN listed VU species, the Goitered Gazelle and one national Red List Near Threatened (NT) species, Brandt's Hedgehog. The general mammalian diversity of the area is considered relatively rich.

Reptiles and Amphibians (Herptiles)

Diurnal and nocturnal transect surveying were undertaken in late Spring and mid-Summer, as these represent the seasons of highest reptile activity. Of the 8 species recorded, three species are threatened on the IUCN Red List. Of greatest concern is the critically endangered Southern Even-fingered Gecko. This species is a particularly sensitive ecological receptor. Recent DNA analysis shows that this gecko population distinct from its conspecifics in the area and likely to be classified as a new locally endemic species within Central Uzbekistan. Given its unique nature, this species is ranked #54 on the Top 100 reptile species Edge of Extinction list. Among other species of note were that Russian Tortoise (VU) and the Desert Sand Boa (NT). The most abundant species recorded on site were the Russian Tortoise and the rapid racerunner.

Insects (Entomofauna/Invertebrates)

Invertebrate surveying was undertaken in the Spring season, which is the optimal time as invertebrate populations are at a peak due to the increase in available vegetation. A series of transects were carried out where sweep netting and manual collection techniques were used to identify the species present and provide an indication of relative abundance and population density.

With 11 species, the order Hymenoptera was the most abundant among the 9 orders recorded. The entomofauna was typical for this area. No species listed in the Red Book of Uzbekistan or IUCN Red List were found among the 25 insect species.

Critical and Priority Species

The findings of the biodiversity baseline studies confirmed that the project area has a diverse and abundant distribution of flora and fauna species. A number of these biodiversity elements have been identified as "elements of conservation concern". The EBRD PR6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources requires that baseline studies conclude with a Critical Habitat Assessment (CHA) to determine if any features in the project area qualify as priority biodiversity features or critical habitat.

A CHA was undertaken for the project, which identified species of concern which have the potential to trigger criticality for the project's area of influence. It was found that the project area has a relatively low risk of triggering criticality for the majority of identified potential species of concern. The review indicated that Critical Habitat thresholds has been triggered in reference to two species; the Critically Endangered Southern Even-fingered Gecko, the Vulnerable Houbara Bustard. Other identified species of concern, including nationally listed bird, mammal, and reptile species, as well as range-restricted and endemic flora species, were classified as Priority Biodiversity Features (PBFs) based on EBRD PR6.

All species of concern were integrated into the biodiversity assessment to identify potential impacts arising from the construction and operation of the wind farm project and associated facilities. Recommendations for management, mitigation and monitoring in line with EBRD and lender requirements and international best practice were proposed to alleviate and reduce the significance of impact to all biodiversity elements of concern within the project area.

IMPACT ASSESSMENT

A comprehensive Biodiversity Impact Assessment was undertaken. Sensitive ecological receptors anticipated to occur within the area of influence were identified and evaluated against potential impacts arising from different phases of the project.

The construction phase of the project was initially predicted to have major to moderate impacts within the AoI including potential habitat loss, biodiversity loss, biodiversity displacement and deterioration of environmental quality. However, with the implementation of both general control measures as well as species-specific mitigation measures, residual impacts of the construction phase are predicted to be minimal.

Habitat and biodiversity loss is anticipated to occur through clearing, excavation and earth works. The Southern Even-fingered Gecko (CR) and the Russian Tortoise (VU) are both burrowing species considered as Priority Biodiversity Features (PBFs) and particularly vulnerable to excavation and earth works. Post-construction restoration of areas to suitable habitat conditions via seeding, re-planting, and landscaping with native, high-value flora species will further serve to reduce the impact of habitat loss.

Biodiversity loss is likely to be augmented by vehicular collisions, poaching, littering and general disturbance. With the influx of personnel and a degree of urban influence, shyer species may be displaced away from the project area and proliferation of pest species and other urban-adapted species may occur. However, the surrounding areas of the landscape support similar habitat types and are not constrained by large-scale urban or industrial developments. Therefore, it is not anticipated that displaced individuals will have a significant impact on adjacent ecosystems.

In order to mitigate against biodiversity loss, preconstruction surveys will be carried during the active period of early spring and summer to relocate threatened reptiles; Southern even-fingered Gecko and the Russian Tortoise. The relocation efforts for the Southern Even-fingered gecko will be carried out during the active period in summer when average air temperature is around 27°C with low wind speeds whereas efforts for the Russian Tortoise will be undertaken during the Spring. The efforts will be undertaken during the active season throughout the construction phase of the project. The Reptile Relocation Plan provides detailed instruction on the surveying and relocation methodology required to mitigate impacts on these two reptile species of concern.

The Breeding Bird Protection Plan provides a framework to guide the implementation of impact mitigation that will be undertaken for the protection of breeding bird species that may be impacted from the project construction. Pre-construction nest search surveys will identify and apply buffer zones to nesting sites of endangered breeding birds. During subsequent years, the Nesting Survey will be repeated during Spring in order to monitor the status of nesting as well as identify any new nests of target species.

In addition to removal of any road-kill carcasses, strict speed controls and restriction of driving and machinery operation to daylight hours will be implemented to reduce the risk of vehicle collision to scavenging, slow moving and small species.

Besides the biodiversity impacts of the construction phase environmental quality and the quality of the environmental may also decline due to dust, noise pollution, and soil compaction/erosion etc. These impacts are expected to be minimal with the appropriate control measures outlined in the Construction Environmental & Social Management Plan in place.

Pre-construction flora surveys will be conducted for the purposes of seed collection, demarcation of areas to be protected, and translocation of whole specimens if deemed feasible. The Flora Conservation Action Plan provides a guide to the species-specific impact mitigation that will be undertaken for the protection of sensitive flora species that may be impacted from the project construction. The Restoration Action Plan will guide the post-construction restoration of areas to suitable habitat conditions via seeding, re-planting, and landscaping with sensitive flora species will further serve to reduce the impact of habitat loss.

Operation of the wind farm project poses a unique threat to birds and bats due to the potential for collision with moving turbines. This could potentially have a major impact on resident and migratory bird and bat populations and cause significant loss to biodiversity.

With respect to bird turbine collision, the magnitude of risk and significance of the potential impact is highly dependent upon the location of the wind farm and landscape context, spatial layout, height and length of turbines, and the types and numbers of birds present. Quantitative assessment was undertaken by utilizing a Collision Risk Model (CRM) developed as per SNH Guidelines.

The results of the CRM analysis indicate that the Bash Wind Farm has a low-moderate level of collision risk for sensitive bird species. Among tier 1 target species that were documented during the VP surveys, Greater Spotted Eagle, Steppe Eagle, Golden Eagle, and Egyptian Vulture, had CRM predicted fatality rates ranging from one per 4 years (Steppe Eagle) to one per 83 years (Greater Spotted Eagle) under the most realistic Collision Avoidance (CA) scenarios modeled.

Three tier 2 target species were predicted to experience greater than one fatality per year; Eurasian Kestrel; Common Crane and Lesser Kestrel. Predicted fatality rates fall below one per year for all other tier 2 target species. For Tier 3 bird species, the CRM predicts collision rates of 0.93 to 2.66 per year for Gadwall, Black-crowned Night-Heron, Tufted Duck and Mallard. These four species are all very abundant, widespread species with large global and national populations, and no elevated conservation/protected status at national or international levels. Predicted collision rates for all other species under most realistic CA scenarios are below one per 6 years.

Mitigation measures will be implemented during the project design and operation phases of the wind farm project to reduce the impacts of bird collision with wind turbines. Collision mitigation through project design include change in wind turbine layout and number and micrositing of specific turbines within 750m of active Tier 1 species nest and within 2km of the Lake Ayakagytma.

In addition to this, a single blade will be painted black from the tip to halfway up the blade to reduce motion smear and increase visibility of moving turbines to birds. The turbine towers will be painted black from ground level until the beginning of the rotor swept area to increase visibility of the towers.

A Collision Risk Management Plan will be developed to be implemented during the operation phase to include a Contingency Plan that will be triggered in the event acceptable levels of annual losses due to the project are exceeded. Thresholds for acceptable levels of annual losses, will be determined for species identified either as a PBF or a CH feature, plus selective additional bird species that were observed at the site during the baseline studies through a Potential Biological Removal (PBR) analysis.

For Tier 1 species, a threshold of zero fatalities will be established. In the event of a Tier 1 species fatality, adaptive management will be triggered as per the Contingency Plan and a SDOD Program will come into effect. Examples of potential Shutdown On Demand (SDOD) options include automated/ observer-led SDOD programs conditional upon seasonal or meteorological conditions.

In order to further reduce the risk of collision to scavenging birds, a Livestock Management Plan will be implemented ensure the management and safe disposal of livestock carcasses so as to reduce food availability to scavengers within the project footprint especially near the wind turbines.

The Post-Construction Fatality Monitoring Plan will detail the intensive carcass searches that will take place throughout the wind farm during the operation phase of the wind farm. Compensatory measures to offset any net loss will minimise the impact for all species. The Post-construction Fatality Monitoring Program will be continued for 5 years until the risk to birds is considered 'negligible' in consultation with the lenders.

Predicted fatality levels for bat species may have potential to impact regional populations of these species, and therefore warrants special consideration in the biodiversity management planning for the project. The impact of bat turbine collision is expected to be minimised for all species with the implementation of design and operational mitigatory measures. in the design and operation phases of the project. In particular, project design mitigation measures include using wind turbine generators that do not support roosting bats and implementing lighting systems that are least attractive to insects.

The Collision Risk Management Plan will be developed to be implemented during the operations phase which will include a detailed Cut-in Curtailment Program to be triggered if the thresholds for acceptable levels of annual losses, determined through a PBR analysis, are exceeded. The Post-Construction Fatality Monitoring (PCFM) Plan will detail the intensive carcass searches that will take place throughout the wind farm during the operation phase of the wind farm. The PCFM Program will be continued for 5 years until the risk to bats is considered 'negligible' in consultation with the lenders.

Though there are nine mining facilities as well as the proposed Dzhankeldy wind farm in development in the vicinity of the Bash wind farm, no cumulative impacts of significance on biodiversity receptors are anticipated to occur during the construction stage due to its small built footprint, temporary construction works and unfenced project boundaries preventing habitat fragmentation. The presence of multiple operating wind farms in the same migratory corridor may however produce cumulative collision impacts.

The predicted cumulative collision risk for the Houbara Bustard, a Tier 1 species, is 1.22 collisions per year. Though the predicted collision risk for this species is based on hypothetical scenarios where a single individual is observed flying within the rotor swept zone, this collision rate cannot

be ruled out. The anticipated collision risk for all other Tier 1 bird species indicates cumulative collisions of less than 1 per year. Two species each of Tiers 2 and 3 are anticipated to experience a cumulative collision risk greater than one per year. There species are abundant, widespread species with very large global populations, and are not classified with an elevated conservation status at either the national or international levels. It is therefore not anticipated that wind turbine collision would be additive between both wind farms.

4.1.2 OHTL

BASELINE CONDITIONS

Flora

Habitat mapping and botany transect surveys were undertaken to understand land use and land cover and to identify rare and endemic floral species. The associated OHTL corridor was surveyed with approximately a 100m buffer in width along the planned route. The dominant habitat type of the OHTL alignment is described as " *Fixed and semi-fixed sands low interspersed with ecotones of Relic Uplands, Sandy and sand-loamy desert plains, Saline lands*" and "*Agricultural lands*". One endemic endangered species were recorded; *Calligonum zakirovii.* Other endemic species include *Acanthophyllum cyrtostegium, Ferula kyzylkumica* and *Tulipa lehmanniana.*

Birds

Surveys along the associated OHTL alignment registered three threatened species; the Egyptian Vulture (EN), the Houbara Bustard (VU) and Eurasian Curlew (NT). The nationally red listed Golden Eagle was also observed along the OHTL alignment. The greatest species diversity was observed in areas with water bodies and agricultural lands. Existing transmission lines in the vicinity of the project area were also surveyed to assess bird mortality from operating OHTLs. Three carcasses were observed belonging to White Pelican , White-tailed Sea Eagle and Rufus Scrub Robin. These species are widespread in the Kyzylkum desert and are of least conservation concern. The presumed cause of death was collision with OHTL cables.

Bats

The initial OHTL reconnaissance survey indicated that there did not appear to be substantial structures that would be conducive to roosting bat colonies. Therefore, detailed bat roost searches were not carried out for the Bash OHTL alignment.

Mammals excluding Bats (Non-Volant)

Mammal surveying was undertaken along the proposed OHTL alignment corridor in the summer. Using a combination of diurnal and nocturnal transect surveying. Incidental sightings

and records (visual and audible) as well as indirect records of tracks, burrows, droppings, and shelters were used to assess species abundance and diversity. Burrow entrance counts were carried out to establish abundance of rodent species. A total of 9 mammalian species were recorded of which Rodents were the most abundant; Small five-toed jerboa, Libyan jird, Long-clawed ground squirrel, Great gerbil, Midday jird and Yellow-ground squirrel. These species are widespread and are of least conservation concern.

Reptiles and Amphibians (Herptiles)

Diurnal and nocturnal transect surveying were conducted in June to assess the herptile species abundance and diversity along the OHTL alignment of the wind farm. 8 species were recorded among which Russian Tortoise, Rapid Lizard, Reticulate Racerunner, Sunwatcher toad-headed agama, Steppe agama and Caspian Monitor were recorded.

Insects (Entomofauna /Invertebrates)

Invertebrate surveying was undertaken by visual and netting surveys covering various transects throughout the OHTL corridor. A total of 45 species were recorded of which *Hyalomma asiaticum* and *Cataglyphus* species were the most Abundant. A single endemic species (Uzbekistan and Turkmenistan) was registered, *Lioponera desertorum*. Invertebrate community present within the corridor is typical of the region and no representatives of threatened species were documented.

Critical and Priority Species

The findings of the biodiversity baseline studies confirmed that the project area has a diverse and abundant distribution of flora and fauna species. A number of these biodiversity elements has been identified as elements of conservation concern. The EBRD PR6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources requires that baseline studies conclude with a Critical Habitat Assessment (CHA) to determine if any features in the project area qualify as Priority Biodiversity Features or Critical Habitat.

A CHA was undertaken for the project, which identified species of concern which have the potential to trigger criticality for the project's area of influence. It was found that the project area has a relatively low risk of triggering criticality for the majority of identified potential species of concern. The review indicated that Critical Habitat thresholds has been triggered in reference to two species; the Critically Endangered Southern Even-fingered Gecko and the Vulnerable Houbara Bustard. Other identified species of concern, including nationally listed bird, mammal, and reptile species, as well as range-restricted and endemic flora species, were classified as Priority Biodiversity Features (PBFs).

All species of concern were integrated into the biodiversity assessment to identify potential impacts arising from the construction and operation of the wind farm project and associated

facilities. Recommendations for management, mitigation and monitoring in line with EBRD and lender requirements and international best practice were proposed to alleviate and reduce the significance of impact to all biodiversity elements of concern within the project area.

IMPACT ASSESSMENT

The construction phase of the project was initially predicted to have moderate impacts within the AoI including potential habitat loss, biodiversity loss, biodiversity displacement and deterioration of environmental quality. However, with the implementation of general control measures as well as species-specific mitigation measures, residual impacts of the construction phase are predicted to be minimal.

For many endangered species worldwide, electrocution by powerlines is considered to be the number one conservation threat contributing to population decline. In particular, larger-bodied birds which tend to prefer perching at high altitudes have the highest risk for electrocution. As there are a number of susceptible species including the critical Egyptian Vulture, the significance of unmitigated bird OHTL electrocution impact was found to be major.

However, OHTL design interventions are proposed including the use of appropriate insulators as well as adequate spacing of the live components. These are highly effective mitigation measures; thus, the residual significance is negligible to minor.

Thin, dark wires used in overhead transmission lines are visually difficult to detect. Particularly at risk are birds migrating between 20-50m altitude, birds flying at night, birds flying in flocks, and / or large and heavy birds of limited manoeuvrability. Unmitigated OHTL collision risk of various bird species was predicted to be of major to moderate impact significance. A Post-Construction Fatality Monitoring Plan will be in place to include carcass searches and mortality rate calculations for the OHTL. Given the implementation of mitigation measures such as inclusion of bird visual diverters and compensation measures in the form of funding, if acceptable annual levels off losses are exceeded, the residual significance is down listed to minor.

Sensitive bird receptors may be cumulatively affected by the presence of multiple regional wind farms operating simultaneously. As appropriate design essentially eliminates electrocution and vastly reduces collision risk, the residual cumulative effects given appropriate design would be negligible.

4.2 Ambient Air Quality

4.2.1 Wind Farm & OHTL

Temporary activities may result to dust generation and gaseous emissions on local receptors near the Wind Farm, OHTL and associated access roads. Such impacts are expected to be minor in significance and will be managed through the implementation of the Project specific CESMP.

The operation of the project is not expected to result in impacts to air quality as there will be no permanent fuel combustion requirements except for the use of vehicles for operation and maintenance works at the Wind Farm and along the OHTL. Emission from vehicles during operation will be minor and unlikely to result in a discernible impact at receptor locations.

Potential impacts relating to decommissioning of the wind farm will be managed through the implementation of a Decommissioning Management Plan, with specific relevance to working methods and regulations that may be applicable at this time

4.3 Noise and Vibration

4.3.1 Wind Farm & OHTL

Construction Phase

Temporary construction noise & vibration are expected to arise from the construction at the site and OHTL route and the use of access roads. These impacts are expected to be in the range of receptors along the access road, herder shelters near the Wind Farm and the agricultural and commercial receptors along the OHTL. However, the impacts on these receptors has been assessed as negligible to minor and will be managed through the implementation of the CESMP.

Operational Phase (Wind Farm)

The Project's primary noise impact are expected to relate to the operation of the wind turbine as noise will be generated from a number of different mechanisms grouped into mechanical and aerodynamic sources. Operational noise impacts have been assessed using modelling suite IMMI2020 in order to evaluate noise emissions from the wind farm at the nearest noise sensitive receptors. The outcome of the preliminary noise model identified twelve (12) receptors that exceeded the 35dB L_{A90} noise threshold established guidelines, hence requiring detailed modelling in accordance with the ISO9613 methodology.

After an appropriate amount of background noise data had been collected at four locations, a regression analysis was conducted and following the regression analysis, the derived noise

levels were calculated in accordance with the Institute of Acoustics guideline. The derived noise level was compared with the predicted noise levels from wind turbines at 10m/s at the receptor locations and the result showed that noise contributed from the WTGs is significantly higher at R5 & R18 (59.4dB(A) & 52.1dB(A) respectively) than the day and night-time background noise of 53dB(A) and 43 dB(A)) respectively. Whereas noise contributed from the WTGs at R6 and R21 are all higher (45.2dB(A) and 48.5dB(A) respectively) than the night time background noise (43 dB(A)).

R5, R6, R18, and R21 are residential structures located within the Project site and used by herders therefore the sensitivity of these receptors is considered to be 'High'. Given the high sensitivity of these receptors, the settlement will be relocated in accordance with the Project's RAP.

Potential impacts relating to decommissioning will be similar to those encountered during the construction phase. As such, it is assumed that the risk of increased noise level associated with the construction phase will be expected for the decommissioning phase at permanent receptor locations.

Operational Phase (OHTL)

No significant noise impact is expected to receptors during the operational phase of the OHTL and potential noise related to Corona effect is expected to be decrease with distance. Based on this, corona effect is not anticipated to be discernible at nearest residential household to the OHTL route which is approximately 250m away.

Potential impacts relating to decommissioning of the OHTL will be similar to those encountered during the construction phase and these will be managed through the implementation of the Decommissioning Management Plan.

4.4 Soil, Geology, Groundwater and Surface Water

4.4.1 Wind Farm & OHTL

During construction, impacts on soil and groundwater could arise from a number of activities. These include excavation and soil compaction, accidental spills or leaks, disposal of wastewater and inadequate management of waste. Since groundwater was not encountered at the Project site, it is not expected that any contamination will reach groundwater.

Specific project impacts to soil, groundwater and geology are not expected during the operational phase of the Wind Farm and the OHTL. Potential risks of concern during the operational phase are expected to be limited to the management and storage of the very small quantities of materials/wastes/wastewater, chemicals and fuels. With the provision of the

mitigation measures recommended in the ESIA and associated Waste Management Plans, no significant environmental impacts are envisioned for the Wind Farm or the OHTL.

Potential soil & groundwater impacts relating to decommissioning of the wind farm will be similar to those encountered during the construction and operational phase and will be managed though the implementation of a Decommissioning Plan.

4.5 Water Environment

4.5.1 OHTL

There are areas of salt marshes and agricultural fields with irrigation channels located along the OHTL alignment. The potential impacts to surface water quality during the construction phase relate to obstruction of flow of irrigation channel to neighbouring agricultural lands and contamination of irrigation water. Such potential impacts will be managed through a robust Construction Environmental & Social Management Plan (CESMP) in accordance with the provisions set out in the ESIA.

Operational phase impacts will be limited and will relate to maintenance sections of the OHTL and may include accidental spills & leaks. Any potential risks to surface water & irrigation channels will be managed and mitigated via the effective implementation of an Operational Environmental & Social Management Plan (OESMP).

Potential impacts relating to decommissioning of the OHTL will be similar to those encountered during the construction phase and will be managed through the implementation of a Decommissioning Plan.

4.6 Electro Magnetic Field

4.6.1 OHTL

The operation of the 500kV OHTL will be a source of electric and magnetic fields (EMF) which are invisible lines of force that surround any electrical device such as power lines. The impact on receptors is anticipated to be negligible given that human settlements are located well away from the OHTL route and outside of the legally required Health Protection Zone (HPZ) of 30m.

The only potential risk of exposure relates to herders, farm workers and commercial enterprises working directly or with structures within the 30m HPZ including operational phase maintenance workers. It is noted that individuals with structures within the 30m HPZ will be resettled through the implementation of the Project specific RAP while impacts to the OHTL

maintenance workers will be managed through the preparation and implementation of an EMF safety program.

Note: *No EMF impacts are expected during the construction nad decommissioning phase of the OHTL because there will be no transmission of power.*

4.7 Traffic and Transportation

4.7.1 Wind Farm & OHTL

Wind turbines OHTL components will be manufactured abroad and transported to the Project site by road from either Dulata, Khorgos or Alanshankhou borders in China and from either of these borders to custom points at Nur Zholy/ Kolzhat in Kazakhstan and thereafter to the site. As such, appropriate roads are needed for site and OHTL access and the hauling of equipment turbines and OHTL components. If improperly planned and managed, the trailers hauling the heavy Project components can potentially damage the existing highways, bridges, overpasses, roads, utilities, local access roads and other structures.

Construction activities will also result in an increase of the numbers of movements of HGVs and other vehicles for the delivery of heavy plant, equipment, materials, and transportation of Project staff. Close coordination will be required with the road transport authorities to manage the transport of materials for the Project, which will be detailed ion a Traffic Management Plan. In addition, a road safety campaign will be implemented in local schools and communities near the Wind Farm and access roads in order to raise awareness on the safety risks involved with increased traffic.

The number of vehicles during the operational phase are likely to be low, with access required for maintenance and servicing. It is expected that the majority of these vehicles will be light vehicles with HGVs only required in instances where WTG, OHTL components need to be replaced.

4.8 Infrastructure and Utilities

4.8.1 Wind Farm & OHTL

There are existing infrastructure & utilities within the Project site and along the OHTL. These include existing OHTLs, gas pipelines, railway line, railway station and communication lines. The construction phase of the Wind Farm and OHTL may lead to potential damage of this infrastructure thus resulting to disruption of services. In order to mitigate against this, the EPC Contractor will be required to conduct a risk assessment, adhere to all relevant construction

buffer zones, obtain necessary permits and ensure on-going stakeholder consultations with the relevant agencies operating the infrastructure.

Erection of WTGs can present a physical obstruction to aircrafts and also casue radar and other navigational aid interference where the blades appear as 'clutter' on radar screens and can be mistaken for aircraft. The nearest airport to the Bash site is the airport in Navoi which is 60km south east of the site. As such the Project is required to continue with consultations with the Civil Aviation Authority and obtain a permit for the Project.

4.9 Archaeology and Cultural Heritage

4.9.1 Wind Farm & OHTL

There are known archaeological sites within the Wind Farm based on surveys undertaken by the Institute of Archaeology between 28th May to 21st June 2021. As a result, and in compliance with the Agency of Conservation of Cultural Heritage, buffer zones between archaeological sites have been established which include 100m for complex relief areas and 50m for flat relief. It is noted that there are no known archaeological sites along the OHTL alignment.

In addition to the known archaeological sites, there remains potential to uncover previously buried archaeology (chance finds) within the Wind Farm and OHTL footprint during the construction phase. As such, a full-time archaeologist will be present at the Wind Farm and along the OHTL including the implementation of a Cultural Management Plan and a Chance Find Procedure.

Impacts to intangible cultural elements for communities living near the Wind Farm and OHTL are expected to be minor and will be managed through the implementation of a Worker's Code of Conduct which will include measures relating to respect of local beliefs, customs, rituals and their general way of life.

During the operational phase of the wind farm, there will be no further excavations at the Project site and as such, there is no risk of uncovering an item of archaeological importance at this stage. However, a Cultural Management Plan will be developed as part of the operational ESMS to include procedures to be implemented in ensuring protection of the archaeological sites.

Any impacts on archaeological sites and cultural heritage during the decommissioning phase will be managed through the implementation of a Decommissioning Management Plan and in consultation with the with the Institute of Archaeology and the National Centre of Archaeology.

4.10 Landscape and Visual Amenity

4.10.1 Wind Farm

LANDSCAPE

The development of the wind farm will include levelling, grading, construction of administrative buildings, erection of WTGs and many more activities which will transform the landscape in the area into a 'Desert with Wind Turbines' landscape character as large vertical rotating features will be added into the landscape. The installation of towers, turbines, and the shape or colour will result in visual intrusion at receptor location in proximity to WTG areas.

In addition, the use of lighting across the site in an environment classified as 'Rural/suburban transition site' during construction phase will introduce light spill & glare and result in a night time light haze likely to be visible for several kilometres from the project area. However, this impact will be temporary. Any impacts from lighting are anticipated to be minimised by limiting works being undertaken during the night and by the implementation of specific controls detailed in the CESMP on-site.

VISUAL

The continuous movement of the wind turbine rotors will also result in changes to the visual envelope of receptors overlooking the Project site as there would be loss of static landscape view. This will especially impact the herders with structures near the Project site (outside of the Project boundary).

4.10.2 OHTL

Given that majority of the OHTL route is mostly flat gravel plain, excavation, levelling, grading and other site preparation activities may result in limited land use changes. The subsequent erection of pylons/ towers will result in large anthropogenic intrusions into the landscape transforming the landscape of the OHTL route. Such intrusions of large-scale vertical structures will likely result in minor but noticeable landscape character impacts.

Impacts to the visual envelope of surrounding receptors will also occur at night where the addition of lighting during construction will illuminate the OHTL construction area that has previously been free of any light sources. Similar to the wind farm, any impacts from lighting are anticipated to be minimised by limiting works being undertaken during the night and by the implementation of specific controls detailed in the CESMP on-site.

4.11 Shadow Flicker

4.11.1 Wind Farm

Shadow flicker is the effect of the sun shining through the rotating blades of a wind turbine and casting a shadow on the window of neighbouring properties under certain wind & light conditions. In order to assess the effect of shadow flicker on nearby sensitive receptors during operation of the Wind Farm, Shadow flicker modelling was undertaken for the Wind Farm. The modelling study considered two (2) scenarios; a conservative worst-case approach based on the requirements outlined in IFC EHS Guideline for Wind Energy and a more realistic approach to consider actual site conditions.

The modelling predicted that under worst-case scenario the herder structure located north west of the site (R5 & R6) and the structure used by herders located south-west of the site (R18) all of which are within the Project site and R21 which is located outside the project boundary will experience shadow flicker which exceed the IFC recommended limit of 30 hours per year or 30 minutes per day. However, it should be noted that the worst-case scenario provides an over estimation of the duration of shadow flicker occurrence at the receptor location. The modelling also predicts exceedance in IFC recommended limit in the real case scenario for R5, R18, and R21. However, it should be noted that the realistic scenario has not considered screening. Other receptors will not experience shadow flicker that exceed the limit of 30 hours per year established by IFC EHS Guideline for Wind Energy.

Based on the results obtained from the shadow flicker assessment (and other impacts relating to land use), the herders within the Wind Farm boundary will be resettled to an alternative land in accordance with the Project specific RAP.

4.12 Socio-Economics

4.12.1 Wind Farm & OHTL

STAKEHOLDER ENGAGEMENT

A number of stakeholder engagement activities have been undertaken as part of the ESIA process. The outcome of stakeholder consultations has been considered in the development of the ESIA and the Project specific Stakeholder Engagement Plan (SEP).

The draft ESIA was disclosed to local communities on 22nd to 25th February 2022 and the meetings were attended by local leaders, men and women (separate meetings were held for the women) and herders. Disclosure materials used included Power Point, brochures and leaflets which included the Project information and details of the grievance mechanism.

Based on the consultations and surveys undertaken, the main impacts anticipated by local communities include:

- Creation of job opportunities;
- Expectation that ACWA Power will invest in community projects;
- Improvement in the power supply and reduction in the cost of electricity;
- Concerns on the reduction of grazing land within the Wind Farm; and
- Impacts relating to noise and dust generation.

At the end of 60 days EBRD disclosure period and 120 days ADB disclosure period, a public consultation and disclosure report will be developed based on additional consultation and feedback undertaken during the disclosure period.

Additional consultations have also been undertaken (and are on-going) with land users (herders) using the Wind Farm and along the OHTL (herders, farmers and commercial enterprises) as part of the RAP processes. The implementation of the RAP will mitigate against physical and economic displacement which is expected as a result of the Project and OHTL implementation.

SOCIAL ECONOMIC IMPACTS

The construction and operation of the Wind Farm and OHTL is expected to positively influence the local, regional and national economy i.e, through employment, direct procurement and supply of materials, increased power supply and contribute towards a low carbon economy.

Negative impacts relating to the construction phase will include labour risks such as poor working and living conditions, forced labour etc. There will also be potential risks associated with the supply chain relating to forced labour, child labour, health & safety etc. A supply chain risk assessment for the Project is currently on-going. Supply chain risks will be managed through the implementation of a Supply Chain Management Plan.

4.13 Solid Waste and Wastewater Management

The construction of the Wind Farm and OHTL will result in the generation of waste due to excavations, packaging waste and small quantities of hazardous waste. This will also include sanitary waste which will be contained in septic tanks prior to removal by a licensed wastewater contractor.

During the operational phase, there will be relatively few waste streams, although maintenance waste may be generated in small quantities on a continued basis. The ESIA outlines the mitigation and management measures and the implementation of a Waste Management Plan.

During decommissioning of the wind farm, there is a potential for inert demolition waste and materials such as steel reinforced bars, broken concrete, cabling, transformer oils etc. to contaminate soils. The decommissioning of the wind farm provides significant opportunity for resource efficiency and material re-use/recycling. As such, a Decommissioning Plan will be developed to include detailed methods for re-use, recycling and disposal of decommissioning wastes.

4.14 Community, Health, Safety and Security

Public risks during the construction have the potential to result in isolated incidents, which could be of a devastating magnitude to a person or group of people in the wrong place at the wrong time. The potential risks to communities will include safety, health and security risks, Gender Based Violence & Harassment (GBVH), Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH). These risks will be managed through the implementation of the mitigation measures in the ESIA and of appropriate plans, procedures and policies such as the Emergency Preparedness and Response Plan, Influx Management Plan, GBVH policy etc.

The operational phase of the Wind Farm will include various risks that could result in impacts to public safety. With regards to blade & ice throw from the wind turbine, the Project has adhered to a minimum distance of 200m from the local communities to the nearest wind turbine in accordance with the Agency for Sanitary and Epidemiology Welfare Health Protection Zone requirement '*to maintain a distance of 200m from wind turbines to limit any activities and people's presence during possible emergency periods under adverse weather conditions*. In addition, all of the WTGs are over 2km from the nearest local community and the local communities are not within the setback distance of approximately 278m & 407m for blade throw & ice throw respectively. As such, the likelihood/risk of blade & ice throw is anticipated to be negligible.

Other operational phase impacts relating to safety risks to children and young people trying to explore the WTGs or substation, OHTL and/or vandalising Project equipment/structures etc will be addressed through on-going awareness campaigns in local schools and communities.

4.15 Labour & Working Conditions

Construction activities will generate a variety of occupational health and risk to the workforce. These will include physical risks such as traffic on site, working at height, movement of heavy machinery, excavations, scaffolding etc. other risks may include handling of fuels, chemicals, paints and solvents, noise and emissions from machinery and generators etc. These will be managed through the implementation of an Occupational Health and Safety Management Plan (OHSMP) which will be prepared at the start of the construction phase.

In addition, there will be potential working condition and labour risks such as child labour, forced labour, poor accommodation facilites, restrictions for workers to join trade unions, GBVH, wage discrimination based on gender etc. To address these issues, a number of measures will be implemented to mitigate against these impacts such as the implementation of Human Resources Policies & Procedures, Human Rights Policy, GBVH Policy, Worker Code of Conduct and provision of a Worker Grievance Mechanism.

4.16 Influx Impact

In addition to the influx of workers in the area, the development of the wind farm and OHTL may result in the in-migration of other people seeking direct or indirect opportunities from the Project such as opportunistic in-migrants seeking jobs from the Project, opportunistic traders aiming to take advantage of business opportunities encouraged by the Project and by the increased income of the local community and other migrants seeking to take advantage of the economic and development opportunities created in the area.

This may result to social conflict, increased competition on public services, health risks (relating to spread of communicable diseases and sexually transmitted diseases), GBVH, disruption of local culture, increase in crime, local inflation etc.

However, due to the location of workers accommodation facilities within the Project site, it is expected that workers and community interaction will be minimal and other impacts will be managed through the implementation of an Influx Management Plan, a Code of Conduct, Local Content Plan, Cultural Sensitization Training to guide staff on appropriate behaviour & interaction with local communities and purchase of goods & services.

4.17 Climate Affairs

Fuel combustion during the construction phase for diesel generations and mobile plant will results in GHG emissions, however, the primary operation of the Project will lower the carbon intensity of Uzbekistan's grid electricity and result in avoidance of CO_2 emissions. Fuel combustion from the use of operation vehicles and emergency diesel generators will be negligible. This will be in line with the Uzbekistan 2030 Energy Strategy to reduce reliance on fossil fuels.

The potential climate physical risk for the project will include increase in temperature and increased flooding. However, the WTGs have been designed to operate in a wide range of temperature and it is not expected this will be a transition risk . In addition, the Wind Farm is also located in a very low risk flood area and flooding is not anticipated.

4.18 Cumulative Impacts

The ESIA has assessed cumulative impacts of several environmental parameters where applicable (e.g., biodiversity impacts), which has considered the measured baseline conditions in combination with the predicted project contributions. A specific chapter has been prepared in the ESIA in accordance with the IFC guidelines on cumulative impacts assessment and assess potential future impacts of the project in combination with other known and/future Projects in the Project's area of influence.

Given the Project's remote location, there are few direct or indirect cumulative impacts. The key cumulative impacts assessed include:

- Cumulative impact to terrestrial ecology is only anticipated when the operation of the Bash wind farm & OHTL is undertaken simultaneously with mining works at the mining areas and the Dzhankeldy Wind Farm and OHTL.
- Cumulative dust generation and gaseous emissions is anticipated when construction activities are undertaken simultaneously with mining works at the mining areas;
- Cumulative noise and vibration impacts at receptor location when construction activities is being undertaken at the same time as extraction processes at some mining facilities;
- Employment creation and dissemination of skills during construction phase will result in a significant beneficial cumulative impact and;
- The influx of workers and interaction of workers with residents of nearby villages during construction phase could lead to outbreak of diseases and illnesses, strain the public social services and even result in conflict with local communities due to differing ideals, behaviour and cultural practices.

5 ENVIRONMENTAL & SOCIAL MANAGEMENT & MONITORING

Both the construction and operational phase of ESMS will need to incorporate mitigation and monitoring requirements established within Volume 2 of the ESIA as well as requirements set out by the State Committee on Ecology and Environmental Protection and the Lenders.

Volume 3 of the ESIA provides a framework for the development of the Environmental and Social Management System (ESMS) for the construction and operational phases of the Project. The framework has been developed to ensure that all Environmental & Social impacts identified for both construction and operational phases are appropriately identified and controlled through the development of a robust construction and operational phase ESMS. ACWA Power has developed an ESMS Implementation Manual for the Project Companies to ensure there is sufficient oversight of contractors and operators and ensure compliance, risk and opportunity management including monitoring.

In addition, there will be dedicated competent Project teams put in place by the EPC Contractor and the O&M Company overseen by the Project Company to ensure the implementation of the E&S mitigation measures.

The primary documents guiding the environmental and social management of the construction and operational phases will be the Environmental and Social Management Plans (ESMP) respective to construction and operational risks, impacts and compliance requirements.

5.1 Independent Auditing and Monitoring

The Project will be subject to periodic independent monitoring in accordance with the requirements of the lenders Environmental and Social Action Plan (ESAP) and an Equator Principle Action Plan (EPAP) if the Project is financed by institutions signatory to the Equator Principles . The scope of the independent audits will include the implementation of the project ESMS and will evaluate on-site activities and documented controls and monitoring efforts, with respect to the Project's compliance obligations.

APPENDIX A – PROJECT CONTACT INFORMATION

Table A-5-1 Project Contact Information

NAME	ASPECT	CONTACT DETAILS
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