# Bilasuvar 445 $MW_{ac}$ Solar PV Azerbaijan

## Environmental and Social Impact Assessment

October 2024

MASDAR

# DOCUMENT INFORMATION

| | |
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| **5CS PROJECT MANAGER** | Barney Chesher |
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| | |
|---|---|
| 1 | Financial Capital |
| 2 | Social Capital |
| 3 | Natural Capital |
| 4 | Manufactured Capital |
| 5 | Human Capital |

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# CONTENTS

# LIST OF ABBREVIATIONS

| ABBREVIATION | MEANING |
|---|---|
| **5 Capitals** | 5 Capitals Environmental and Management Consulting |
| **ADB** | Asian Development Bank |
| **AERA** | Azerbaijan Energy Regulatory Agency |
| **AIIB** | Asian Infrastructure Investment Bank |
| **AREA** | State Agency for Alternative and Renewable Energy Sources |
| **BAT** | Best Available Techniques |
| **CH** | Critical Habitat |
| **DFI** | Development Finance Institutions |
| **EBRD** | European Bank for Reconstruction and Development |
| **EIA** | Environmental Impact Assessment |
| **EMF** | Electromagnetic Field |
| **EMP** | Environmental Management Plan |
| **ESF** | Environmental and Social Framework |
| **ESIA** | Environmental and Social Impact Assessment |
| **ESMS** | Environmental and Social Management System |
| **EP** | Equator Principles |
| **EPFI** | Equator Principles Financial Institution |
| **EU** | European Union |
| **FGD** | Focus Group Discussions |
| **GBVH** | Gender Based Violence and Harassment |
| **GIIP** | Good International Industry Practice |
| **GPN** | Good Practice Note |
| **GW** | Gigawatts |
| **HSSE-MS** | Health, Safety, Social and Environmental Management System |
| **IBA** | Important Bird Area |
| **IBAT** | Integrated Biodiversity Assessment Tool |
| **IFC** | International Finance Corporation |
| **ILO** | International Labour Organisation |
| **KBA** | Key Biodiversity Area |
| **LPA** | Legally Protected Area |
| **LRP** | Livelihood Restoration Plan |
| **MAC** | Maximum Allowable Concentrations |
| **MENR** | Ministry of Ecology and Natural Resources |
| **MES** | Ministry of Emergency Situations |
| **MSTS** | Masdar Specialised Technical Services |
| **NDCs** | Nationally Determined Contributions |
| **NH** | Natural Habitat |
| **NSR** | Noise Sensitive Receptors |
| **NTS** | Non-Technical Summary |

| ABBREVIATION | MEANING |
|---|---|
| **PAPs** | Project Affected Persons |
| **PM** | Particulate Matter |
| **PR** | Performance Requirement |
| **PBF** | Priority Biodiversity Features |
| **PPB** | Parts per billion |
| **PS** | Performance Standard |
| **PV** | Photovoltaic |
| **SEA** | Sexual Exploitation and Abuse |
| **SEE** | State Ecological Expertise |
| **SEP** | Stakeholder Engagement Plan |
| **SH** | Sexual Harassment |
| **SLCC** | The State Land and Cartography Committee |
| **SOCAR** | State Oil Company of the Republic of Azerbaijan |
| **SPS** | Safeguard Policy Statement |
| **UN** | United Nations |
| **UNDP** | United Nations Development Programme |
| **VOC** | Volatile Organic Compounds |
| **WBG** | World Bank Group |

# 1 INTRODUCTION

## 1.1 Project Overview

Azerbaijan, the host country for the United Nations Climate Change Conference (COP29) in November 2024, has expressed a commitment to developing its renewable energy potential. This initiative forms a crucial part of Azerbaijan's revised Nationally Determined Contributions (NDCs), with a target of reducing emissions by 40% by 2050 compared to 1990 levels.

Renewable energy, particularly solar and wind, is integral to achieving this target. The country's Ministry of Energy has also been active in mapping the renewable energy potential, including the development of an "Atlas" for renewable energy resources. The "Law on the Use of Renewable Energy Sources in Electricity Production" (May, 2021) provides a framework for renewable energy projects, introducing measures such as guaranteed tariffs for electricity produced from renewable sources, priority in transmission, and long-term land leases for project developers. The country intends to increase renewable power capacity to 30% by 2030 and diversify its existing energy system to become a leader in green energy.

Masdar signed implementation agreements with Azerbaijan's Ministry of Energy in June 2022 to develop a renewable energy program on a bilateral basis, with a total capacity of 10 gigawatts (GW) across multiple technologies.

Subsequently, Masdar signed joint development agreements with the State Oil Company of the Republic of Azerbaijan (SOCAR) for onshore wind and solar projects, and integrated offshore wind and green hydrogen projects, with a total combined capacity of 4 GW.

The Ministry of Energy of the Republic of Azerbaijan and Masdar signed an Implementation Agreement relating to the assessment, development, and implementation of a 4 $GW_{ac}$ pipeline of solar photovoltaic (PV) and onshore wind projects in the Republic of Azerbaijan starting with 2 $GW_{ac}$ as the first phase.

The Bilasuvar Solar PV Plant, comprising the solar PV array, substation and access road (the Project), is one of three projects making up the first phase and it is the focus of this report.

On the 26th October 2023, Masdar and the Ministry of Energy entered into an investment agreement for the Project. The Project will assist in achieving Azerbaijan's 2025 vision and beyond for the inclusion of renewable energy electricity within its generation mix.

## 1.2 Scope of the Document

5 Capitals Environmental and Management Consulting (5 Capitals) has been engaged by Masdar to undertake certain environmental and social studies during the development process of the Bilasuvar Solar PV Project, including the Environmental and Social Impact Assessment (ESIA) process.

At this stage, it is understood that Masdar is seeking an amount of project finance from financial Institutions (together "lenders"), potentially including commercial banks that are Equator Principles Financial Institutions (EPFIs) and Development Finance Institutions (DFIs), which could include:

- Asian Development Bank (ADB)
- Asian Infrastructure Investment Bank (AIIB)
- European Bank for Reconstruction and Development (EBRD)

The lenders have their own internal environmental & social investment policies/standards by which the Project must align, which are further outlined in Section 3.3.

A key stage in the development of the Project requires an ESIA in compliance with Azerbaijani national ESIA requirements. 5 Capitals has engaged locally based specialists to undertake certain elements of the scope, and provide local experience and expertise. Refer to Section 3.5.1 for the Azerbaijani Environmental Impact Assessment (EIA) requirements and the requirements and process for the Project's national permitting.

This ESIA Report has been informed by:

- The ESIA Scoping Report prepared by 5 Capitals and issued in April 2024;
- Analysis of the Project details and proposed works (as advised by Masdar);
- Desk-based study of available mapping and aerial photography;
- Site visits undertaken by 5 Capitals and appointed national specialists in August 2023 and August 2024;
- Consultations with stakeholders, including but not limited to: local communities, enterprises along the effluent pipeline route, the existing workforce of the operational facility, Civil Society Organisation (CSOs), government agencies, local municipalities etc.;
- Site surveys conducted between January 2024 and June 2024 (including soil, ground and surface water sampling and analysis, noise monitoring, air quality monitoring, socio-economic survey, terrestrial ecology surveys);
- Review of available secondary information, including but not limited to:
  - Integrated Biodiversity Assessment Tool (IBAT);
  - BirdLife International <birdlife.org>;

- World Database of Protected Areas <protectedplanet.net>;
- Key Biodiversity Areas <keybiodiversityareas.org>;
- Climate Change Knowledge Portal - World Bank Group <https://climateknowledgeportal.worldbank.org>;
- Office of the United Nations High Commissioner for Human Rights;
- United Nations Development Programme <undp.org>; and
- United Nations Educational, Scientific and Cultural Organization (UNESCO) databases.

- 5 Capitals' experience of conducting ESIAs for renewable energy projects (including solar PV) globally and in Azerbaijan; and
- 5 Capitals' experience of working with lenders to ensure necessary financing requirements are met.

## 1.3 Scoping Exercise Summary

An ESIA Scoping Report was prepared by 5 Capitals and issued April 2024, refer to **Volume 4 – Appendices**. A key objective of the Scoping Report is to determine the scope of the environmental aspects (e.g., air, noise, ecology) that will be included in this ESIA Report.

The following table summarises the scoping exercise outcomes, with regard to the construction and operation of the solar PV array, substation and access road, as well as temporary construction facilities, which will be located within the boundaries of the solar PV array.

With regards to the transmission line and connection to the grid, refer to Section 2.7, which outlines the status of assessment of the line.

**Table 1-1 Scoping Exercise Summary**

| Aspect | Construction / Operation | Scoped | Justification |
|---|---|---|---|
| Air Quality | Construction | In | The construction phase will result in dust generation and gaseous emissions. There are a number of residential receptors within proximity to proposed construction works. |
| | Operation | Out | Although the Project will have back-up generators and require the limited, intermittent use of vehicles for O&M purposes, there will not be significant air emissions during the operation phase and therefore operational air impacts are scoped out. |
| Noise and Vibration | Construction | In | Construction activities will result in noise emissions and there are noise sensitive receptors in the area of influence. |
| | Operation | Out | Operation of the PV facilities will generate no significant noise. Noise impacts from vehicles used for maintenance activities are also not expected to be major sources of noise. Due to this, operational noise is not expected to be |

| Aspect | Construction / Operation | Scoped | Justification |
|---|---|---|---|
| | | | discernible outside the Project boundary. It is not anticipated that the Project will result in any discernible operational vibration impacts.<br>Therefore, operational noise and vibration impacts have been scoped out of further assessment. |
| Geology, Soils, Surface Water and Groundwater | Construction | In | The construction of the Project will require interaction with subsurface conditions, there is surface water evident within the site and in the surrounding areas. |
| | Operation | Out | Potential significant risks during the operational phase are expected to be limited to the storage and management of limited hazardous materials, chemicals, and wastes, Good practice measures for this will be outlined in appropriate management plans and therefore, a detailed operation phase impact assessment is scoped out. |
| Terrestrial Ecology and Avifauna | Construction | In | The construction of the Project will result in habitat loss and potential impacts to species such as direct mortality, lowered reproduction and survivorship, biodiversity displacement. |
| | Operation | In | Although minimal impact is expected in comparison to the construction phase, the project will still result in disturbance to fauna. |
| Landscape and Visual Amenity | Construction | Out | No valuable landscape character features or valued viewpoints towards the site have been identified during site visits and consultations. In addition, no sensitive visual receptors have been identified.<br>Therefore, it has been determined that the Project will not result in significant landscape and visual amenity impacts. The EPC Contractor and the O&M Company will implement good practice mitigation and management measures (such as housekeeping) and any grievances on this topic will be managed on a case-by-case basis. |
| | Operation | | |
| Solid Waste and Wastewater Management | Construction | In | The construction phase will result in the generation of wastes which, if not managed in line with good practice, can result in impacts to waste management infrastructure and receptors such as soil, surface water and groundwater quality, and ecology.<br>The packaging of PV panels can result in the generation of significant amounts of plastics and cardboards which need to be managed accordingly. |
| | Operation | Out | The operation of the Project will generate insignificant amounts of waste, primarily related to domestic wastes arising from the limited operations workforce. |
| | Construction | Out | Due to the fact that specific archaeological finds and cultural features of importance have not |

| Aspect | Construction / Operation | Scoped | Justification |
|---|---|---|---|
| Archaeology and Cultural Heritage | | | been identified in or near the footprint of works, or in the surrounding communities, a detailed assessment of impacts to archaeology and cultural heritage has been scoped out of the ESIA.<br>In addition, the Ministry of Culture conducted a site visit alongside Masdar representatives and confirmed that the site has no risks with regards to archaeology and cultural heritage.<br>Excavation and earthwork activities during construction can result in damage and destruction of undiscovered archaeological artefacts, most likely to occur mainly during the initial stages of construction. Therefore, a Chance Find Procedure will be established into the HSSE-MS. |
| | Operation | Out | During operation the Project will not have any interaction with the subsurface and therefore impacts on buried archaeology are not anticipated. In addition, the Project will not negatively impact upon any known cultural heritage sites or intangible cultural heritage. |
| Socioeconomics (including land and livelihood impacts) | Construction | In | There is the potential for traffic and transportation impacts to local communities.<br>There are potential negative socioeconomic impacts linked with worker influx, in addition to potential positive impacts with regards to employment opportunities and dissemination of skills. |
| | Operation | In | The operation of the Project will lead to potential socioeconomic benefits such as provision of employment opportunities, dissemination of skills etc. |
| Community Health, Safety & Security[1] | Construction | In | Potential impacts relate to worker influx which can result in community disgruntlement, health risks, gender-based violence and harassment, sexual exploitation, abuse and harassment. Impacts also arise from construction works, movement of construction vehicles and plant, and emergency situations. |
| | Operation | In | The potential Community, Health, Safety and Security impacts arising in the construction phase are also relevant during the operation phase, although considered to be less significant. |
| Labour & Working Conditions | Construction | In | The Project will require a dedicated construction and operation workforce and there are therefore risks with regards to occupational health and safety, potential asbestos risks from existing structure on the site, forced and child labour, supply chain risks, gender risks, lack of worker |
| | Operation | | |

[1] Impacts such as child labour, forced labour, freedom of movement, security, gender impacts etc. are incorporated into both the Community Health, Safety & Security and Labour & Working Conditions chapters, a standalone Human Rights Impact Assessment has not been prepared.

| Aspect | Construction / Operation | Scoped | Justification |
|---|---|---|---|
| | | | representation and provision of inadequate accommodation facilities. |
| Climate Affairs | Construction | In | A standalone Climate Change Risk Assessment is appended to this ESIA (Appendix B). |
| | Operation | | |

## 1.4 Objectives of the ESIA Report

The primary objectives of the ESIA are as follows:

- Provide an overview of the Project design and construction and operational processes and requirements;
- Identification of sensitive receptors in the Project's areas of influence;
- Review of the regulatory and legislative framework, including national laws, applicable international regulations and standards, and international lender requirements;
- Assessment of the existing environmental and social baseline conditions prior to the development of the Project through a review of available existing data and the undertaking of environmental baseline surveys;
- Assessment of the Project's environmental and social impacts for the construction, operational, decommissioning, and post closure activities such as rehabilitation and restoration;
- Assessment of the Project's alternatives, specifically the no project alternative and project technology;
- Determination of applicable mitigation and management measures to be implemented in order to avoid or minimise potential adverse impacts and enhance beneficial impacts;
- Preparation of a framework for which the construction and operational phase management systems and plans can be developed and implemented.

## 1.5 Structure of the ESIA Report

To align the ESIA with the requirements for environmental and social assessment established by the various lenders and good practice, the ESIA report is proposed to be presented in the following format developed by 5 Capitals:

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

**Volume 1** is the Non-Technical Summary (NTS) of the ESIA, including the main outcomes, and conclusions.

**Volume 2** (this document) comprises the main text of the ESIA and full impact assessment, with mitigation, management and monitoring measures identified.

**Volume 3** provides the Framework for Environmental and Social Management.

**Volume 4** comprises all technical appendices relevant to the studies and ESIA, as below:

- **Appendix A**: Environmental and Social Scoping Report
- **Appendix B**: Climate Change Risk Assessment
- **Appendix C**: Critical Habitat Assessment
- **Appendix D:** Ecology Baseline Surveys
- **Appendix E:** Air, Noise, Soils and Groundwater Analysis Report
- **Appendix F:** Resettlement Action Plan

# 2 PROJECT INFORMATION

## 2.1 Project Context

The Ministry of Energy of the Republic of Azerbaijan and Masdar signed an Implementation agreement relating to the assessment, development, and implementation of a 4 $GW_{ac}$ pipeline of solar PV and onshore wind projects in the Republic of Azerbaijan starting with 2 $GW_{ac}$ as the first phase. On the 26th of October 2023, Masdar and the Ministry of Energy entered into an investment agreement for the Project.

Masdar are currently developing three greenfield projects consisting of two solar PV power plants and one onshore wind power plant, with an aggregate capacity of 1000 $MW_{ac}$. Details of the three projects are shown in the following table.

**Table 2-1 Initial Project Details**

| | BILASUVAR PV | BANKA PV | GOBUSTAN SOUTH WIND FARM |
|---|---|---|---|
| Location | Bilasuvar | Banka, Neftchala Region | Gobustan South |
| Capacity ($MW_{ac}$) | 445 | 315 | 240 |
| Area (ha) | 1,454 | 973 | Construction: 105<br>Operation: 63 |

The Bilasuvar Solar PV Plant is one of three projects making up the first phase and is the focus of this report.

## 2.2 Key Project Information

**Table 2-2 Key Project Information**

| | |
|---|---|
| PROJECT TITLE | Bilasuvar 445 $MW_{ac}$ Solar PV Project |
| PROJECT DEVELOPER | Masdar and SOCAR Green LLC |
| EPC CONTRACTOR | North West Electric Power Design Institute, part of China Energy Group |
| O&M COMPANY | Masdar Specialised Technical Services (MSTS) |
| MASDAR REPRESENTATIVE | Murad Sadikhov<br>Abu Dhabi Future Energy Company PJSC – Masdar<br>Baku, Azerbaijan |
| SOCAR REPRESENTATIVES | Elmir Musayev and Alish Lemberanskiy<br>SOCAR Green LLC<br>Baku, Azerbaijan |
| ESIA CONSULTANT | 5 Capitals Environmental and Management Consulting (5 Capitals)<br>PO Box 119899, Dubai, UAE |

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## 2.3 Project Location

The Project is located in Bilasuvar district of Shirvan-Salyan region, Azerbaijan, approximately 140 km south of Baku.

The administrative centre of Bilasuvar and the main residential settlements of district are located 11 km from the Project area, while the nearest settlements: Shorsulu, Dayikend and Sarvan communities are located to the north-east of the Project site at a distance of approximately 7 km. Adjacent to the Project, on its western boundary and separated by a canal, and in some locations a road, is the Lake Mahmudchala Important Bird Area.

Figure 2-1 depicts the location of the Project in Azerbaijan and Figure 2-2 depicts the regional location of the Project.

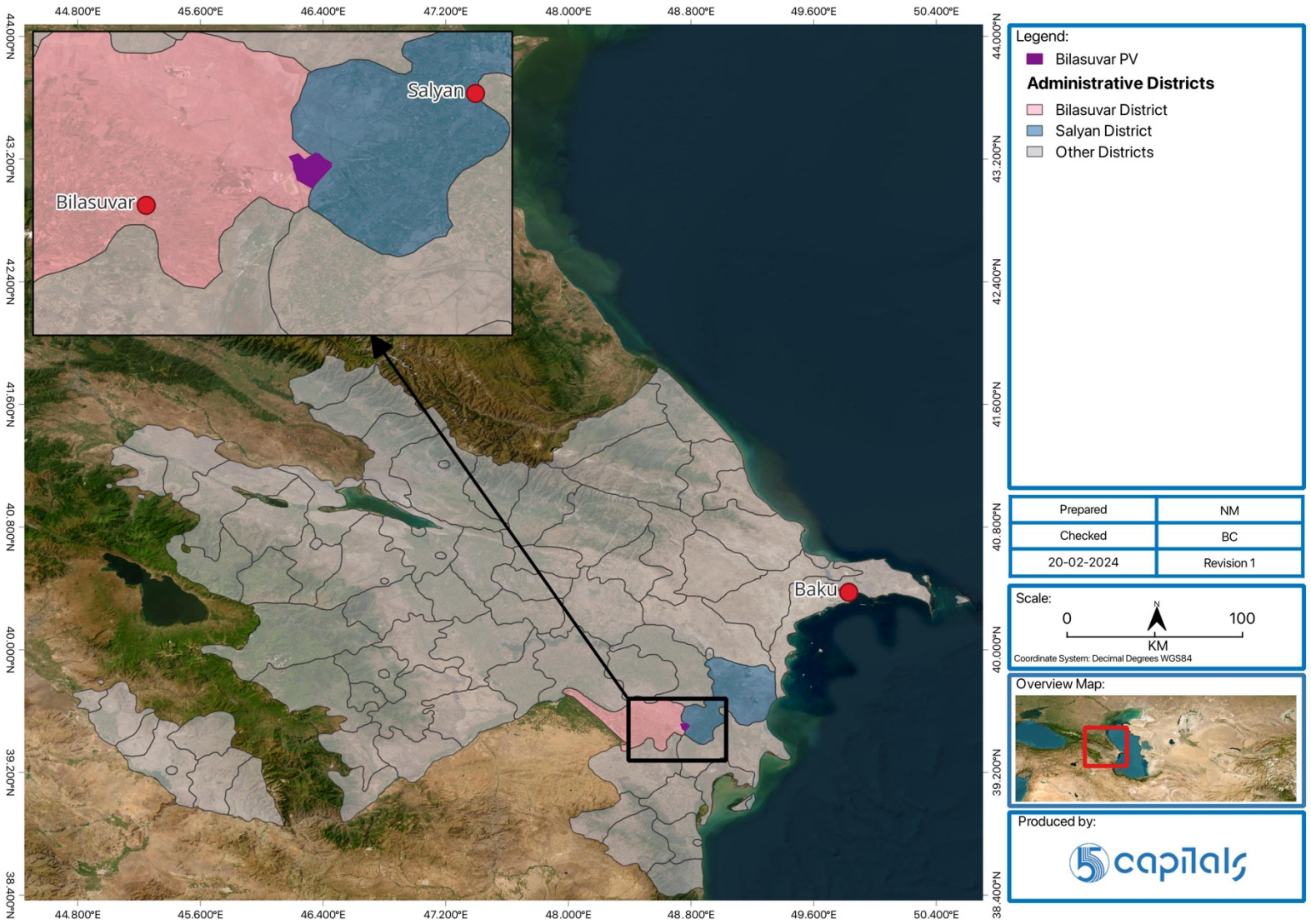


**Figure 2-1 National Project Context**

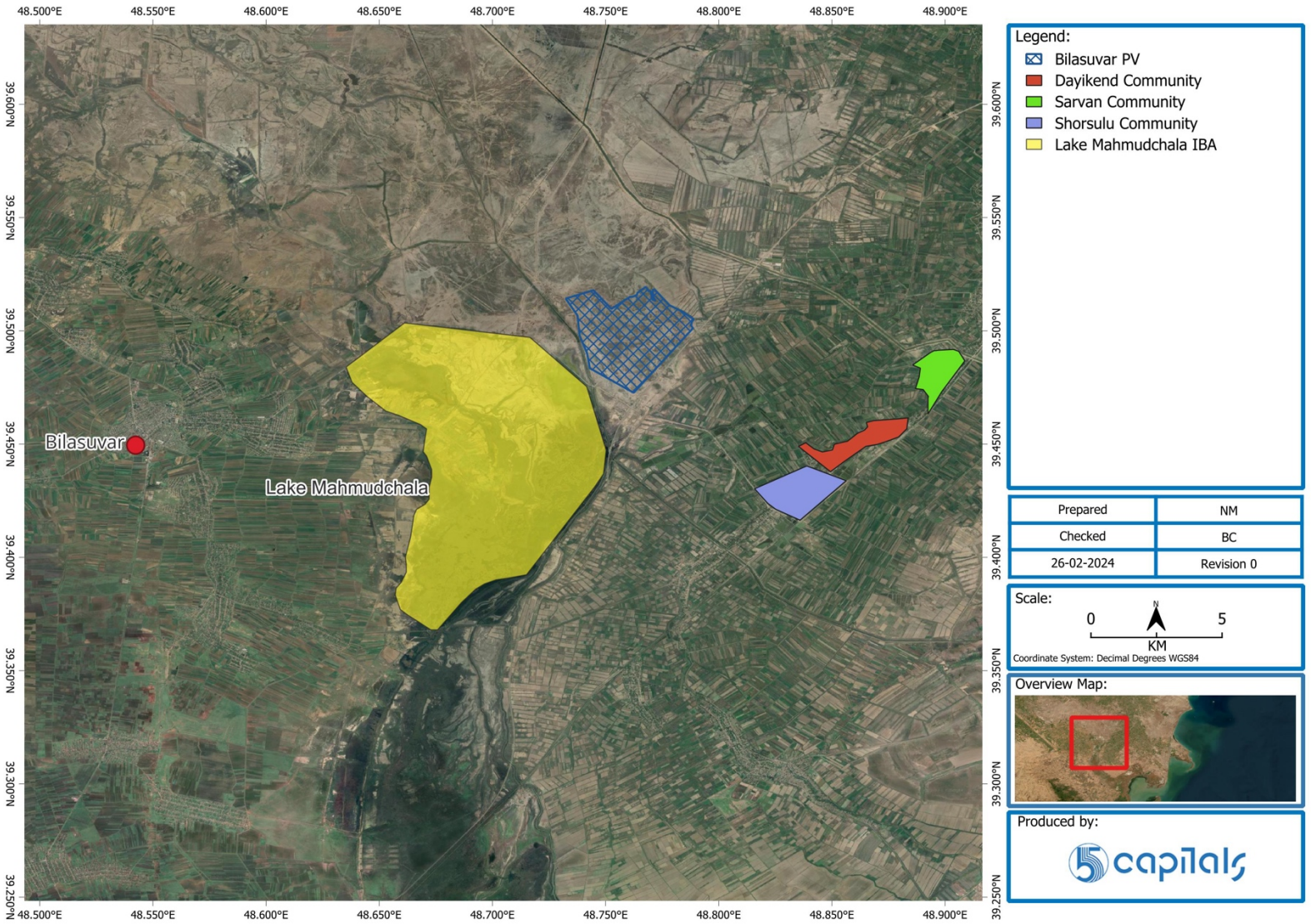


**Figure 2-2 Local Project Context**

## 2.4 Land Ownership, Use, and Site Condition

### Land Ownership

The land within the project site consists of one plot of 1,454 ha of agricultural land that is owned by Bilasuvar Executive Power. The Executive Power will transfer this land to the Ministry of Energy (MoE) in Azerbaijan to allow for the development of the Project. This is in line with the Cabinet of Ministers of the Republic of Azerbaijan Decision No. 212 dated April 16, 2024, which designated the land (1,454 ha) to the Bilasuvar Solar PV project. The allocated agricultural land will be designated as 'Renewable Energy Land Category' under the possession of the MoE.

### Land Use and Site Conditions

The land allocated for the proposed Project is a homogenous semi-desert area with low level shrub vegetation used for winter grazing purposes.

There are eight informal settlements within the project boundaries, six of which are used by the herders during their winter period on site while one is used as a permanent residence, and one is unused.

Based on the outcome of the ESIA and Resettlement Action Plan (RAP) consultations, the following type of land users have been identified on the site:

- One formal land user;
- Ten informal land users without legal lease agreements. This includes nine herders and one worker who also owns livestock.
    - Family members of these land users also support them in undertaking herding activities. It is noted that none of these family members receive a salary, and they support the grazing activities as this is their main source of household income.
- Two informal workers (one of which is also an informal land user as, instead of earning a salary, he is allowed to graze his own livestock and that of his brother. The other worker is salaried).

For further details please refer to the RAP.

Images from the site are shown in the following figures.

**Figure 2-3 General Site Conditions and Existing Structures**

The following below shows the locations of the eight settlements.

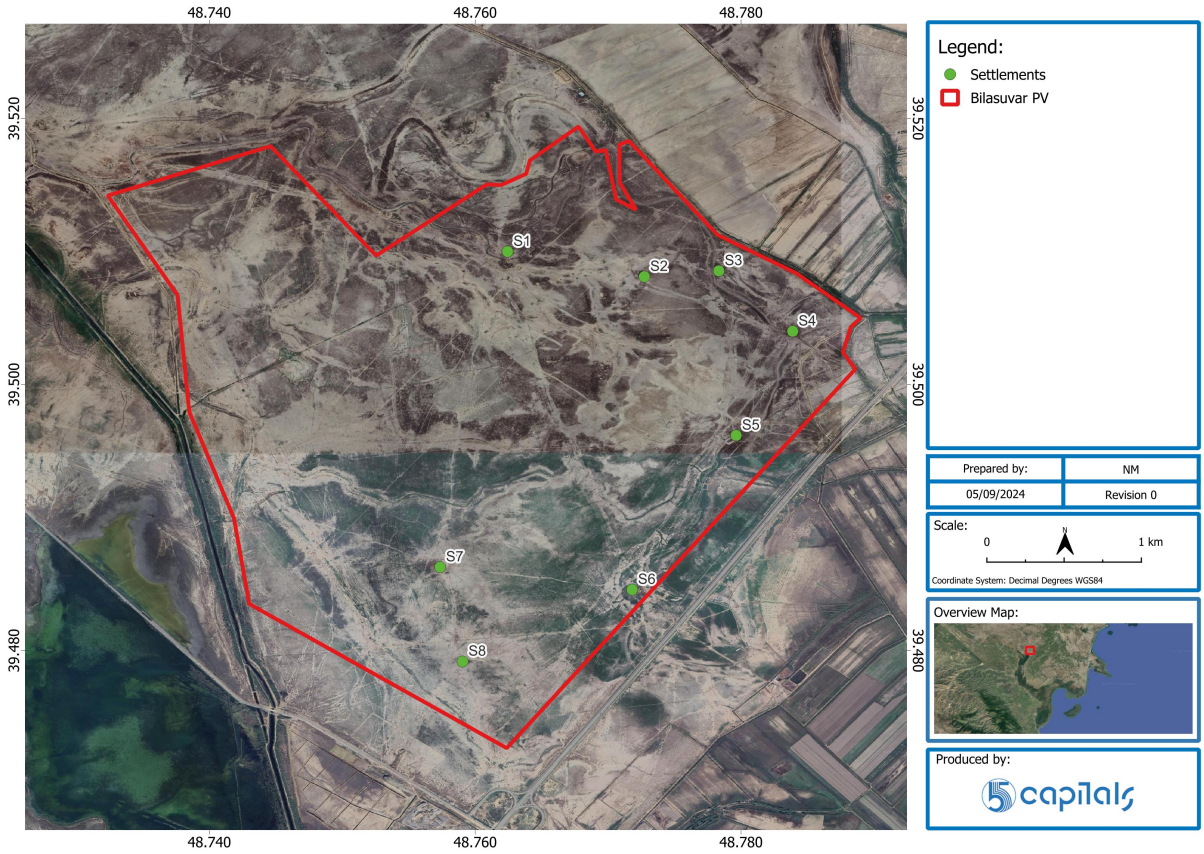


**Figure 2-4 Eight Settlement Locations**

### 2.4.1 Site Surroundings

The surrounding areas of the Project are mainly characterised by agricultural fields. There is the Mughan Salyan canal to the north of the Project (approximately 3.2 km from the site). Immediately adjacent to the Project is the Mahmudcala nature reserve (approximately 500 m), a large lake habitat, known for its avifauna and related hunting. Ongoing construction activities (not related to the Project), including a crusher plant, were observed to the south of the Project during the August 2023 and August 2024 site visits.

Furthermore, the surrounding areas of Project site are used for grazing and leased to individuals by Bilasuvar Executive Power. There are five (5) structures are in proximity of Project boundaries (refer to Figure 2-5). Outside-structure (OS 2) on the northern site of Project belongs to herder whose 110 ha of land was allocated to the Project. Neighbouring structure (OS 5) is located within Salyan district land. The remaining three structures (OS 1, OS 3 and OS 4) outside the north-western boundary of Project are used by herders who graze livestock on adjacent land plots.

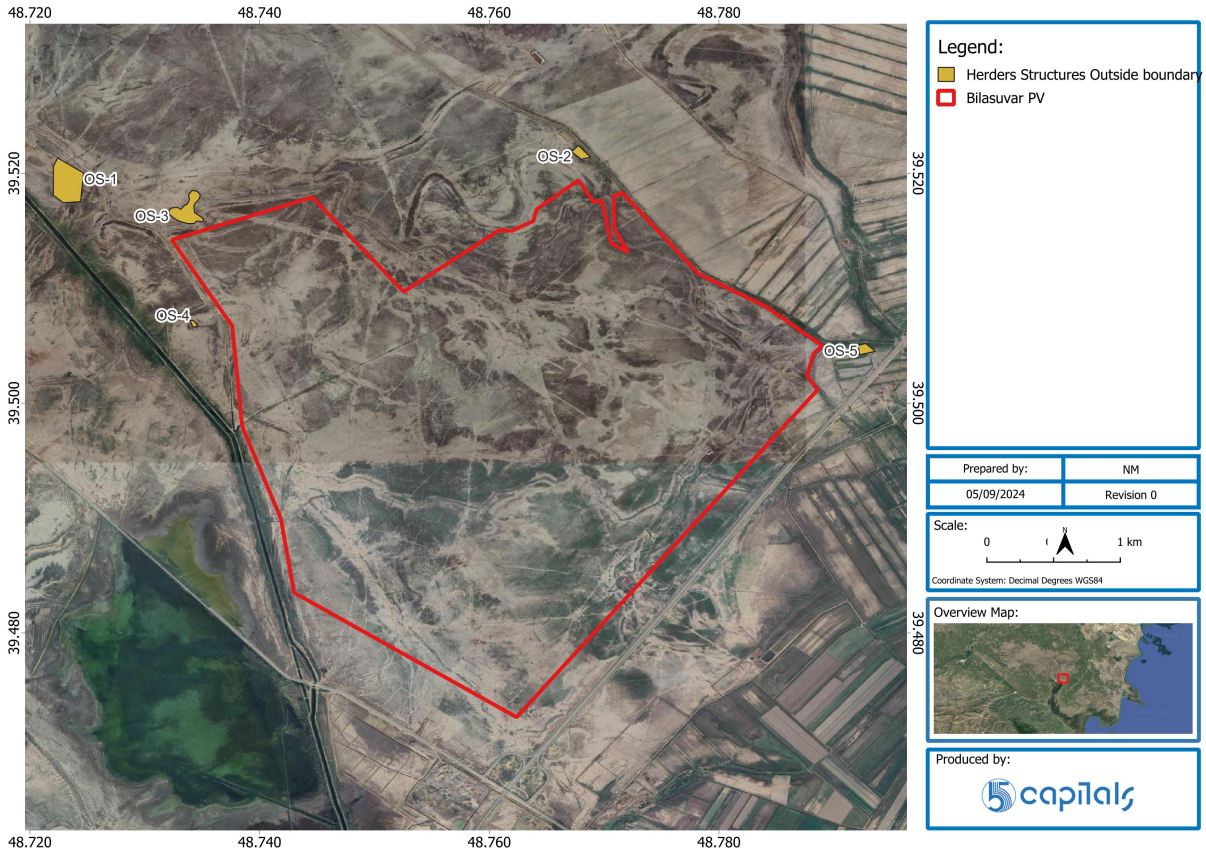


**Figure 2-5 Structures Outside of the Project Area**

Consultations with herders using structures outside the project area revealed that their leased land does not overlap with the project boundaries. Additionally, these herders do not graze their livestock within the project area, as their leased land adequately meets their grazing needs.

Studies conducted as part of the ESIA and RAP revealed that the project lands are not used by other seasonal or informal land users from local communities, mainly due to the site's relative isolation.

At the time of writing, the M-3 highway to the south of the Project, which connects Salyan to Bilasuvar, is being expanded from two lanes to four lanes, this is planned to be completed prior to COP29 in November.

## 2.5 Potential Human Receptors

The potential direct human receptors to impacts arising from the Project are considered to be the herders who utilise the Project land and the adjacent lands, as shown on the previous figure.

Those utilising the site are considered as receptors to socioeconomic impacts (and are assessed within the socioeconomic chapter of this Report and the RAP), however, are not considered as sensitive receptors to other impacts such as noise and air impacts. Those on lands surrounding the site will remain and are therefore considered as sensitive receptors to project related impacts (e.g., air, noise, traffic etc.).

Herders have been consulted throughout the ESIA process and this is documented in both the SEP and RAP.

## 2.6 Project Description

**OVERVIEW**

The project is a 445 $MW_{ac}$ Solar PV Plant utilising N-type bi-facial PV modules. The PV modules will be installed on east-west tracking (single axis) ground mounted racks arranged to ensure the most efficient alignment for the capture of solar radiation. Mounting structures will be established within shallow foundations set into the underlying soils, an overview of project details is provided within the following table.

**Table 2-3 Project Details**

| PARAMETER | DETAILS |
|---|---|
| DC Capacity | Approximately 580 MWp |
| Module Type | N-type Bifacial Module |
| Inverter Type | String or Modular Inverter |
| Mounting Structure Type | Single Axis, E-W tracking.<br>Tracking range -55° to +55° or better |
| Maximum AC Export Capacity at Point of Connection | 445 MW |
| Ground Coverage Ratio | 20% – 30% |
| Interconnection Voltage | 330 kV |
| Grid Compliance | According to Azerbaijan Grid Code |
| Project Design Lifetime | 30 years |

**PROJECT COMPONENTS**

The Project will have following main components:

- PV Modules
- Inverters
- Mounting Structures
- LV/MV Transformers
- PV Plant substation including Power Transformer and Switchgears
- Civil Infrastructure (Roads, Fences, drainage as required, etc.)
- Other balance of plant such as cables, protection, SCADA system etc.

PV Modules

The PV modules in which the photovoltaic effect occurs to generate electricity from solar energy via PV cells are the basic unit of a PV system. Multiple PV cells are interconnected electrically to create a matrix to reach an optimum output power level.

The PV module considered for the plant will be bifacial monocrystalline modules. Being bifacial enables the electrical yield to be increased by catching the light on both sides of a PV substrate, where the front cover captures incident sunlight while the back absorbs both reflected and diffuse sunlight, as shown in the following figure The double glass is convenient for harsh environments such as high temperatures, high humidity, and high UV conditions. The extra layer of glass on the backside is an additional advantage, as it increases mechanical stability and reduces the potential of microcracks forming during installation and operation.

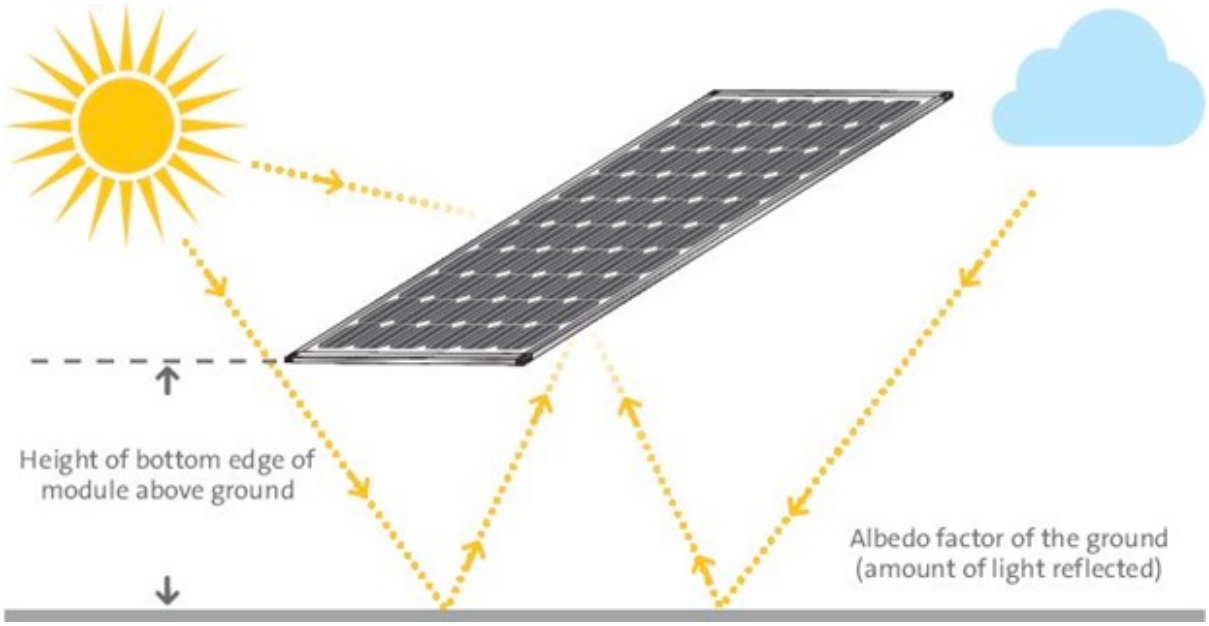


**Figure 2-6 Bifacial Technology**

Inverters

The inverter converts the direct current (DC) current from the PV modules to alternative current (AC) suitable for the requirements of utilities and electric system equipment. In the current PV market, central or string inverters are commonly used.

The Project will have both options open in the design and the inverter solution will be finalised during the detailed design phase of the Project.

Mounting Structures

PV modules are mounted on mounting structures. The mounting system is crucial to optimise energy collection and directly depends on the PV modules' orientation towards the sun. The highest energy yields are generated by pointing the modules along the path of the maximum achievable direct radiated power, with the direct radiated part on the module surface being at a maximum when the solar radiation is perpendicular to the PV module's surface.. The variation of the solar irradiation incidence angle is set by:

- latitude of the location
- declination of the sun (seasonal cycle)
- hour of the day (diurnal cycle).

Mounting systems that are currently commonly used in utility scale project are either fixed type or tracking type. The Project will implement, single axis, E-W tracking, with a tracking range of -55° to +55° or better.

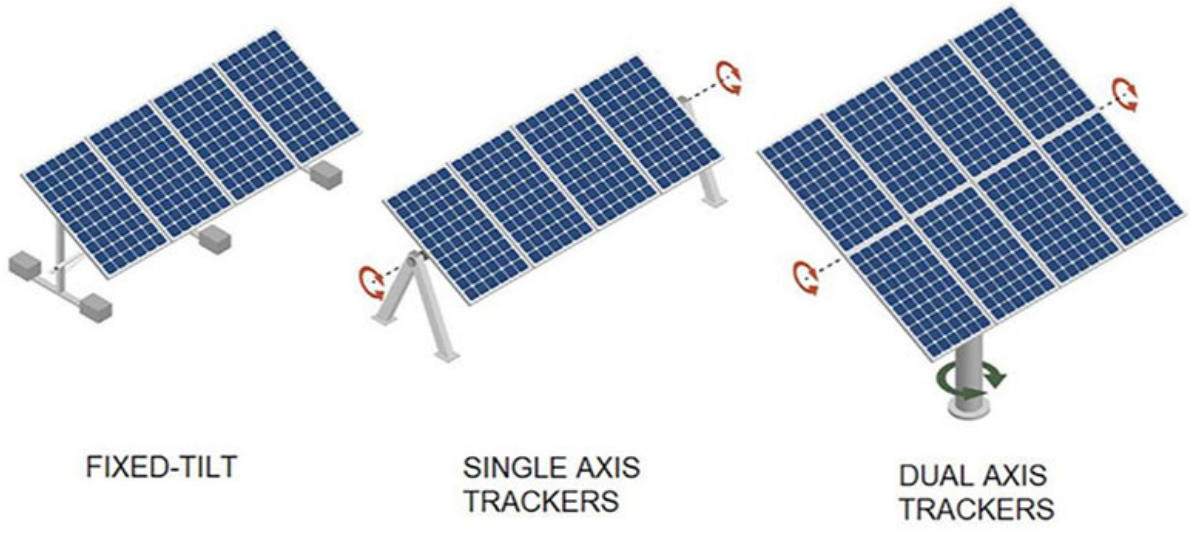


**Figure 2-7 Mounting Structure Types**

LV/MV Transformer

The LV/MV Transformer steps up the AC voltage from Low Voltage to Medium Voltage level. In the PV industry, the LV/MV transformer is often called an Inverter Duty Transformer and they are distributed in the PV field. The Project is foreseen to set up the LV AC from Inverter up to 35 kV MV level.

PV Plant Substation

The Project will have one PV plant substation which includes MV Switchgear, Power Transformer, HV Switchgear, Control and protection system etc. The PV plant substation will be built within the PV plant and 35 kV will be stepped up to 330 kV through a power transformer.

**BALANCE OF PLANT**

The Balance of Plant are the materials, equipment and systems supporting the main components of the plant itself to produce energy. This section provides a brief overview of some Balance of Plant materials, equipment and systems. Connecting powerlines inside the project boundary will be underground.

SCADA Equipment / Room

Supervisory Control and Data Acquisition (SCADA) is a control system enabling operators/users to monitor and control operations of the PV plant and associated systems in real time remotely. The SCADA system in PV allows the performance to be identified as well as equipment failures. The overall PV plant energy output, availability and error signals are recorded and serve as the basis for monitoring the plant status, identifying if corrective maintenance is necessary, or for any warranty calculations and claims. Further, the SCADA system must consider any requirements in the connection agreements as well as grid code requirements for reactive power production, network voltage or frequency control or to limit power output in response to network operator instructions.

Power Plant Controller

The Power Plant Controller is considered to control the plant's active & reactive power with respect to the utility requirements as per grid code. The solar SCADA system takes input from the substation control system and then issues set point control to the Power Plant Controller, which controls the inverter active & reactive power as per requirements.

Weather Stations

The Project will have weather stations installed. Weather stations include sensors to measure solar irradiation, temperature, wind speed, wind direction and other meteorological data. The data of weather stations are used to evaluate the performance of the plant. The exact

number of weather stations and type of sensors to be installed in the project will be decided during later phase of the Project.

Earthing, Protection and Relays

To ensure the safety of the plant during construction and operation, the plants/components are protected with earthing, use of switches/disconnectors/fuses, protection and relays panels.

Other Civil Infrastructure

Other civil infrastructure comprises the drainage system, cable trenches, operation and maintenance building(s), spare parts facilities and storage laydown areas as well as the building housing the electrical, safety and operational equipment of the substation.

### ACCESS ROAD

The proposed access road into the site will be approximately 600 m in length and it will connect to an existing public highway at the south of the site, and as such, no local access roads or additional land will be impacted because of the project (access road).

### INDICATIVE LAYOUT

The indicative layout of the Project is shown on the following figure. As is evident the layout has the following details:

- An access road of 6 m width located to the south of the Project layout;
- A significant portion of the site is to be left undeveloped, the final boundaries of the undeveloped land will be confirmed during detailed design; and
- Substation at the west of the site.

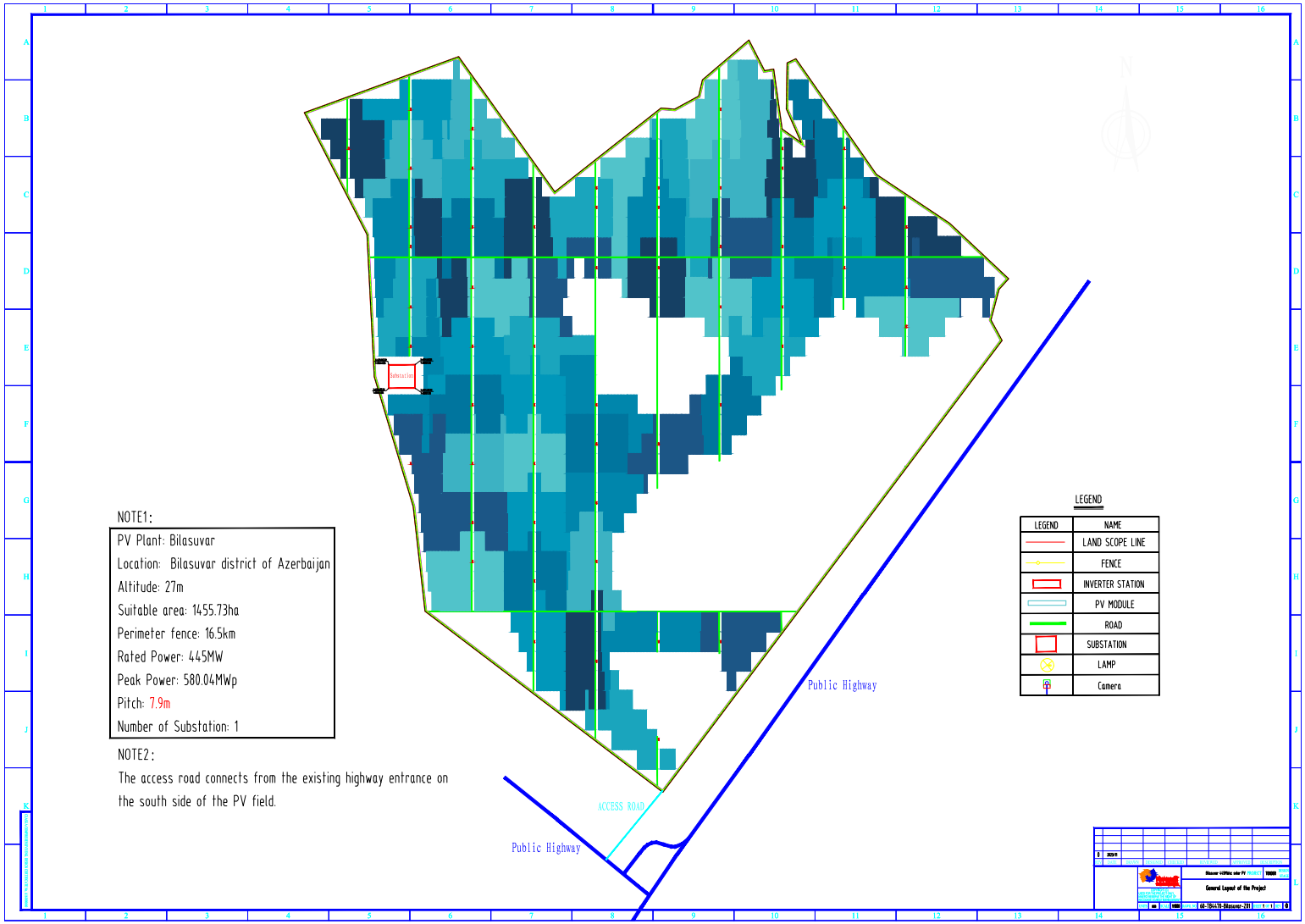


**Figure 2-8 Indicative Project Layout**

## 2.7 Grid Connection

### 2.7.1 Overview, Responsibility and Status of Assessment

The connection to the grid will be via a 90 km 330 kV double circuit line to the Navahi substation (Figure 2-9) which is considered as an associated facility to the Project[2]. The line heads north and passes to the northwest of the Shirvan National Park.

Enhancement of the grid network, including the construction and operation of the transmission lines, construction and enhancement of substations, investments in SCADA upgrades, control systems, and battery energy storage, are being jointly financed by the World Bank and by the Government of Azerbaijan, with the entities funding different assets. The World Bank refer to the Project as Azerbaijan Scaling-Up Renewable Energy Project (AZURE) and the Appraisal Environmental and Social Summary[3] and Environmental and Social Commitment Plan[4] were published in late August 2024. The plan is for the transmission lines for Banka Solar PV and Bilasuvar Solar PV be operational by April 2026.

Although the Government of Azerbaijan is developing the transmission line which connects the Project to the Navahi substation, the commitment plan and associated mitigation measures and monitoring will be agreed with the World Bank and will be required to follow World Bank's Environmental and Social Standards. The World Bank are therefore still overseeing any gaps in the building and design of transmission line and ensuring alignment with their requirements.

Both Azerenerji and the World Bank have engaged environmental and social consultants to undertake ESIAs for their respective parts of the grid enhancement. The ESIA conducted on behalf of Azerenerji, which covers the 330 kV transmission line which will connect the Project to the Navahi substation, is being prepared by Azerbaijan Scientific-Research and Design-Prospecting Energy Institute (The Scoping Report Is dated August 2024).

World Bank financing will also cover energy grid strengthening and system performance improvement, as well as supporting project implementation and capacity building. Construction works financed by the Government of Azerbaijan and the World Bank will be

[2] With reference to ADB SPS (2009) definition "*associated facilities that are not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project*"

[3] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099082824173027860/p50520815b0cda0961a0bb17294c1dff0e0

[4] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099082824173040751/p5052081e30efe091b02b159a8759b9abc

carried out in parallel, while priority will be given to the early completion of the 330 kV transmission lines.

A meeting was conducted with Ministry of Energy, the consultants preparing the ESIA on behalf of Azerenerji, the potential lenders for the Project, and the lenders' environmental and social advisor, on the 9th August 2024. In this meeting, the consultants preparing the ESIA on behalf of Azerenerji outlined the status of the ESIA, what studies had been included as part of this ESIA, and the next steps. The ESIA was planned to be issued to the MENR in September 2024.

### 2.7.2 Key Risks

From review of the line route and the available project information, the key risks associated with the development of the line include:

- Potential for avifauna collision, particularly due to the proximity to the 'Lake Mahmudchala' Important Bird Area and the Shirvan National Park, an IUCN category II Legally Protected Area. These sites may represent Critical Habitat because they contain significant seasonal populations of Little Bustard, Glossy Ibis, Red-crested Pochard, Dalmatian Pelican, Pygmy Cormorant, Great Cormorant, and Caspian Gull, among others. Azerenerji's Scoping Report refers to the implementation of bird flight diverters in some locations to make the lines more visible and reduce collision risks. Refer to Section 9.4.2.3 for further information.
- Land acquisition, where the transmission line route will require land which is currently being utilised. The Scoping Report states that '*all land acquisition, either permanent or temporary will be done in compliance with the relevant Azerbaijan legislation and international requirements (WB ESS 5)*'. In addition, following the meeting on the 9th August 2024, a list of Project Affected Persons (PAPs) has been received.

Other impacts which have been screened include:

- Cumulative air and noise construction phase impacts;
- Landscape and visual (including cumulative impacts);
- Archaeology and cultural heritage; and
- Electromagnetic field (EMF) impacts and electrocution/fire risk.

These impacts are discussed in the relevant chapters of this Report.

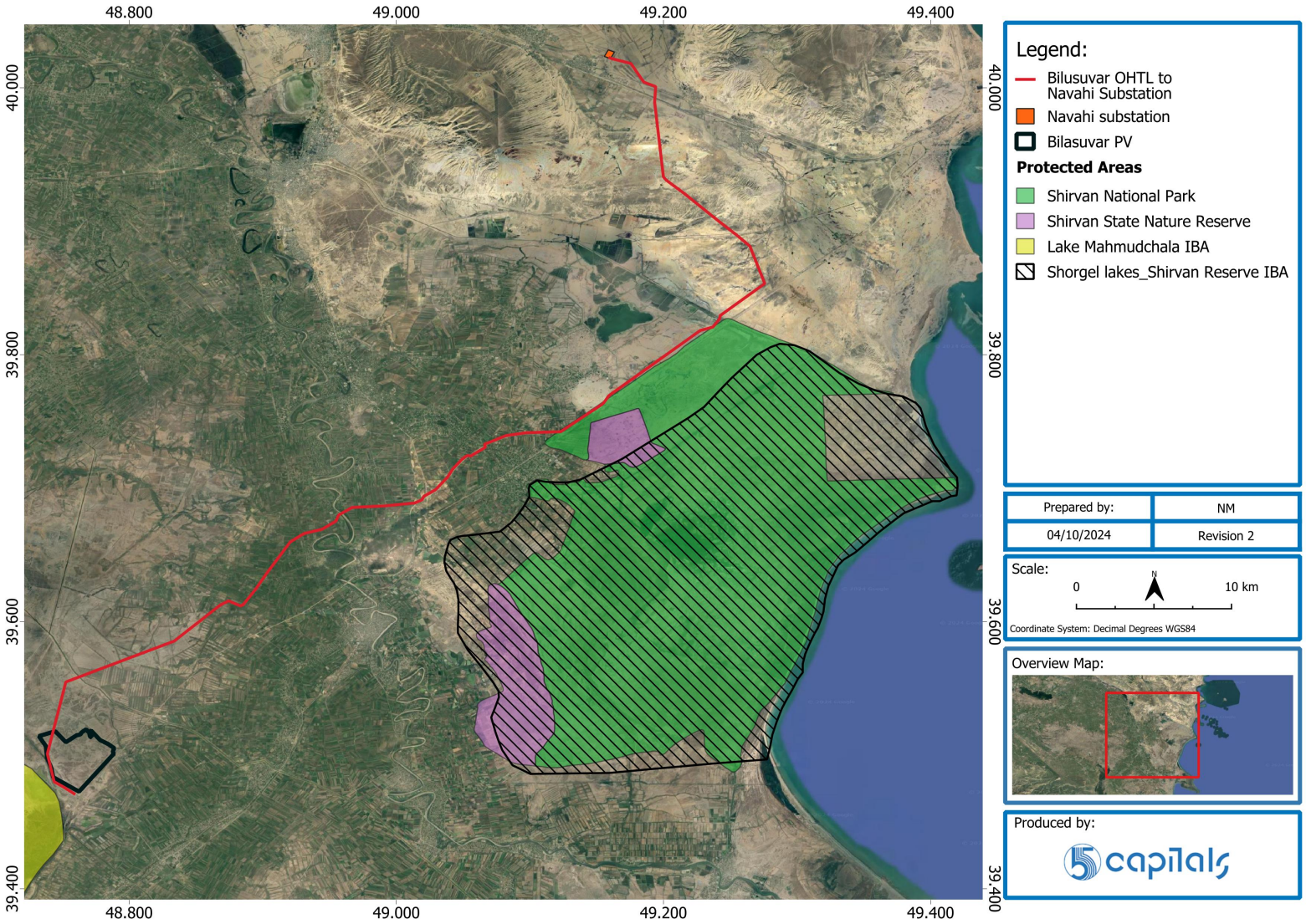


**Figure 2-9 Transmission Line Connecting the Project to Navahi Substation**

## 2.8 Construction

At the time of writing, details with regards to construction activities have not been drafted and therefore the following has been prepared based on the expected activities anticipated by Masdar, and experience on solar projects worldwide and other renewable projects in Azerbaijan.

### 2.8.1 Construction Activities

Key construction activities include:

- Site preparation including fencing, clearing, levelling and grading;
- Establishment of access roads to the site;
- Installation of mechanical and electrical infrastructure for PV trackers, modules, and related equipment;
- Construction or compaction of internal roads on-site and other infrastructure including walkways & parking areas;
- Construction of storage facilities for equipment and materials, and construction of laydown area;
- Construction of general buildings, such as administrative building, sanitary rooms, workshops, electrical buildings, auxiliary buildings, and structures, etc.;
- Erection of security fencing;
- Excavation of cable trenches; and
- Construction of mechanical & electrical buildings including the SCADA building.

### 2.8.2 Temporary Construction Facilities

#### TEMPORARY LAYDOWN AREAS AND OTHER FACILITIES

Temporary laydown areas will be required in the construction phase for the storage of materials and equipment by EPC Contractor and their sub-contractors. In addition, construction offices, toilets, prayer rooms and car parking areas will be required.

The temporary construction facilities will be built within the site boundaries, on the southern portion of the site, close the access road, as shown in the indicative project layout.

#### WORKERS ACCOMMODATION

Accommodation may include temporary accommodation built onsite or rental of offsite facilities. At the time of writing, the details of worker accommodation have not been finalised. The local communities will be consulted with regards to the accommodation location.

The accommodation will be required to align with IFC & EBRD Workers' Accommodation: Processes and Standards (2009).

### 2.8.3 Construction Workforce

As an initial estimation, and based on experience on similar projects, the typical workforce during the peak construction period is estimated to be 700 – 1,500 workers for a solar PV plant of this size. The manpower power required for the construction will be determined by the assigned EPC Contractor.

During the early stages of construction, the worker numbers will be low (under 200) but will rise quickly from the time when the civils work begins. After the peak level has been reached, the workforce will gradually be reduced leading up to the start of operations.

The workforce will comprise a mix of highly qualified specialists, technicians and low-skilled personnel. Low-skilled construction workers will receive job-appropriate training before starting work on the Project. This includes basic training on health, safety and environment (HSE), labour management and, where required for specific job profiles, vocational training.

The low-skilled staff workforce will be encouraged to be sourced locally, and the skilled workforce will be first aimed to be resourced locally, then nationally, then internationally.

### 2.8.4 Equipment and Machinery

The following equipment and machinery are likely to be used to construct the Project:

- Excavators
- Graders
- Vibratory rollers
- Loaders
- Hydraulic driving machines
- Cranes and telescoping handlers; and
- Heavy goods vehicles and light good vehicles.

### 2.8.5 Transportation of Solar PV Components to the Project Site

Masdar is in the process of selecting an EPC Contractor and the EPC Contractor will be responsible for organising the transportation and delivery of the solar PV components to the Project site.

It is expected that both land and water transport will be considered.

### 2.8.6 Utilities

**WATER**

During construction, the Project will require portable water supply for the construction workforce, facilities and activities. A licensed potable water supply company will supply the water required to cover the water demand of the Project to the site via water tanker trunks.

With regards to potable water, the IFC EBRD workers' accommodation guidance (2009) states that (dependant on weather conditions and accommodation standards), 80 to 180 litres of water per person per day should be made available, and the quality must meet national / local or WHO drinking water standards.

The anticipated maximum work force is around 1,000 at its peak and, with an average of 130 litres per person per day. At its peak workforce during construction there would be 130,000 litres/day required to cover the needs of the workforce (or 130 $m^3$ per day).

**POWER**

Power during the construction phase will be provided by diesel generators, with underground cables.

**CONCRETE AND CEMENT**

Based on Masdar's Area 60 Solar PV project, which is located approximately 60 km north of the Project, it is expected that two potential cement manufacturers will be utilised during the construction phase, NORM Cement and Holcim Cement. Concrete producers may include SPARK Beton, Azkontakt Beton and Azital. All of these companies are capable of producing traditional and special types of the concretes required by large scale projects in the country.

Settlement ponds may be required to clean mixers after concrete delivery. The number and location of these will be defined following appointment of the EPC Contractor. Mitigation measures and monitoring to ensure containment of cleaning water contaminated with concrete at settlement ponds will be included in the Hazardous Materials and Waste Management Plan.

### 2.8.7 Waste and Wastewater

**WASTE**

Wastes will be generated throughout the construction period. Waste streams will include excavation wastes, packaging wastes, domestic waste from construction workforce etc.

Wastes will be segregated and stored onsite before being collected when required by a licensed waste management contractor to a licensed waste management facility. Refer to Chapter 11 for further details regarding waste streams and management.

#### WASTEWATER

Wastewater will be collected in septic tanks at site and removed periodically, when required, by a licensed wastewater contractor to a licensed wastewater management facility.

## 2.9 Operation and Maintenance

### 2.9.1 General Operation and Maintenance

During the operational phase, maintenance will be conducted to ensure efficiency in energy production. Maintenance activities will include cleaning of panels, maintenance of electrical components and control equipment. The routine cleaning of the PV modules is to be conducted automatically by a dry-cleaning robot (i.e., brushes installed on tracks along the rows of the modules) without the use of water in order to make the cleaning process more resource efficient (i.e., avoiding water use) and economically sound.

### 2.9.2 Workforce

The number of people that are to be employed during operation is expected to be up to 50, of which 90% are expected to be from Azerbaijan.

### 2.9.3 Utilities

#### WATER

Water tanker trucks will transport water from outside the solar PV field to water storage tanks within the Project boundary to cover the water demand of the Project, as well as raw water for domestic use, firefighting water demand, and other non-potable water uses if required. It is noted that the water requirements during the operation phase are negligible in comparison to the construction phase. Water will not be used for routine panel cleaning.

#### POWER

Power during the operation phase will be supplied by connection to the national grid and use of Project-generated electricity.

Powerlines within the Project will be underground.

#### EMERGENCY POWER

The Project will include an emergency diesel generator for use during black-out situations.

## 2.10 Decommissioning

As per the PPA, the plant is to be operational for 30 years. Following the 30 years, the Ministry of Energy can decide whether to continue, upgrade or decommission the plant; this is outside the scope of this study and to be decided at that time.

Upgrading the PV power plant will entail either replacing old PV modules with new ones, augmenting the total peak power of the plant, or enhancing the plant by incorporating new elements.

In the event of decommissioning, the site will be restored close to its original condition, with a Decommissioning and Site Restoration Plan devised prior to this phase, by the Project Company. This Plan will be required to be finalised and approved prior to the Project Company exiting from the Project.

The components of a PV plant possess value for either reuse or recycling. Hazardous wastes will be disposed of in compliance with the environmental guidelines mandated by Azerbaijan, while non-hazardous materials such as waste metals or plastics will be transported to designated recycling facilities, if available.

## 2.11 Project Milestones

**Table 2-4 Project Milestones**

| Milestone | Scheduled Date |
|---|---|
| PPA Signature | June 2024 |
| Mobilisation | Quarter 1, 2025 |
| Main Construction Works Commencement | Quarter 2, 2025 |
| Commercial Operation Date | January 2027 |


| Milestone | Scheduled Date |
|---|---|
| PPA Signature | June 2024 |
| Mobilisation | Quarter 1, 2025 |
| Main Construction Works Commencement | Quarter 2, 2025 |
| Commercial Operation Date | January 2027 |

## 2.12 Project Alternatives

### 2.12.1 No Project Alternative

The No Project Alternative would place a greater reliance on generating power from fossil fuel sources, and would not be in line with achieving Azerbaijan's 2025 vision for the inclusion of renewable energy electricity within its generation mix, with Azerbaijan hosting the COP29 in November 2024. On the COP29 website[5], is states that "*Azerbaijan is committed to developing its renewable energy potential, which is an important part of the country's plan to reduce greenhouse gas emissions by 40% by 2050. The country intends to increase renewable power capacity to 30% by 2030 and diversify its existing energy system to become a leader in green energy.*"

The website further states that, due to Azerbaijan's favourable climate, there is the potential for up to 23 GW of solar and outlines that the 230 MW Garadagh Solar PV Plant was inaugurated. The Bilasuvar 445 MW Project is therefore an important Project in Azerbaijan realising its solar potential.

### 2.12.2 Alternative Location

Masdar and the Ministry of Energy entered into an investment agreement for the Project in October 2023, the Ministry provided the site, ensuring alignment with their own national and local development plans, as an option to Masdar. Following provision of the site information, Masdar conduct their surveys and studies to determine feasibility and have the right to refuse the site. The Bilasuvar Project is being developed by Masdar and SOCAR Green LLC alongside two other renewable projects (the Banka PV and Gobustan South WF). Therefore, no alternative locations have been considered by Masdar.

### 2.12.3 Alternative Technology

In terms of technology, the conditions of the site are optimal for solar PV and unfavourable for other renewable technologies. The site does not possess sufficient wind resource and is not characterised by hydro or geothermal potential, the solar technology option is therefore the most suitable for the site.

With regards to other solar technologies, such as Concentrated Solar Power (CSP), solar PV is deemed to be favourable due to technical and construction difficulties, as well as cost. One benefit of CSP, is the potential to store energy during the night, due to the fact that solar energy is first used to heat the molten salt or synthetic oil which is stored providing thermal/heat

[5] https://cop29.az/en/green-energy-transition-initiatives

energy at high temperature in insulated tanks. However, this benefit comes with potential environmental impacts, such as storing, transporting and disposing of the molten salt.

# 3 REGULATORY FRAMEWORK

## 3.1 National Regulations, Guidelines, and Standards

### 3.1.1 The Constitution

The main legislative document that defines the rights, obligations, and provisions for the use of natural resources and environmental protection is the Constitution of the Republic of Azerbaijan, adopted on November 12, 1995 (as amended and supplemented as of July 25, 2016). Relations on water and nature protection are regulated by a package of laws adopted immediately after independence. As stipulated in the Constitution, the legislative framework relating to the environment consists of:

- Parliamentary legislation that establishes the State regulation of strictly protected natural areas, and the protection and use of the environment and biodiversity;
- Presidential Decrees and orders and the resolutions of the Cabinet of Ministers that ensure the implementation of the major provisions of the laws;
- By-laws of the executive authorities (Ministries and Committees) that specify the activities to implement the laws; and
- International Agreements and Conventions to which Azerbaijan is a signatory.

Furthermore, the Constitution stipulates how to determine the applicability of national and international requirements as follows:

- International agreements acceded to by the Republic of Azerbaijan become an integral part of the legislative system of Azerbaijan; and
- If any conflicts arise between the normative-legal acts which constitute the legislative system of Azerbaijan (except for the Constitution and the acts adopted via referendum) and the international agreements acceded to by the Republic of Azerbaijan, the provisions of the international agreements shall apply.

It also stipulates the basic rights of people to live in a healthy environment, to have access to information on the state of the environment, and to obtain compensation for damage suffered as the result of a violation of environmental legislation.

### 3.1.2 The Law "On Environmental Protection" (1999)

The law that governs environmental protection in Azerbaijan is the law on Environmental Protection (EP) of 1999, which identifies the legal, economic, and social bases of environment protection. The legislations on land use and development consists of the Land Code and other legislative acts. Laws that pertain to protection and sustainable use of natural resources include: Law on Plant Protection (1996), Forestry Code (1997), Water Code (1997), Law on Fisheries (1998), Law on Fauna (1999) and Law on Protected Areas (2000). In addition, there

are laws regulating environmental pollutants that are stipulated in environmental protection (1999), atmospheric pollution (2001), pesticides and agrochemicals (1997), industrial and domestic waste (1998) and water supply and wastewater (1999).

## 3.2 Legal and Institutional Framework

### 3.2.1 Azerbaijan Institutional Framework

The following ministries, government agencies and institutions have key responsibilities for managing and monitoring of environmental and social aspects and concerns of the Project:

**MINISTRY OF ECOLOGY AND NATURAL RESOURCES (MENR)**

Ministry of Ecology and Natural Resources (MENR) is the primary institution entrusted with the responsibility of environmental protection and implementation of environmental related laws. The functions and activities of MENR are sub-divided into the following areas: (i) Environmental policy development; (ii) Environmental protection; (iii) Water monitoring and management; (iv) Protection of marine (Caspian Sea) bio- resources; (v) Forest management; and (vi) Bio-resources and protected areas management. This ministry upholds all natural resource protection laws.

The Azerbaijan State Agency for Environmental Expertise (SAE) , under the MENR acts within this agency on the Program level in reviewing EIAs. The activities, fields, and sectors to which SAEE would apply are specified in Article 54: The units controlled by the SAEE, of the EP Law as:

- The State and local programs related to development and placement of productive capacities in governmental and economical institutions;
- The documentation of technical and economical substantiation, construction (reconstruction, enlargement, and renovation technology), and destruction of economical capacities, as well as assessment of the project influence on the environment;
- Documentation concerning creation of new techniques, existing technologies, materials, and substances, as well as the import of these things from abroad;
- Draft of scientific-methodical and normative-technical documentation concerning environment protection;
- Certain ecological conditions caused by improper work of industry and extraordinary situations;
- Ecological conditions of the regions and individual (separate) natural objects and systems; and
- Provisions of draft contracts stipulating use of natural resources, as specified by the relevant decrees of the concerned executive bodies.

### MINISTRY OF ENERGY

The Ministry of Energy of the Republic of Azerbaijan is the central executive authority implementing state policy and regulations in the fuel and energy sectors. In its activities, the ministry is guided by the Constitution of the Republic of Azerbaijan, laws of the Republic of Azerbaijan, decrees and orders of the President of the Republic of Azerbaijan, resolutions and orders of the Cabinet of Ministers of the Republic of Azerbaijan, international treaties to which the Republic of Azerbaijan is a party and the Regulation of the Ministry of Energy of the Republic of Azerbaijan. The fuel and energy sectors consist of activities defined in the field of energy by the Law of the Republic of Azerbaijan 'On Energy'. The Ministry of Energy of the Republic of Azerbaijan was established by Executive Order No. 3 of the President of the Republic of Azerbaijan, dated October 22, 2013.

The Ministry is responsible for the design and implementation of state policy and regulation in the energy sector, mainly concerning natural gas production, transportation, processing, distribution, and supply, and electricity generation, transmission, distribution, and supply, and energy saving and efficiency. Moreover, the Ministry controls relevant state-owned enterprises. The Ministry has a dedicated department that is responsible for increasing the deployment of energy efficiency and renewable energy policies.

### MINISTRY OF EMERGENCY SITUATIONS (MES)

MES is a central executive body responsible for the civil defence and the protection of the population from natural and man-made disasters. They are responsible for the management of natural disasters and industrial accidents, and the implementation of safety rules in construction, mining, and industry. MES (along with MENR and other appropriate Ministries) require prompt notification in the event of an emergency, or accident. They are also involved in the issuance of construction permits.

### MINISTRY OF HEALTH: (SANITARY AND EPIDEMIOLOGY SERVICE SUB-BODY WITHIN AZERBAIJAN ONLY)

Sanitary and hygienic safety is the responsibility of the Ministry of Health. Its main function is the implementation of control over meeting the sanitary and epidemiological rules and standards, and the hygienic standards. This entity implements anti-epidemiological measures throughout Azerbaijan and Nakhchivan Autonomous Republic (NAR) by legal and physical persons through application of laboratory and sampling controls.

### TARIFF (PRICE) COUNCIL

This is the implementing body for energy prices, service fees, and collections across all regulated entities in the economy. The Council is chaired by the Ministry of Economic Development and has 12 members.

#### STATE AGENCY FOR ALTERNATIVE AND RENEWABLE ENERGY SOURCES (AREA)

AREA is the agency driving the development of the country's renewable energy resources and related projects by preparing state policy, legal acts, and regulatory documents, and implementing state policy for the creation and development of renewable energy sources. The status of the agency was altered by Presidential Decree No. 464 of 14 January 2019.

#### AZERBAIJAN ENERGY REGULATORY AGENCY (AERA)

This recently established agency (December 2017) is the Public Legal Entity under the Ministry of Energy in charge of bringing utility services in line with the requirements of the market economy, achieving sustainable development by further improving control mechanisms, maintaining transparency and flexibility in energy supply, and ensuring accessibility of these services for entrepreneurs.

#### MINISTRY OF LABOR AND SOCIAL PROTECTION OF POPULATION

The Ministry of Labor and Social Protection of Population is a governmental agency responsible for the regulation of labor markets and social protection of the people of Azerbaijan.

The State Labour Inspection Service, under the Ministry of Labour and Social Protection of the Population, deals with foreign labour.

#### STATE TOURISM AGENCY OF THE REPUBLIC OF AZERBAIJAN

The State Tourism Agency is the central executive body responsible for implementing the state policy and regulation in the field of protection of historical and cultural monuments located in the territories of the state reserves under its subordination. The State service is the executive body exercising state control on usage of immovable historical and cultural monuments (except for the State Historical-Architecture of "Icheri Sheher" and "Qala" State Historical Ethnographic Reserve) that are under state protection, restoration, reconstruction, and protection.

#### MINISTRY OF CULTURE (STATE SERVICE FOR PROTECTION, DEVELOPMENT AND RESTORATION OF CULTURAL HERITAGE UNDER THE MINISTRY OF THE CULTURE OF THE REPUBLIC OF AZERBAIJAN)

The Ministry of Culture are a governmental agency within the Cabinet of Azerbaijan in charge of regulation of the activities and promotion of Azerbaijani culture.

#### STATE COMMITTEE FOR FAMILY, WOMEN AND CHILDREN AFFAIRS

A national body for gender equality, active in mainstreaming gender into state policies, programs, and laws and in developing information systems for gender-related monitoring.

#### STATE COMMITTEE FOR URBAN PLANNING AND ARCHITECTURE

The State Committee for Urban Planning and Architecture within the Cabinet of Azerbaijan are in charge of implementing the state policy and regulation concerning urban development, spatial planning, architecture, and other related fields of design.

#### THE STATE LAND AND CARTOGRAPHY COMMITTEE (SLCC) OF AZERBAIJAN REPUBLIC

SLCC are responsible for implementing land cadastral, monitoring and reforms, restoration and increasing of land productivity, and setting territorial units in the Azerbaijan Republic. The Department on Land Structure, Land Reform and Work under SLCC is responsible for the coordination of land acquisition and resettlement works with executive agencies.

#### AZERBAIJAN NATIONAL ACADEMY OF SCIENCES, INSTITUTE OF GEOLOGY

These are the main state research organization and the primary body that conducts research and coordinates activities in the fields of science and social sciences in Azerbaijan.

#### DISTRICT / RAYON EXECUTIVE AUTHORITIES AND POWERS

Within the limits of their authority, these executive authorities manage a city (district), adopt acts of regulatory and normative nature, dispose of state-owned lands, and develop and implement programs for socio-economic development in the territories entrusted. The District / Rayon Executive Powers are responsible for the local management of state lands within the Rayons territories, and for the supervision of municipal land management.

#### MUNICIPALITIES

They are a form of local self-governed and non-state groups for organizing the activities of citizens within the territories established by the laws of Azerbaijan. Municipalities, within their powers, design and implement programs for social protection and social development, economic development, and local environmental programs.

#### STATE ENERGY INSTITUTIONS

The following government agencies represent relevant State Energy Institutions

Azerenerji JSC (Electricity generation and transmission)

The largest electrical power producer in the Republic of Azerbaijan and the Caucasus. Azerenerji is in charge of power and heat energy generation as well as power transmission. The total installed generation capacity is over 6.9 GW. Azerenergy JSC was recreated as a state-owned joint stock company in 1996, by decree of President Heydar Aliyev.

Azerishiq OJSC (Electricity distribution and supply)

"Azerishiq" Open Joint Stock Company is responsible for electricity distribution and retail in Azerbaijan in reliable, safe and efficient manner. Azerishig OJSC was established as a state-owned joint stock company in 2015 by decree of President of Azerbaijan Republic.

### 3.2.2 International and Regional Agreements and Conventions

The following table represents the International and Regional Agreements and Conventions accepted in Azerbaijan for regulating relevant environmental and social related issues and concerns:

**Table 3-1 Relevant International Conventions for the Project**

| International Convention | Year Ratified |
|---|---|
| **International Labour Organization (Fundamental)** | |
| C029 - Forced Labour Convention, 1930 | 1992 |
| C087 - Freedom of Association and Protection of the Right to Organise Convention, 1948 | 1992 |
| C098 - Right to Organise and Collective Bargaining Convention, 1949 | 1992 |
| C100 - Equal Remuneration Convention, 1951 | 1992 |
| C105 - Abolition of Forced Labour Convention, 1957 | 2000 |
| C111 - Discrimination (Employment and Occupation) Convention, 1958 | 1992 |
| C138 - Minimum Age Convention, 1973<br>Minimum age specified: 16 years | 1992 |
| C182 - Worst Forms of Child Labour Convention, 1999 | 2004 |
| **Pollution prevention** | |
| Stockholm Convention on Persistent Organic Pollutants | Acceded in 2004 |
| Convention on the Transboundary Effects of Industrial Accidents | Acceded in 2004 |
| Basel Convention on the Control of Transboundary Shipment of Hazardous Wastes | 2001 |
| Kyoto Protocol, 1997 | Acceded in 2000 |
| UN Convention on the Protection of the Ozone Layer (Vienna Convention) | Acceded in 1996 |
| Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 | Acceded in 1996 |
| United Nations Framework Convention on Climate Change, 1992 | Acceded in 1992 |
| UNECE Geneva Convention on Long-Distance Transboundary Air Pollution | 2002 |
| UN Convention on Control of Transboundary Movements of Hazardous Wastes and their Disposals | 2001 |
| International Carriage of Dangerous Goods by Road | 2000 |
| Espoo Convention | Acceded in 1999 |

| International Convention | Year Ratified |
|---|---|
| (To promote environmentally sound and sustainable development through the application of ESIA, especially as a preventive measure against transboundary environmental degradation) | |
| Aarhus Convention<br>(To guarantee the rights of access to information, public participation in decision-making and access to justice in environmental matters) | Acceded in 2000 |
| Framework Convention for the Protection of the Marine Environment of the Caspian Sea | 2003 |
| The Protocol for the Protection of the Caspian Sea against Pollution from Land-Based Sources and Activities (LBSA Protocol) | 2012 |
| International Maritime Organization Convention | 1995 |
| MARPOL 73/78 International Convention on Prevention of Marine Pollution | 2004 |
| International Convention on Oil Pollution Preparedness, Response and Co-operation | 2004 |
| **Biodiversity Protection** | |
| UNESCO Convention on Wetlands of International Importance especially as Waterfowl Habitat / RAMSAR Convention | 2001 |
| UN Convention on Biological Diversity, 1992 | 2000 |
| Bern Convention on conservation of wild flora and fauna and their natural habitats | 2002 |
| Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) | 1999 |
| UN Convention to Combat Desertification, 1994 | 1998 |
| UN Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention; CMS), 1979 | 1998 |
| **Cultural Heritage** | |
| Convention for the Safeguarding of the Intangible Cultural Heritage. Paris 2003 | 2007 |
| Convention concerning the Protection of the World Cultural and Natural Heritage. Paris, 16 November 1972 | 1993 |
| European Convention on the Protection of the Archaeological Heritage | 2000 |
| UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions, 2005 | 2009 |
| **Human Rights** | |
| European Convention for the Protection of Human Rights and Fundamental Freedoms | 2002 |
| UN Convention on the Elimination of All Forms of Discrimination against Women | 1995 |
| UN Convention against Torture and Other Cruel, Inhuman or degrading treatment or punishment | 1996 |
| UN International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families | 1000 |
| UN International Covenant on Economic, Social and Cultural Rights | 1992 |

| International Convention | Year Ratified |
|---|---|
| UN Convention on the Rights of the Child / Protocol Faculty in connection with the participation of children in armed conflicts | 1992/2002 |
| UN Convention on the Elimination of All Forms of Racial Discrimination | 1996 |
| Regional Framework Convention for the Protection of National Minorities | 2000 |
| UN Convention on the Rights of Persons with Disabilities | 2009 |
| UN International Covenant on Civil and Political Rights | 1992 |
| The high-level conference on the future of the European Court of Human Rights. Interlaken Declaration | 2010 |
| The high-level conference on the future of the European Court of Human Rights. Izmir Declaration | 2011 |
| The high-level conference on the future of the European Court of Human Rights. Brighton Declaration | 2012 |

### 3.2.3 National Laws, Regulations and Standards on Environmental, Social Protection and Land Issues

Itemized below is a compilation of legal and regulatory frameworks related to the Project industry, environmental protection, and social/land issues.

**Table 3-2 Relevant Laws and Regulation**

| Law/ Regulations | Year of issue / amendment | Description |
|---|---|---|
| **Related Environmental Legislation** | | |
| Law on the Protection of the Environment (No. 678–IQ) | 1999 (last amendment in 2014) | This Law governs the legal, economic, and social framework for environmental protection. The purpose of this Law is to guarantee environmental safety and the ecological balance of the environment, prevent the impact of socioeconomic and other activities, preserve biological diversity, and effectively manage the use of nature. This Law governs mutual relations between society and nature for the purpose of improving the quality of the environment, using and renewing natural resources efficiently, and enforcing environmental protection laws and legal procedures. |
| Law on Ecological Safety (No. 677-IQ) | 1999 (last amendment in 2013) | The main purpose of this Law is to establish the legal basis for the protection of human life and health, the environment including atmospheric air, waterbodies, subsoil, land, vegetables, and the animal kingdom against risks originating from human and natural impacts. |
| Law on Fauna (No. 675-IQ) | 1999 (last amendment in 2015) | This Law establishes the legal basis for the protection of fauna in the Azerbaijan Republic with the aim of ensuring preservation and rational use of all types of wild animals. It also describes issues of State inventory and |

| LAW/ REGULATIONS | YEAR OF ISSUE / AMENDMENT | DESCRIPTION |
|---|---|---|
| | | monitoring, and economic and punitive regulations. |
| Law on Green Belts (No. 957-IVQ) | 2014 | This Law aims at conservation of greens (trees, shrubs, flowers, grasses and planting materials) and green areas, also by defining the rights and obligations of state agencies, municipalities, legal entities and individuals. |
| Law on Specially Protected Natural Territories and Objects (No. 840-IQ) | 2000 (last amendment in 2015) | This Law determines the legal basis for protected natural areas and objects in Azerbaijan. |
| Law on Protected Areas (No. 540-IQ) | 2000 (last amendment in 2006) | This Law establishes the legal basis for the organization, protection, and management of protected areas based on the following main objects: 1) conservation of biological diversity and ecosystem; 2) purposeful use of protected areas for scientific research, culture, and education; 3) recreational use; 4) international cooperation (art. 3). |
| Law on Protecting the Atmosphere, (No. 109-IIQ) | 2001 | This Law has the purpose of protecting the atmosphere to ensure the people's right to live in a favourable environment and their access to accurate environmental information. It sets general requirements for air protection during economic activities, establishes standards for mitigating physical and chemical impacts to the atmosphere, and establishes rules for the State inventory of harmful emissions and their sources. |
| Law on Water Code (No. 418-IQ) | 1997 (last amendment in 2015) | This Code regulates legal relations concerning the protection and use of water bodies in the Azerbaijan Republic. It sets property rights and covers issues of inventory and monitoring. |
| Law on Industrial and Domestic Waste (No. 514-IQ) | 1998 (last amendment in 2012) | This Law reports the State policy in environmental protection from industrial and household waste including harmful gases, wastewater, and radioactive waste. It defines the rights and responsibilities of the State and other entities, sets requirements for the design and construction of waste-treatment installations, licensing of waste generating activities, and for the storage and transport of waste (including transboundary transportation), and encourages the introduction of technologies for the minimization of waste generation by industrial enterprises. |
| Law on obtaining Information on the Environment (No. 270-IQ) | 2002 (last amendment in 2016) | This Law regulates relations arising in connection with the timely receipt of complete, reliable, timely information about the state of the environment and the use of natural resources from state authorities and local self-government, as well as from responsible persons. |

| Law/ Regulations | Year of issue / amendment | Description |
|---|---|---|
| Rules on Environmental Impact Assessment (EIA) | 2018 (Approved by Resolution No 362, dated 21 September 2022) | The rules define assessment processes for projects with and without transboundary impacts. |
| Law On Fishing N.457-IQ | 1998 | The law states that surface water bodies (rivers, lakes, water reservoirs, water supply channels) and the Azerbaijan section of the Caspian Sea are considered as water objects with fishing operations value; therefore, any construction project located within the area of influence of a surface water bodies is also subject to the review of the State fishing service. For surface water bodies hosting spawning sites or fish reproduction operations, the State establishes water protection zones and related shore protection zones, which are considered specially protected areas. |
| **Related health/ social/ cultural and economic Legislation** | | |
| Law on Community Health Care (No. 360- IQ) | 1997 (last amendment in 2020, No. 71-VIQD) | This Law defines the basics of public health and the main principles of the healthcare system in Azerbaijan. |
| Law on Radiation Safety of the Population (No. 423) | 1998 (last amendment in 2020, No.1592-VQD) | This Law requires compliance with radiation safety in industrial enterprises. The law defines the basic principles of state policy in the field of radiation safety, as well as environmental standards that ensure the safety of workers and the public in territories exposed to potential impacts as a result of the use of radioactive sources. |
| Law on the Protection of Historical and Cultural Monuments (No. 470-IQ) | 1998 (last amendment in 2020, No. 1054) | This Law establishes the legal framework related to the protection, study, and use of historical and cultural monuments in Azerbaijan. |
| Law on Employment, No.1196-VQ | 2018 (last amendment in 2019) | This Law establishes the legal, economic, and organizational foundations of state policy in the field of employment assistance, as well as social protection of unemployed citizens. |
| Law on Unemployment Insurance (No. 765- VQ) | 2017 (last amendment in 2018) | This Law establishes the basic principles of relations in the labor market of Azerbaijan, the creation of new mechanisms for financing the lost wages of insured citizens, payment of compensations to them, and strengthening the social protection of the population. |
| Labor Code of the Azerbaijan Republic (No. 618-IQ) | 1999 | The Labor Code, through the relevant legal standards, defines the labor, social, and economic rights of employees and employers, as well as the principles and rules for ensuring the right to work and rest in safe and healthy conditions, as well as other fundamental rights and freedoms of citizens of the republic. |

| LAW/ REGULATIONS | YEAR OF ISSUE / AMENDMENT | DESCRIPTION |
|---|---|---|
| Law on State Guarantees of Equal Rights for Women and Men | 2006 | This law aims to eliminate all forms of gender-based discrimination and ensure gender equality in the political, economic, social, and cultural spheres. All human rights are guaranteed to women and men. |
| Law on Prevention of Domestic Violence | 2010 | The law establishes and regulates the events held in the direction of prevention of the violence committed by the abuses of the close related relations. Also outlines the providing with legal assistance persons which were affected by domestic violence, and also elimination of the circumstances leading to domestic violence. |
| **RELATED ENERGY LEGISLATION** | | |
| Law on Efficient use of energy resources and energy efficiency<br><br>(No. 359-VIQ)<br>(last amendment on 17-02-2023) | July 1, 2021 | The Law governs the relations arising in the field of production, storage, transfer, distribution, sale and energy consumption and extends to the state bodies (organizations) operating in this sphere, physical persons and legal entities, including final consumers. |
| Law on Energy<br>(No. 1006-VIQ) | Oct 24, 2023 | This law covers the regulation of the exploration, exploitation, production, processing, storage, transportation, distribution, and use of all energy materials and products, including gas. |
| Law on Power Industry<br>(No. 858-VIQ)<br>(Last amendment on December 30,2023-1086-No. VIQD | April 11, 2023 | The Law on Power Industry provides the legal background for the generation, transmission, distribution, and sale of electricity and heating, aiming at ensuring rational utilisation of power resources as well as environmental protection. The Law appoints the Ministry of Energy as the authority responsible for licensing and regulating electricity generation, transmission, distribution, sale, and import–export activities. |
| The Law On the use of renewable energy sources in the production of electricity<br>(Last updated on May 31, 2023 – No. 895 VIQD) | May 31, 2021 - 339-VIQ | The Renewable Energy Law addresses guaranteed tariffs, foreign investment, and other support mechanisms, such as scientific research and the promotion of active consumers. In addition, certain incentives are being proposed for investors in renewable energy source (RES) projects in Azerbaijan, including guaranteed offtake, guaranteed connection, priority in transmission and distribution and long-term land leases. |
| The Rule for selecting electricity produced in the renewable energy sources area.<br><br>(Presidential Decree No. 2285) | Adopted on Aug 2, 2023 | That rule defines the legal framework related to the contracts concluded and the auctions to be held with subsequent investors. At the same time, rules regulate consumer support and green certificates. |

| Law/ Regulations | Year of issue / amendment | Description |
|---|---|---|
| The Rule for Issuance of a certificate on the source of electricity produced from renewable energy sources.<br><br>(Decree of Cabinet of Ministers No. 347) | Adopted on September 25, 2023 | The rules define rules for provision of 'green certificate,' issued to the producer. The certificate will contain details on the origin of electricity sent to the grid, installation capacity, and quantity of electricity generated, along with the corresponding reduction in carbon dioxide emissions. |
| **Related Land Rights and Resettlement Legislation** | | |
| The Constitution of the Republic of Azerbaijan | Adopted in 1995 | Recognizes the citizens' right to own, use and dispose property. It also recognizes three type of property ownership in Azerbaijan - state, municipal and private (Article 13). It guarantees that no one will be dispossessed of their property without their consent or decision by the court of law and that alienation of private property for state needs will be allowed only after payment of fair compensation to the owner (Article 29). The constitutional amendment adopted on 26th September 2016 with regards to Article 29 specifies (i) private land ownership entails social obligations and (ii) property right on land can be restricted by law for social justice and efficient use of land. |
| The Land Code<br>(No. 695-IQ) | 1999<br>(last amendment in 2019) | The Land Code is aimed at regulating land relations, fulfilling the obligations of landowners, users and tenant farmers and protecting their rights to land, creating conditions for the rational use of lands and their protection, restoration and improvement of land fertility. Article 101 states that, all damages caused by acquisition of land (compulsory purchase) or temporary detention, as well as limiting the rights of owners, users and lessees or deterioration of the quality of soil should be fully paid to landowners or users. In addition, costs derived from early termination of its obligations against third parties should also be paid to the affected person. Disputes relating to compensation, is being considered in a court in accordance with the procedure established by the legislation. |
| The Civil Code | Adopted in 1999<br>(as amended on 13 June 2023) | Articles 246, 247, 248 and 249 include provisions for acquisition of lands for state needs. The Code requires the Decree on acquisition of lands for state needs should be registered in state real estate registration. It also states that Executive Agency should; a) send official notifications to all affected persons about land acquisition; b) pay full compensation to the affected persons within 90 days after the transaction agreement made; c) assist relocated people; and d) pay compensation for affected assets on the market rates (in case it is not possible to identify market rates, replacement prices is used). The Civil Code states as well that affected person can select |

| LAW/ REGULATIONS | YEAR OF ISSUE / AMENDMENT | DESCRIPTION |
|---|---|---|
| | | one or more type of compensations. It also states that any rights to real estate must be registered with the State, and that land may be acquired from owners for state needs as approved by the relevant courts. It also states that the legality of ownership is established through the registration certificate issued by the Real Estate Land Registry Service based on the cadastral information (survey numbers) obtained from the State Land and Cartography Committee (SLCC) where the land is located. |
| Law on Land Acquisition for State Needs (No.987 III-Q) | April 2010 | This Law regulates withdrawal of lands for the state needs in the Azerbaijan Republic, rules of charge and payment to compensation connected with it, and also other relations arising between the parties in this sphere. Specifically address matters related to involuntary resettlement (IR), including the process and institutional arrangement for land acquisition, compensation and valuation, consultation requirements, entitlements of various categories of displaced persons and grievance mechanism. The law considers various categories of displaced persons, including those without state registration, renters, non-formal long-term users of land, and persons who have no legal rights on the land that they live in. The law entitles persons who have no legal rights on the land to resettlement assistance and compensation for their non-land assets. It includes provision of compensation for loss of business/income, transition allowance and transportation support, and compensation for loss assets based on replacement cost. As per the law, in case of physical displacement, the acquiring authority needs to send notification to DPs at least 60 days before resettlement. |
| Law on Estimative Activities (No.510-IQ) | 1998 (as amended on 19 May 2020) | The law requires that valuation of the real estate is mandatory in the cases of land acquisition for state needs and the results of the valuation are to be reflected in a valuation report. |
| Law on land market (No.665-IQ) | 1999 (last amendment in 2018) | This Law establishes general rules for land market relations in the Azerbaijan Republic and ensures the protection of property rights to land. |
| Law on the state land cadaster, land monitoring and land management (No.593) | 1998. (last amendment by the Decree of the President of the Azerbaijan Republic dated May 31, 2018) | This Law defines the legal framework for ordering the state land cadaster, land monitoring and land management works in the Azerbaijan Republic. |

| LAW/ REGULATIONS | YEAR OF ISSUE / AMENDMENT | DESCRIPTION |
|---|---|---|
| Law on land lease (No.587-IQ) | 1998 (last amendment by the Decree of the President of the Azerbaijan Republic dated May 31, 2018) | This law defines the legal framework for the lease of lands in state, municipal and private ownership, and lease relations in the Azerbaijan Republic. The law states that (Article 16) when the leased land is acquired for state needs, another land plot having a same size and a same quality can be provided to lessee. Losses incurred in this land shall be paid in accordance with the legislation. |
| Law on the management of municipal lands (No.160-IIQ) | 2001 (last amendment by the Decree of the President of the Azerbaijan Republic dated June 19, 2020) | This Law regulates the general rules for the transfer of municipal lands to ownership, use and lease, taking into account the peculiarities of their management, legal relations in the field of their use and protection. |
| Cabinet of Minsters' Resolution (No.45 24) | 2012 | Approving of guidelines for preparation of Resettlement Plan and Resettlement Guideline. |
| Rules for assigning lands to categories and transferring them from one category to another", approved by Decision No. 10 of the Cabinet of Ministers of the Republic of Azerbaijan | 2017 | Agricultural lands (arable lands) are specially protected and their transfer to other categories for non-agricultural purposes is permitted in exceptional cases in accordance with the Land Code of the Republic of Azerbaijan and on the basis of the requirements of the "Rules for assigning lands to categories and transferring them from one category to another". |
| Decree of the President on ensuring the execution of the law No. 506-3 QD dated 7 December 2007 on Amendments and Additions to the Civil Code of the Azerbaijan Republic | 2007 | It is regarding to amendments in the Civil Code: requires the provision of 20% additional compensation to the calculated market price of the acquired property. |
| Resolution of the Cabinet of Ministers on approving of guidelines for preparation of Resettlement Plan and Resettlement Guideline No. 45 | 2012 | It stipulates guidelines for preparation of resettlement plan, as well as shows sample content of a resettlement plan and resettlement guideline. |
| Resolution of the Cabinet of Ministers on approving the guidelines for selection of a person or entity to prepare Resettlement Plan or Resettlement Guideline No. 55 | 2011 | It reflects guidelines and criteria for the selection of a planner (person or entity who prepares resettlement plan or guideline). |
| Resolution of the Cabinet of Ministers (No. 110) | 1999 | Procedure of payments of inventory cost of the rooms which are in property of physical persons. The document describes zone coefficients of the territories of the cities and regions of the country for charge of the simplified tax which is |

| LAW/ REGULATIONS | YEAR OF ISSUE / AMENDMENT | DESCRIPTION |
|---|---|---|
| | | subject to payment by persons who are engaged in housing construction. |
| Resolution of the Cabinet of Ministers No. 42 On Some Normative and Legal Acts Relating to the Land Code | 2000 | This resolution describes procedure for receiving of legal permission for allocation of land plot for construction activities |
| Law of Azerbaijan Republic on Municipality Area and Lands ((No: 771-IQ) | 1999 | The Law present the list of municipalities of Azerbaijan, but the subject of change due to change of administrative division if the country after liberation of Azerbaijani territories in 2020. |
| Law on Management of Municipality Lands (No: 160-IIQ). | 2001 (Last amendment was introduced by the Decree of the President of the Azerbaijan Republic dated June 19, 2020, No.138-VIQ) | This Law regulates the general rules for the transfer of municipal lands to ownership, use and lease, taking into account the peculiarities of their management, legal relations in the field of their use and protection. |

As stated in Article 151 (Legal Value of International Acts) of the Azerbaijan Constitution, agreements in International Conventions supersede national laws in case of conflict. This principle is embodied in Articles 81 and 82, Chapter 14 (International Co-Operation on Environment Protection Issues) of the Law on Environmental Protection.

### 3.2.4 Renewable Energy Related Laws

Azerbaijan Renewable Energy Agency under the Ministry of Energy of the Republic of Azerbaijan was established by the Decree No. 1159 of the President of the Republic of Azerbaijan dated 22 September 2020 and the Charter of the Agency was approved.

Relevant laws and normative legal acts have been adopted in order to develop the renewable energy sector in our country, to improve the legislative and institutional environment in this area.

In recent years, the work carried out in the field has been continued and the law of the Republic of Azerbaijan No 339-VIQ, dated 31 May 2021 On the use of renewable energy sources in the production of electricity, which makes a special contribution to the development of renewable energy has been approved.

According to the 2019 Renewables Readiness Assessment Report for Azerbaijan published by IRENA, the existing legal and regulatory energy framework includes specific provisions that promote the use of renewable energy through special concessions.

- *The State Program on the Use of Renewable Energy Sources,* adopted in 2004, aims to determine the potential of alternative energy sources in the production of electricity, increase the efficiency of national energy sources, guarantee national energy security, decrease CO2 emissions, and support job creation via renewable energy sector development. This Program was updated on July 17, 2023.
- The amendments of March 2014 to the two Cabinet of Ministers decrees Rates of custom duties on export–import operations in Azerbaijan Republic and List of goods exempted of VAT imported to Azerbaijan Republic territory state that the import of equipment, facilities, parts and tools used in the renewable energy industry and in achieving energy efficiency are exempt from customs duties and VAT.
- The Decree of the Cabinet of Ministers *On determination of electricity production and power limits for the commissioning of electrical installations (No. 482/2016)* states that special permits for alternative and renewable energy power plants are required only for power plants with a capacity of more than 150 kW, and for hydropower plants and biogas power plants with a capacity of more than 500 kW.
- The document "Acceleration of Reforms in the Energy Sector of the Republic of Azerbaijan" was approved by presidential order in 2019. It deals with reforms involving the promotion of renewable energy, efforts to increase energy efficiency, preparation of a long-term energy sector development strategy, and proposals for a planned transition to market based competition in the power sector. This order resulted in the preparation of draft laws on a regulator for the energy sector and utilities services; on boosting the use of renewables for electricity production; on promoting energy efficiency; and on gas supply.
- The "Renewable Energy Law", No. 339-VIQ, dated 31 May 2021 was signed into law by the President and published on July 14, 2021, together with a Presidential Decree on the implementation of the Renewable Energy Law. The newly-adopted Renewable Energy Law addresses guaranteed tariffs, foreign investment and other support mechanisms, such as scientific research and the promotion of active consumers. In addition, certain incentives are being proposed for investors in renewable energy source (RES) projects in Azerbaijan, including guaranteed offtake, guaranteed connection, priority in transmission and distribution and long-term land leases. In order to make effective use of the country's RES potential, the Renewable Energy Law envisages the creation of an Atlas for the RES Potential of the Republic of Azerbaijan (the "Atlas"), which will be an integral part of an information system (database) that will be coordinated by the Ministry of Energy of the Republic of Azerbaijan.
- Law on Efficient use of energy resources and energy efficiency (359-VIQ) (last amendment on 17-02-2023). The Law governs the relations arising in the field of production, storage, transfer, distribution, sale and energy consumption and extends to the state bodies (organizations) operating in this sphere, physical persons and legal entities,

The Rule for selecting electricity produced in the renewable energy sources area, adopted on September 25, 2023, Decree of Cabinet of Ministers No. 347. The Rule define the rules for provision of 'green certificate,' issued to the producer. The certificate will contain details on the origin of electricity sent to the grid, installation capacity, and quantity of electricity generated, along with the corresponding reduction in carbon dioxide emissions.

## 3.3 Lender Requirements

Masdar will pursue an amount of project finance from financial institutions who either:

- Have their own internal Environmental & Social (E&S) investment policies/guidelines;
- Are members of the collective environmental and social agreements such as the Equator Principles; or
- Align their E&S policies and guidelines with other established guidelines (such as the IFC Performance Standards).

At this stage it is understood that ADB, AIIB, and EBRD are being considered for finance (amongst others), and in addition, the Project is required to align with Equator Principles (EP) and WBG EHS guidelines. EP IV establishes the minimum E&S standards to be adopted by Equator Principles Financial Institutions EPFIs as those from IFC Performance Standards, the WBG EHS Guidelines and/or the relevant host country laws, regulations, and permits that pertain to environmental and social issues.

As such, the applicable lender policies and requirements are outlined below sections. In addition to that, the following guidelines will be followed:

- BirdLife International's Solar Energy Guidance; and
- Relevant international treaties to which the investments' country of operations are signatory such as the UN Declaration on the Rights of Indigenous Peoples, International Covenant on Economic, Cultural and Social Rights and relevant International Labour Organisation (ILO) Core Labour Standards Conventions.

### 3.3.1 ADB

ADB's Safeguard Policy Statement (SPS, 2009) sets out the policy objectives, scope and principles for three key safeguard areas: (i) environmental safeguards, (ii) involuntary resettlement safeguards, and (iii) indigenous peoples safeguards, note that this is not applicable to the Project because as per the applicable criteria, there are no indigenous peoples within the project area of influence.

The objectives of ADB's safeguards are to (i) avoid adverse impacts of projects on the environment and affected people, where possible: (ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and (iii) help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

The Project is required to comply with the following policies and associated 'operations manuals' and guidelines:

- ADB Safeguard Policy Statement (2009);

- ADB Social Protection Strategy (2001) (national laws and key ILO standards);
- ADB Gender and Development Policy (1998); and
- ADB Access to Information Policy (2018).

### 3.3.2 AIIB

AIIB's 2022 Environmental and Social Framework (ESF) is a system that supports AIIB and its clients in achieving environmentally and socially sustainable development outcomes. It does so by integrating good international practice on environmental and social planning and management of risks and impacts into decision-making on, and preparation and implementation of, AIIB supported Projects.

The ESF is comprised of four complementary parts: (a) Introduction; (b) Vision Statement; (c) the Environmental and Social Policy; and (d) a Glossary.

The Environmental and Social Policy comprises mandatory environmental and social requirements for each Project and is accompanied by three associated mandatory Environmental and Social Standards (ESSs) setting out requirements applicable to Bank Clients on:

- ESS1: Environmental and Social Assessment and Management;
- ESS2: Land Acquisition and Involuntary Resettlement; and
- ESS3: Indigenous Peoples

### 3.3.3 EBRD

**POLICY AND PERFORMANCE REQUIREMENTS**

EBRD has an internal Environmental and Social Policy (2019) and a set of specific Performance Requirement (PRs) covering key environmental and social components for consideration, assessment, and management in their investments. These reflect EBRD's commitments to promote EU environmental standards as well as the European Principles for the Environment in their investments. The PRs are outlined below:

- PR1: Assessment and Management of Environmental and Social Impacts and Issues;
- PR2: Labour and Working Conditions;
- PR3: Resource Efficiency and Pollution Prevention and Control;
- PR4: Health, Safety and Security;
- PR5: Land Acquisition, restrictions on land use and Involuntary Resettlement;
- PR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;

- PR7: Indigenous People (note that this is not applicable to the Project because as per the criteria in PR7, there are no indigenous peoples within the project area of influence);
- PR8: Cultural Heritage;
- PR9: Financial Intermediaries (note that this is not applicable to the Project as Financial Intermediaries will not be used); and
- PR10: Information Disclosure and Stakeholder Engagement.

In addition to EBRD PRs, the following Guidance Notes will be followed:

- Guidance Note on Grievance Mechanism, 2012;
- CDC, IFC and EBRD Addressing Gender-Based Violence and Harassment Emerging Good Practice for the Private Sector, 2020; and
- EBRD and IFC Workers' Accommodation: Processes and Standards, 2009.

### 3.3.4 IFC

The IFC Performance Standards (PS) are a key component of the IFC's Sustainability Framework and are directed towards clients (i.e., party responsible for implementing and operating the project that is being financed), providing guidance on how to identify risks and impacts. The IFC PS are designed to help avoid, mitigate, and manage risks and impacts throughout the life of a project as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities.

The IFC PS (2012) are listed below:

- PS1: Assessment and Management of Environmental and Social Risks and Impacts
- PS2: Labour and Working Conditions
  - Including International Labour Organisation (ILO) Conventions
- PS3: Resource Efficiency and Pollution Prevention
- PS4: Community Health, Safety, and Security
- PS5: Land Acquisition and Involuntary Resettlement
- PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- PS7: Indigenous Peoples (note that this is not applicable to the Project because as per the criteria in PS7, there are no indigenous peoples within the project area of influence);
- PS8: Cultural Heritage

In addition to IFC PSs, the following guidelines will be followed:

- IFC Good Practice Handbook on the Use of Security Forces: Assessing and Managing Risks and Impacts (2017)

- IFC Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets, 2007.
- IFC publication: Project Developer's Guide to Utility-Scale Solar Photovoltaic Power Plants, 2015.
- IFC Good Practice Handbook to Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets, 2013.
- IFC's Good Practice Handbook on Land Acquisition and Involuntary Resettlement (2023).

### 3.3.5 WBG Guidelines

In terms of specific guidelines to control environmental externalities (e.g., wastewater quality etc.), EHS guidelines have been set out by IFC and WBG to provide general guidelines for its members when involved in a project or when providing financial support to a project. These guidelines contain general and industry-specific examples of Good International Industry Practice (GIIP). The following IFC EHS Guidelines are relevant to this project:

- General EHS Guidelines, Environmental:
  - Air Emissions and Ambient Air Quality;
  - Energy Conservation;
  - Wastewater and Ambient Water Quality;
  - Water Conservation;
  - Hazardous Materials Management;
  - Waste Management;
  - Noise; and,
  - Contaminated Land.
- General EHS Guidelines, Occupational Health & Safety:
  - General Facility Design and Operation;
  - Communication and Training;
  - Physical Hazards;
  - Chemical Hazards;
  - Radiological Hazards;
  - Personal Protective Equipment (PPE);
  - Special Hazard Environment; and,
  - Monitoring.
- Community Health & Safety:
  - Water Quality and Availability;
  - Structural Safety of Project Infrastructure;
  - Life and Fire Safety;
  - Traffic Safety;
  - Transport of Hazardous Materials;

- Disease prevention; and,
- Emergency Preparedness and Response

- Construction and Decommissioning
  - Environment
  - Occupational Health and Safety
  - Community Health and Safety

## 3.4 Applicable Environmental Standards

Applicable standards required for Project compliance are included in the respective environmental aspect sections of this report. This includes national standards and those expected from the lenders.

## 3.5 EIA/ESIA Requirements

### 3.5.1 National Environmental Impact Assessment (EIA) Requirements

The President of the Azerbaijan Republic introduced a law on Environmental Impact Assessment (EIA) in June 2018, which was approved by the Decree No.193, dated 13 July 2018. According to this law, to coordinate the planned activity with the State Ecological Expertise of MENR, it is necessary to develop and submit the EIA report to the representatives of MENR. The purpose of the law is to create the legal basis for the environmental impact assessment of public and private projects to ensure the prevention or reduction of negative impacts on the environment and public health at the earliest stages. The development of the EIA report is mandatory.

In accordance with the provisions of this law, the EIA is carried out based on the following principles: an integrated environmental, social and economic assessment of the impact of the proposed activity on the environment and human health; ensuring the integrity, transparency and reliability of information about the environmental safety of the proposed activity; the preservation of ecological balance and biodiversity; not to exceed the impacts of the proposed activity on the environment to acceptable standards; forecasting of possible environmental consequences and assessment of the level of environmental risks; ensuring transparency in the EIA, informing the public and taking into account public opinion.

Specifically, the ESIA report should include:

- Assessment of the initial and expected state of the environmental and socioeconomic environment;
- Determination of the environmental impacts of construction, reconstruction, and operation of facilities;

- Environmental Management Plan, combining a system of measures to reduce and mitigate environmental impacts; and
- Environmental Monitoring Plan providing for the effectiveness of environmental measures.

A new Law on Environmental Impact Assessment was introduced in Azerbaijan on 14th July 2018, which sets out the mandatory EIA requirements within Azerbaijan. The purpose of this Law is to give effect to Article 54.2 of the Law on the Protection of the Environment in Azerbaijan, establishing the legal, economic, and organisational framework for assessment of impacts on the natural environment and human health associated with economic activities proposed by public and private developers.

Annex 1 of the law lists the types of projects/activities that require an EIA. According to the Annex, this Project will require an EIA in line with the section "Design of water, solar, biogas, geothermal and other power plants with a capacity of more than 10MW megawatt.

Based on the Azerbaijani legal updates published on October 2022, the Cabinet of Ministers issued environmental impact assessment (EIA) rules, approved by Resolution No 362 on September 21, 2022, pursuant to its mandate under the EIA Law enacted on July 17, 2018. According to the new rules, project developers are required to consult with the State Ecology Expertise Agency within the Ministry of Ecology and Natural Resources during the pre-design phase. Project developers must submit a project description and proposed assessment details to the Agency's website for public review. This submission should include the project's location, a feasibility study, alternative proposals, and a potential environmental impact assessment, as well as a plan for public hearings regarding the assessment.

The key deliverables of the EIA process as required by the national legislation are:

- Project Application Letter including the project description and proposed assessment details. It is planned to issue Scoping Report as an annex in the Project Application Letter to provide the detailed information on project description and proposed impact assessment methodology;
- If required, Scoping Meeting with MENR and relevant authorities (New EIA Law, 2018); and
- EIA Report.

The Project application letter was issued to MENR on the 17th May 2024, and the Scoping Meeting was held on the 29th May 2024. Once the ESIA has been finalised, it will be translated into Azerbaijani language and issued to MENR.

### 3.5.2 Lender Requirements

**ADB**

ADB Safeguard Requirements 1 requires an environmental assessment to be developed depending on the significance of the project impacts and risks, the assessment may comprise a full-scale environmental impact assessment (EIA) for category A projects, an initial environmental examination (IEE) or equivalent process for category B projects, or a desk review. For category C the requirement is to review environmental implications, normally in format of a due diligence report.

Projects are assigned to one of the following four categories:

- "***Category A**: A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required.*
- ***Category B**: A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required.*
- ***Category C**: A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.*
- ***Category Financial Intermediary (FI)**: A proposed project is classified as category FI if it involves investment of ADB funds to or through a FI."*

**AIIB**

AIIB's ESS1: Environmental and Social Assessment and Management outlines the requirement for environmental assessment if a Project is likely to have adverse environmental risks and impacts or social risks and impacts (or both).

AIIB assigns each proposed Project to one of the following four categories and determines the type of assessment and instrument required, as noted below and further elaborated throughout their ESP:

- **Category A**: A Project is categorized A if it is likely to have significant adverse environmental and social impacts that are irreversible, cumulative, diverse or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works and may be temporary or permanent in nature.
- **Category B**: A Project is categorized B if: (i) it has a limited number of potentially adverse environmental and social impacts; (ii) the impacts are not unprecedented;

(iii) few if any of them are irreversible or cumulative; (iv) they are limited to the Project area; and (v) they can be successfully managed using good practice in an operational setting.

- **Category C**: A Project is categorized C if it is likely to have minimal or no adverse environmental and social impacts. The Bank does not require an environmental and social assessment, but does require the Client to prepare an analysis of the environmental and social aspects of the Project.
- **Category FI**. A Project is categorized FI if the financing structure involves the provision of funds to or through a financial intermediary (FI) for the Project, whereby the Bank delegates to the FI the decision-making on the use of the Bank funds, including the selection, assessment, approval and monitoring of Bank-supported activities, based on a sound environmental and social management system (ESMS) adopted by the FI.

**EBRD**

In accordance with PR 1, there is a requirement for EBRD financed projects to undertake an appropriate Environmental and Social Assessment to:

- Identify and evaluate environmental and social impacts and issues of the Project;
- Adopt a mitigation hierarchy approach to address adverse environmental or social impacts and issues to workers, affected communities, and the environment from Project activities;
- Promote improved environmental and social performance of clients through the effective use of management systems; and
- Develop an ESMS tailored to the nature of the Project, for assessing and managing environmental and social issues, and impacts in a manner consistent with the relevant PRs.

According to PR 1 "*The ESIA will include an examination of technically and financially feasible alternatives to the sources of such impacts, including the non-project alternative, and document the rationale in selecting the particular course of action proposed. It will also identify potential improvement opportunities and recommend measures needed to avoid, or where avoidance is not possible, minimise and mitigate adverse impacts*."

EBRD classifies projects based on environmental and social risks to set the required level of assessment, disclosure, and engagement, matching the project's characteristics and the significance of its impacts. Projects are assigned to one of the following four categories:

- "*A project is categorised A when it could result in potentially significant environmental and/or social impacts, including direct and cumulative environmental. and social impacts, which are new and additional and, at the time of categorisation, cannot readily be identified or assessed. Projects categorised as A require a formalised and participatory environmental and social impact assessment process.*

- *A project is categorised B when its potential environmental and/or social impacts are typically site-specific, and/or readily identified and addressed through effective mitigation measures. The scope of environmental and social appraisal will be determined by EBRD on a case-by-case basis.*
- *A project is categorised C when it is likely to have minimal or no potential adverse environmental and/or social impacts.*
- *Initial environmental and social examinations (IESEs) will be carried out where insufficient information is available at the time of categorisation to determine the appropriate category and scope of appraisal."*

Regarding the EU EIA legislation, EBRD is committed towards the promotion of the EU environmental requirements and is a signatory of the European Principles for the Environment. The Principles endorse and reinforce the European consensus on the values attached to the fundamental right for both present and future generations throughout the world to live in a healthy environment.

EIA Directive 85/337/EEC was introduced in 1985 and applied to a wide range of defined public and private projects. Since then, the initial Directive of 1985 and its three amendments have been codified by Directive 2011/92/EU of 13 December 2011. Directive 2011/92/EU was amended in 2014 by Directive 2014/52/EU.

Article 3 of the Directive states:

*"The environmental impact assessment shall identify, describe and assess in appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*

a. *Population and human health;*
b. *Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
c. *Land, soil, water, air and climate;*
d. *Material assets, cultural heritage and the landscape; and*
e. *The interaction between the factors referred to in points (a) to (d)."*

**IFC**

Performance Standard 1 outlines the need to "*establish and maintain a process for identifying the environmental and social risks and impacts of the project*". The standard further states that "*The process may comprise a full-scale environmental and social impact assessment, a limited or focused environmental and social assessment, or straightforward application of environmental siting, pollution standards, design criteria, or construction standards*".

As part of the review of environmental and social risks and impacts of a proposed investment, IFC also uses a process of environmental and social categorization to reflect the magnitude of risks and impacts. These categories are:

- Category A: Business activities with potential significant adverse environmental or social risks and/or impacts that are diverse, irreversible, or unprecedented.
- Category B: Business activities with potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures.
- Category C: Business activities with minimal or no adverse environmental or social risks and/or impacts.
- Category FI: Business activities involving investments in financial institutions (FIs) or through delivery mechanisms involving financial intermediation. This category is further divided into three categories.

### 3.5.3 Project Categorisation as per Lender Descriptions

Upon review of Lender descriptions for categorisation and review of project-specific potential impacts, it is 5 Capitals' view that the Project should fall within **Category B**. This is because:

- The Project will not result in irreversible or unprecedented impacts as required by the definition for Category A;
- The Project impacts are largely site specific, and few if any of them are irreversible; and
- The Project impacts are readily addressed through the proposed mitigation measures.

Although the Project has been determined as a Category B based on the above, this ESIA has been prepared in line with assessments required of a Category A Project.

Note that this 5 Capital's view but will be confirmed by the lenders and their advisors.

It is also understood that lenders are considering the categorisation of the OHTL separately (Category A) from the main Project (Category B).

# 4 APPROACH TO THE ESIA

## 4.1 Scope of Work and Key Deliverables

The key deliverables of the ESIA process for this Project are:

- Environmental and Social Scoping Report;
- ESIA Report (including the Non-Technical Summary and the Framework for E&S Management);
- Climate Change Risk Assessment;
- Resettlement Action Plan (RAP);
- Biodiversity Management Plan (BMP); and
- Stakeholder Engagement Plan (SEP).

## 4.2 ESIA Methodology

### 4.2.1 Process

The ESIA process is a systematic tool for examining and assessing the potential beneficial and adverse environmental and social impacts of a proposed development. In addition to identifying impacts of the Project, the ESIA has also identified key environmental and social mitigation measures and guidance to avoid, minimise and compensate for any adverse environmental and social impacts associated with the construction and operation of the Project. The ESIA process is summarised in the following table and in the following sections.

**Table 4-1 Overview of the ESIA process**

| STAGE | TASK | OBJECTIVE |
|---|---|---|
| **Scoping** | Gap Analysis | Identify the approach, methodology and data requirements of the ESIA |
| **ESIA** ↓ | Consultation | Consult with statutory and non-statutory organisations and individuals with an interest in the development |
| | Desk Based Literature Review | Use existing secondary information and data sources to obtain information on the environmental and social conditions of the development site and immediate surroundings. |
| | Primary Baseline Data Collection | Characterise the existing physical, ecological and social conditions of the development site and immediate surroundings. |
| | Specialist Studies | Further investigate those environmental and social parameters which may be subject to potentially significant impacts. |
| | Impact Assessment | Evaluate the existing environment and social conditions in terms of sensitivity to predict the magnitude and associated significance of the potential impacts. |
| | Mitigation Measures | Identify appropriate and practicable mitigation and enhancement measures to avoid, minimise and/or offset any adverse impacts.<br>Monitoring plans are proposed to monitor residual impacts. |

To obtain a credible assessment of environmental and social impacts, the assignment of 'significance' to each identified impact needs to be a robust, consistent and transparent process. The methodology to assess 'effect significance' is outlined below and follows a GIIP approach based on the assumption that the significance of an impact on resources or receptors is considered to result from an interaction between two factors:

- The nature and magnitude of the impact (i.e., a change in the environment, social and/or health baseline conditions); and
- The environmental or social value or sensitivity of those resources or receptors to the change.

A three-step approach has been used to determine the significance of environmental and social impacts, as follows:

- **Step 1** – Evaluation of value/sensitivity/vulnerability of resource or receptor;
- **Step 2** – Assessing the magnitude of the impact on the resource or receptor; a
- **Step 3** – Determining the significance of impacts

### 4.2.2 Impact Assessment Significance Criteria

#### DETERMINING RECEPTOR SENSITIVITY

The sensitivity of a receptor is understood as the sensitivity of the environmental or social receptor to change, including its capacity to accommodate changes that the Project may bring about. The sensitivity is assigned at the receptor level and as such details regarding

sensitivity are provided within the topic specific chapters of this Report. The table below outlines the definition criteria upon which the receptor sensitivities of this ESIA are based.

Sensitive receptors are defined as:

- Elements of the environment that are of value to the functioning of natural systems (i.e., areas or elements of ecological, landscape or heritage value, species, habitats and ecosystems, soil, air and water bodies or land-use patterns); and
- Human receptors, such as stakeholders (i.e., users of dwellings, places of recreation, places of employment, community facilities or household relocation, cultural heritage – tangible & intangible, community health, livelihoods & economic activities, gender relationships) and human systems (e.g. employment market, population disease susceptibility and disease communicability, public infrastructure and services, exposure to toxicity of chemicals).

**Table 4-2 Receptor Sensitivity Criteria**

| SENSITIVITY | DESCRIPTION OF VALUE |
|---|---|
| **Very High** | • High importance and rarity on an international scale and limited or no potential for substitution.<br>• The receptor has already reached its carrying capacity, so any further impact is likely to lead to an excessive damage to the system that it supports (e.g., very limited or non-existent infrastructure and services such as hospitals and schools, available natural, economic or local resources are not sufficient to provide means of livelihoods for all local populations).<br>• Locations or communities that are highly vulnerable to the environmental and social impact under consideration or critical for society (e.g., indigenous peoples, hospitals, schools).<br>• Other examples are very high proportion of vulnerable groups (women, elderly, disabled, etc.) in the Project area, very frequent occurrences/risk of gender-based violence and harassment, sexual harassment, retaliation, very low probability of female participation in decision making and in the labour market, archaeological items of international importance or designated UNESCO world heritage sites, tangible or intangible cultural assets that contribute to international research objectives, etc. |
| **High** | • High importance and rarity on a national scale, and limited potential for substitution.<br>• The receptor is close to reaching its carrying capacity, so a further impact may lead to a significant damage to the system that it supports (e.g., poor or limited public infrastructure and services, with limited access and high pressure on existing natural or economic resources available).<br>• Locations or communities that are particularly vulnerable to the environmental impact under consideration (e.g., residential areas, vulnerable/marginalized groups).<br>• Other examples are high proportion of vulnerable/marginalised groups (women, elderly, disabled, etc.), locations with poor health practices, poor education level, high crime rate, frequent occurrences/risk of gender-based violence, |

| SENSITIVITY | DESCRIPTION OF VALUE |
|---|---|
| | sexual harassment, retaliation, tangible or intangible cultural assets that contribute to national research objectives, etc ). |
| **Medium** | • High or medium importance and rarity on a regional scale, limited potential for substitution.<br>• The receptor is already significantly impacted, but it is not close to reaching its carrying capacity. Further impacts will get increase the stress of the underlying system, but evidence does not suggest that it is about to reach a critical point (e.g., public infrastructure and services with some capacity, alternative natural or economic resources are available but not sufficient or easily accessible).<br>• Locations or groups that are relatively vulnerable to the environmental impact under consideration (e.g., commercial areas).<br>• Other examples area: average proportion of vulnerable/marginalised groups, occasional occurrences/risk of gender-based violence, sexual harassment, retaliation tangible or intangible cultural assets that contribute to regional research objectives, etc). |
| **Low** | • Low or medium importance and rarity on a local scale.<br>• The receptor is not significantly impacted and shows a large spare carrying capacity. Impacts are not likely to generate any noticeable stress in the underlying system (e.g., reasonable public infrastructures and services, sufficient natural, economic or local resources available but not easily accessible).<br>• Locations or groups that show a low vulnerability to the environmental impact under consideration (e.g., industrial areas).<br>• Other examples are low proportion of vulnerable/marginalised groups, rare occurrences of gender-based violence, sexual harassment, retaliation tangible or intangible cultural assets that contribute to local research objectives, etc). |
| **Very Low** | • Very low importance and rarity on a local scale.<br>• The receptor is not impacted and shows a very large spare carrying capacity. Impacts are very unlikely to generate any noticeable stress in the underlying system (e.g., very good public infrastructures and services with some capacity, equivalent natural, economic or local resources available and easily accessibly).<br>• Locations or groups that show a very low vulnerability to the environmental impact under consideration (e.g., industrial areas).<br>• Other examples are very low proportion of vulnerable/marginalised groups, no occurrence of gender-based violence, sexual harassment, retaliation tangible or intangible cultural assets that are not legally protected and have no significance to local people (i.e. local people no longer use the cultural asset, etc). |

#### IDENTIFYING POTENTIAL IMPACTS

The following types of impacts have been considered:

- **Direct Impacts** - Potential impacts that may result from the construction, commissioning, and operation of the Project acting directly on an environmental or social receptor;
- **Indirect Impacts** – Potential impacts which are not a direct result of a Project activity, that may be realised later in time or at distances further removed from the project footprint, but are normally a result of a complex pathway;

- **Cumulative Impacts** – Changes to the environment that are caused by an action in combination with other past, present and/or future actions;
- **Beneficial Impacts** – Those impacts that have a positive, desirable or favourable effect on the sensitive resources or receptors (e.g., landscape providing artificial habitat for a variety of species, jobs opportunities during the construction and/or occupation phases of a project);
- **Adverse Impacts** – Those impacts that are detrimental and have a negative influence on the environment, social structures, resources or other receptors;
- **Secondary Impacts** – Potential impacts that may result from the implementation of protection measures applied to mitigate potential direct impacts; and
- **Event Related Impacts** – Potential unplanned or accidental impacts stemming from an unintentional event such as fire, explosion, leakages, oil spill, etc.

#### DETERMINING AREA OF INFLUENCE

The area of influence for each assessed aspect (e.g., air quality, noise etc.) has been established within each dedicated chapter. In some cases, this differs between each impact, for example, with regards to air quality, there is a different area of influence established for individual impacts such as dust generation and gaseous emissions. This is further outlined within individual chapters.

#### DETERMINING IMPACT MAGNITUDE

The magnitude of an impact has numerous components, for example:

- The extent of physical change;
- The level of change in an environmental condition;
- The permanence of impact and the reversibility of the impacted condition;
- Its spatial footprint;
- Its duration and frequency; and
- Its likelihood of occurrence where the impact is not certain to occur.

The magnitude of the impact will be defined wherever possible in quantitative terms and where necessary, the determination of impact magnitude will be assisted through the use of modelling. The general criteria used for identifying the magnitude of impacts is provided within the following table.

**Table 4-3 Impact Magnitude Criteria**

| MAGNITUDE | DESCRIPTION OF MAGNITUDE |
|---|---|
| **Major** | **Adverse**: Loss of resource and/or quality and integrity; severe damage to key characteristics, features or elements. Permanent / irreversible change to livelihoods. Severe non-compliance risks relating to labour, gender, security, community health. A major impact is usually large in extent, permanent and irreversible. |

| MAGNITUDE | DESCRIPTION OF MAGNITUDE |
|---|---|
| | **Beneficial**: Large scale or major improvement of resource quality; extensive restoration or enhancement in livelihoods; major improvement of attribute quality. |
| **Moderate** | **Adverse**: Significant impact on the resource, but not adversely affecting the integrity; Partial loss of/damage to key characteristics, livelihoods, features or elements. Moderate impacts usually extend outside the site boundary, and are usually permanent, irreversible or cumulative.<br><br>**Beneficial**: Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality. |
| **Minor** | **Adverse**: Some measurable change in attributes quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features, livelihoods or elements. Minor impacts usually are only noticeable within the site and are temporary and reversible.<br><br>**Beneficial**: Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring. |
| **Negligible** | **Adverse**: Very minor loss or detrimental alteration to one or more characteristics, features or elements.<br><br>**Beneficial**: Very minor benefit to or positive addition of one or more characteristics, features or elements. |
| **No change** | No loss or alteration of characteristics, features or elements; no observable impact in either direction. |

| MAGNITUDE | DESCRIPTION OF MAGNITUDE |
|---|---|
| **Major** | **Adverse**: Loss of resource and/or quality and integrity; severe damage to key characteristics, features or elements. Permanent / irreversible change to livelihoods. Severe non-compliance risks relating to labour, gender, security, community health. A major impact is usually large in extent, permanent and irreversible.<br><br>**Beneficial**: Large scale or major improvement of resource quality; extensive restoration or enhancement in livelihoods; major improvement of attribute quality. |
| **Moderate** | **Adverse**: Significant impact on the resource, but not adversely affecting the integrity; Partial loss of/damage to key characteristics, livelihoods, features or elements. Moderate impacts usually extend outside the site boundary, and are usually permanent, irreversible or cumulative.<br><br>**Beneficial**: Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality. |
| **Minor** | **Adverse**: Some measurable change in attributes quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features, livelihoods or elements. Minor impacts usually are only noticeable within the site and are temporary and reversible.<br><br>**Beneficial**: Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring. |
| **Negligible** | **Adverse**: Very minor loss or detrimental alteration to one or more characteristics, features or elements.<br><br>**Beneficial**: Very minor benefit to or positive addition of one or more characteristics, features or elements. |

| Magnitude | Description of Magnitude |
|---|---|
| **No change** | No loss or alteration of characteristics, features or elements; no observable impact in either direction. |

**Determining Significance**

The significance of effects is a combination of the sensitivity of a receptor or resource and the magnitude of the project impact.

The following matrix provides criterion used for determining the significance of environmental effects through consideration of the potential magnitude of impact and sensitivity of the associated receptor.

As is evident from the matrix, in some cases the significance product is a range (i.e., a 'Minor' Magnitude and a 'Very High' Sensitivity results in a 'Moderate to Major' Significance). In these cases, professional judgement will be used to determine which significance the impact best represents.

**Table 4-4 Criteria for Determining Significance of Effects**

| | | Magnitude of Impact (Degree of Change) | | | | |
|---|---|---|---|---|---|---|
| | | **No change** | **Negligible** | **Minor** | **Moderate** | **Major** |
| **Sensitivity of Receptor** | **Very High** | Neutral | Minor | Moderate to Major | Major | Major |
| | **High** | Neutral | Minor | Minor to moderate | Moderate to Major | Major |
| | **Medium** | Neutral | Negligible to minor | Minor | Moderate | Moderate to Major |
| | **Low** | Neutral | Negligible to minor | Negligible to minor | Minor | Minor to moderate |
| | **Very Low** | Neutral | Negligible | Negligible to minor | Minor | Minor |

The following table outlines general definitions of significance.

**Table 4-5 Definition of Significance**

| Significance Category | Criteria |
|---|---|
| **Major** | • The impact is large scale and would cause a large improvement or deterioration in the environment,<br>• Adverse impacts may be considered unacceptable due to exceeded of statutory limits or compliance and may require additional studies to ascertain if alternatives (in terms design and location) with the potential for lower impacts should be considered. These impacts represent key factors in the decision-making process.<br>• These impacts are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category. |
| **Moderate** | • The impact gives rise to noticeable improvement or deterioration to the existing environment at a regional or local scale.<br>• If adverse, impacts are potential concerns to the project and may become key factors in the decision-making process.<br>• Whilst the impacts will be experienced, mitigation measures and detailed design work may reduce (or enhance) the effect. Some residual effects will still arise. |
| **Minor** | • The impact is small scale and would cause a small improvement or deterioration to the existing environment.<br>• Adverse effects are undesirable but acceptable and within statutory limits and not likely to be key decision-making issues.<br>• Mitigation measures are typically not requited to mitigate such effects.<br>• The cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource. |
| **Negligible** | • No discernible improvement or deterioration to the existing environment as a result of the Project will occur.<br>• Local issue unlikely to be of importance in the decision-making process.<br>• Effects do not exceed statutory limits.<br>• They are of relevance in enhancing the subsequent design of the project and consideration of mitigation or compensation measures. |
| **Neutral** | • No effect or effect that is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.<br>• No mitigation is required. |

The approach to assigning significance relies on reasoned argument, professional judgement and cognisance to the advice and views of the appropriate regulators and organisation. For some disciplines, it is determined by comparison, wherever possible with locally, nationally or internationally accepted standards.

### 4.2.3 Mitigation and Management Measures

A key component of the ESIA process is to explore practical ways of avoiding or reducing potentially significant impacts caused by the development of the Project. These are commonly referred to as mitigation and management measures and will be included in the ESIA report and further incorporated in the future construction Health, Safety, Social and Environmental Management System (HSSE-MS) and Operational HSSE-MS that will be prepared by concerned parties. Mitigation will be aimed at preventing, minimising, or managing significant adverse impacts to as low as reasonably practicable and enhancing and

maximising any potential beneficial impacts of the Project. Refer to Volume 3 of the ESIA for the full list of plans and procedures that will be prepared as part of the HSSE-MS.

The approach taken to identifying and incorporating mitigation measures into the Project is based on a typical hierarchy of decisions and measures. This is aimed at ensuring that wherever possible, potential impacts are mitigated at source rather than mitigated through restoration after the impact has occurred.

Upon approval of the Project, the stated mitigation and management measures in the approved ESIA will be required for implementation as a condition of the Environmental Permit or as part of the lenders' loan agreement.

### 4.2.4 Residual Impacts

The residual impacts section considers the overall significance of impacts following the implementation of the additional mitigation and management measures not included by design. The significance of such impacts is based upon the same criteria used to determine the impact significance stated above.

### 4.2.5 Cumulative Impacts

Cumulative impacts are those impacts that result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones.

In practice, the assessment of cumulative effects requires consideration of some concepts:

- Assessment of effects over a larger (i.e., "regional") area that may be transboundary/cross-jurisdictional; (including effects due to natural perturbations affecting environmental components and human actions).
- Assessment of effects during a longer period of time into the past and future;
- Consideration of national renewable plans and national grid expansion and strengthening and cumulative impacts of national and regional development of energy projects and associated infrastructure;
- Assessment of effects on Valued Environmental Components due to interactions with other actions, and not just the effects of the single action under review; and
- Evaluation of significance in consideration of other than just local, direct effects.

# 5 STAKEHOLDER ENGAGEMENT

The following is a brief summary of the Project's Stakeholder Engagement conducted to date, refer to the Stakeholder Engagement Plan for further details of stakeholder engagement conducted to date and the plan for upcoming engagement.

## 5.1 National Requirements

Based on the Azerbaijani legal updates published in October 2022, the Cabinet of Ministers issued EIA Rules approved by Resolution No 362 on September 21, 2022, pursuant to its mandate under the EIA Law enacted on July 17, 2018.

According to the new rules, project developers are required to consult with the State Ecology Expertise Agency within the Ministry of Ecology and Natural Resources during the pre-design phase. During this phase, developers are required to issue an Application Letter detailing the project description and proposed assessment details. This submission is also required to outline the plan for the public hearings.

## 5.2 Lender Requirements

Engagement with stakeholders is an essential part of the environmental and social assessment process. The main objective is to establish meaningful dialogue with those parties who may be involved in aspects of the Project or may have an interest in the outcome of the ESIA process.

Further details with regards to Lender Requirements for engagement with stakeholders are provided in the SEP.

## 5.3 Stakeholder Mapping and Engagement Planning

The aim of the stakeholder mapping is to identify relevant stakeholders and to assess each stakeholder to understand their relevance so that consultation can be targeted and prioritised.

It is important to note that at this stage, the situation is dynamic and that both stakeholders and their interests might change over time, in terms of level of relevance to the Project and the need to actively engage at various stages.

The following table provides a summary of stakeholder bodies identified, note the table does not include specific names of farms etc., however, the Project-specific SEP provides further details. In addition, the SEP outlines the grievance redress mechanism.

**Table 5-1 Stakeholder Engagement Matrix for the Project**

| STAKEHOLDER GROUP | STAKEHOLDER | RELEVANCE TO PROJECT: IMPACT-BASED (A), INTEREST-BASED (I), OR DECISION MAKER (D) |
|---|---|---|
| **Directly Affected Stakeholders** | Project Land Users and their families:<br>- Ten herders, two workers, and their structures users at the Project site. One formal land user;<br>- Ten informal land users who are either grazing or using the settlements on site without legal lease agreements. This includes nine herders and one worker who also owns livestock.<br>  • Family members of these land users also support them in undertaking herding activities. It is noted that none of these family members receive a salary, and they support the grazing activities as this is their main source of household income.<br>- Two informal workers (one of which is also an informal land user as, instead of earning a salary, he is allowed to graze his own livestock and that of his brother. The other worker is salaried). | **A:** The project site is used herders, specifically during the winter grazing season, there is also one permanent resident. Refer to the Resettlement Action Plan for further details. |
| | Construction Workers:<br>- Project's construction workforce including the EPC Contractor's subcontractors and supplier workers. | **A:** Direct Project related impacts during construction phase and potential labour issues. |
| **Indirectly affected stakeholders** | Surrounding land users;<br>- Herders who located at outside of the project area in five settlements. | **A:** The closest structures to Project boundaries that may be indirectly impacted due to the increased traffic, dust, noise. |

| Stakeholder Group | Stakeholder | Relevance to Project: Impact-based (A), Interest-based (I), or Decision Maker (D) |
|---|---|---|
| | Surrounding Communities<br>- Shorsulu Village;<br>- Dayikend Village;<br>- Sarvan Village;<br>- Khirmandali Village; and<br>- Aliabad Village | **A:** The closest communities to the Project boundaries. This includes potential exposure to indirect impacts relating to socioeconomic impacts. |
| **Vulnerable groups** | Vulnerable groups in the Project area (such as veterans of war, martyr families, unemployed youth, low-income families and women, herders female led households & persons living with disabilities, IDPs, women and elderly members of the community) | **A:** These groups may be disproportionately impacted by the Project impacts such as those relating to mobility, availability, Gender Based Violence & Harassment (GBVH), spread of diseases, labour/economic exploitation etc. All PAHs are considered to be vulnerable. |
| **Local governmental authorities** | Bilasuvar District Executive Power (Committee) | **D:** Project area lies within the jurisdiction of the Municipality |
| | Bilasuvar District Municipality | |
| | Sarvan Municipality (includes Sarvan and Dayikend villages) | |
| | Gender Commissions of the Municipalities | |
| | Shorsulu Municipality | |
| **State Organisations** | Ministry of Energy | **D:** Responsible for Project support during its planning and development stages. |
| | Ministry of Culture and Tourism of Republic of Azerbaijan | **I:** Regulatory body overseeing cultural and archaeological sites/features issues and confirming absence of importance of Project site from cultural and archaeological perspective. |

| Stakeholder Group | Stakeholder | Relevance to Project: Impact-based (A), Interest-based (I), or Decision Maker (D) |
|---|---|---|
| | Azerbaijan Academy of Sciences, Institute of Archaeology and Ethnography (AAS IAE) | **I:** According to national requirements, Ministry of Culture requires Academy approval/advice before granting permits for the excavation of archaeological and heritage sites |
| | Ministry of Ecology and Natural Resources (MENR) | **D:** Regulatory body overseeing protected areas, ecologically sensitive and environmental issues. Provide the approval of the ESIA Report for the Project. |
| | Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan | **I:** Regulatory body overseeing transport in Azerbaijan. Will be consulted for approving transportation routes. |
| | Azerenergi JSC | **D:** Off-taker and responsible for development of OHTL required for the Project. |
| | Bilasuvar Women Resource Centre (established by the State Committee for Family, Women and Children Affairs) | **I:** Interested with regards to impacts and opportunities for local women. |
| **Limited Liability Companies** | Aztelekom LLC | **I:** Should be consulted if any communication lines will be identified. |
| **Financial institutions** | Lenders (ADB, AIIB, EBRD and IFC) | **D:** Key interest in the project development and project success. Interest includes potential environmental and social risks related to project financing. |
| **NGOs /CSOs** | NGOs Public Council at MENR | **I:** Will be interested in the execution of the Project and its environmental impacts and mitigation measures. |
| | Public Unions ("Support to the Social Development of Women in Bilasuvar" Public Union, "Young Leaders" Education-Training and Development Public Union, Azerbaijan Social Work Association) | **I:** Potentially interested in project impacts to the environment. |
| | Bird Life International | **I:** Potentially interested in project impacts related to avifauna. |
| | Bankwatch | **I:** Potentially interested in project's environmental and social impacts. |

| Stakeholder Group | Stakeholder | Relevance to project: impact-based (A), Interest-based (I), or decision maker (D) |
|---|---|---|
| | Coalition for Human Rights in Development | |
| | Local NGOs (Public Association for Assistance to Free Economy, Publish What You Pay, The Centre for International Private Enterprise, Crude Accountability, Centre for Economic and Social Development) | |
| **Media** | Regional and local mass media | **I:** Will potentially be involved in reporting on and disseminating information about the Project. |
| **Workers and workers organisations** | Project workers and employees (including EPC Contractor and subcontractors), intermediary agencies, trade unions | **A:** Potential project related impacts during both construction and operation phase. |

## 5.4 ESIA Phase Stakeholder Engagement

The following subsections provide a brief summary of key items of stakeholder engagement undertaken for the Project during the Scoping and ESIA phase. For a detailed overview, details of the grievance mechanism and the plan for upcoming stakeholder engagement, refer to the Project-specific SEP.

### 5.4.1 Scoping Stage Consultation

During the Scoping stage and site observations, several consultations were conducted, including engagements with local authorities. Notably, discussions were held with the Executive Power of Bilasuvar District, as well as with herders. These consultations aimed to gather insights, collect feedback, understand previous land use and ensure alignment with local regulations and interests as part of the project development process.

Summary of conducted consultations provided in table below.

**Table 5-2 Summary of Scoping Stage Conducted Consultations**

| STAKEHOLDER GROUP | STAKEHOLDER | RELEVANCE CATEGORY | CONSULTATION AGENDA | MODE OF ENGAGEMENT | INPUTS TO DATE |
|---|---|---|---|---|---|
| **Local Governmental Authorities** | Bilasuvar Executive Power/Committee | **D:** The Project area lies within the jurisdiction of the Executive Power. This organisation will give a decision on land allocation to the Project as well as any resettlement or provision of alternative lands and removal of existing assets within the Project footprint if required. | • Discussion of Executive Power role in Project implementation;<br>• Discussion of previous land use situation;<br>• Discussion of land use by local communities;<br>• Discussion of availability of alternative land;<br>• Collecting feedback from Executive Power;<br>• Establishment of the Project's external Grievance Redress Mechanism (GRM). | Face to face meetings/site observations<br><br>Date of meeting: February 20, 2024<br><br>Venue: Office of Bilasuvar Executive Power | Executive Power provided information on:<br>• Previous land use;<br>• Role and responsibility of Executive Power has been provided;<br>• Executive Power agreed to support all E&S baseline surveys and access to Project site;<br>• Executive Power provided information on previous land use as well as confirmed availability of alternative land for herder whose 110 ha of land is going to be impacted by Project;<br>• Executive Power confirmed to provide a statistic data related to socio-economic state of nearby communities.<br>• Executive Power confirmed that they can remove all existing assets at the Project site as per local legislation;<br>• Executive Power agreed to support 5Cs with all surveys associated with RAP. |
| **Directly Affected Stakeholders** | One affected herder (met at the Project site) | **A:** The project site is used herders, specifically during the winter grazing season, there is also one permanent resident. | - Sharing information about Project;<br>- Discussion of herder's land use conditions;<br>- Discussion of relocation of herder's settlement;<br>- Providing Project leaflet and GRM details. | Face to face meetings/site observations<br><br>Date of meeting: February 20, 2024 | Herder provided following information:<br>• Herder has formal land lease agreement for land plot which is outside of Project boundaries.<br>• Herder confirmed that he has been informed by Bilasuvar Executive Power on Solar PV project and he is fine with relocating his settlement to the land |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs to Date |
|---|---|---|---|---|---|
| | | | | Venue: At the Project site | that is formally under his land lease agreement;<br>• Herder appreciated that Executive Power will provide a support in relocation of the settlement;<br>• No comments or concerns were raised during consultation. |
| **Indirectly affected stakeholders** | Herders outside the Project site | **A:** The closest structures to Project boundaries that may be indirectly impacted due to the increased traffic, dust, noise). | - Sharing information about Project;<br>- Discussion of herders' grazing activities<br>- Providing Project leaflet and GRM details. | Face to face meetings/site observations<br><br>Date of meeting: February 20, 2024<br><br>Venue: At the Project site | Two herders whose settlements are located nearby the Project boundaries were consulted and following information has been obtained:<br>• Both herders have formal land lease agreements, and it is not overlapped with Project boundaries;<br>• Both herders use to graze livestock during October – April;<br>• Both herders informed that they bring family members (including children) during the grazing period;<br>• Both herders stated that they were previously informed about Project by Executive Power.<br>• No comments or concerns were raised during consultation |

### 5.4.2 ESIA Stage Consultation

The consultations conducted during the ESIA phase followed a stakeholder matrix specifically developed for the Project, ensuring a thorough assessment of the impacts on various groups affected by the Project's construction and operation. Face-to-face consultations were held with Bilasuvar Executive Committee as well as with PAHs. Additionally, neighbouring districts, Salyan Executive Committee as well as communities were consulted to provide information on planned Project. These consultations aimed to gather secondary data, obtain necessary confirmations or approvals, and facilitate meetings with PAPs and nearby residents.

A summary of the consultations Is provided in the table below.

**Table 5-3 Summary of ESIA Stage Conducted Consultations**

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| **Local Governmental Authorities** | Bilasuvar District Executive Committee | **D:** The Project area lies within the jurisdiction of the Executive Power and Municipality. These organisations will give a decision on land allocation to the Project as well as any resettlement or provision of alternative lands and removal of existing assets within the Project footprint if required. | • Providing access to the Project site and identification of existing assets within Project boundaries;<br>• Assisting in identification of potential PAPs who are using Project site for grazing purposes and utilizing assets;<br>• Providing secondary data related to socio-economic state of project district; and<br>• Discussion of allocation of alternative land for herder whose partial plot of leased land was affected by project. | Face to face meetings/site observations/phone calls;<br><br>Date of meeting: continuously during April-June 2024<br><br>Venue: Office of Bilasuvar Executive Committee/Project site<br><br>An additional meeting was conducted on the 30th August 2024, with the Executive Power, Ministry of Energy, Project Sponsors and PAPs | Executive Power committed to providing information on:<br>• Number and type of existing assets at the project site;<br>• A map describing the location of the settlements with the Project area;<br>• A list of potential PAPs who are utilizing these existing assets and grazing livestock;<br>• Statistics data on the current socio-economic state of Bilasuvar district<br><br>The District Executive Committee also provided information on the usage of surrounding settlements. | On 30th August 2024, a discussion with regards to livelihood restoration as part of the RAP was conducted at the Bilasuvar EP Office Building. Participants included the Ministry of Energy, Masdar, SOCAR Green, Bilasuvar Executive Power, PAHs and 5 Capitals.<br>Several options for alternative livelihood restoration based on project impacts were discussed during the meeting. |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| | Salyan District Executive Power<br>Shorsulu Municipality<br>Sarvan Municipality (includes Sarvan and Dayikend villages) | **A:** The closest communities to the Project boundaries. This includes potential exposure to indirect impacts relating to visual impacts, increased traffic, dust and noise at construction stage (safety concerns). | • Providing Project information, sharing Project leaflet as well as GRM contact details<br>• Obtaining information on use of highway E 119<br>• Obtaining information on current socio-economic status of village and the list of land owners adjacent to project area (E-119/M-3 motorway). | Face to face meetings/Project Brochures<br><br>Date of meeting: 13 March 2024<br><br>Venue: Salyan District Executive Power Office | Meeting Discussion Points:<br>• The Executive Committee stated that they have no feedback or concerns associated with the Project.<br>• It was agreed that information related to the nearest communities' socio-economic state will be provided by local municipalities.<br>• It was stated that local highway E 119 is constantly used by local residents for daily purposes.<br>• The socio-economic profile table for Shorsulu and Sarvan villages was shared with village authorities for them to complete and return.<br>• A KMZ map was sent to village authorities to identify | The Project team outlined an overview of the Project, gave updates regarding the Project process, the anticipated project impacts, the timelines for implementation and to outline the GRM in case of any queries, concerns or grievances.<br>The received information was used to prepare project documentation including ESIA, SEP and RAP. |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| | | | | | landowners/users adjacent to the project area and provide their list.<br>• Once the list of landowners/users is received, consultations were to be conducted to discuss project details, environmental impacts, and transportation.<br>• The E119/M-3 motorway separates Bilasuvar and Salyan districts, with areas adjacent to the motorway fenced off and having no direct access to it. | |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| **State organisations** | Ministry of Culture of Republic of Azerbaijan | **I**: Regulatory body overseeing cultural and archaeological sites/features issues and confirming absence of importance of Project site from cultural and archaeological perspective. | • Project information, confirmation of proximity of nearby features of archaeological or cultural interest, details of requirements during construction phase. | Business correspondence | The State Service for Cultural Heritage Protection, Development and Restoration under the Ministry of Culture, conducted a site visit and inspection alongside Masdar representatives and following the inspection issued a letter on the 20th August 2024 to Masdar in which the Ministry of Culture confirm that the absence of archaeological and cultural heritage items within the site. The letter also outlines the requirements to be followed in the event of a chance find. | The information was included within this ESIA Report. |
| | Ministry of Ecology and Natural Resources (MENR) | **D:** Regulatory body overseeing protected areas, ecologically sensitive and environmental issues. Provide the approval | • Submission of Scoping reports for review<br>• Submission of ESIA reports for review and obtaining approval for Project construction | 1) The Scoping Report was issued on May 17, 2024, to request feedback from MENR on the proposed methodology of the ESIA. | At Scoping Stage Meeting followings key issues were discussed:<br>• <u>Impact on Birds:</u> The potential impact of solar panels on bird populations in the ornithologically sensitive Banka | 5 Capitals, Masdar and SOCAR Green presented an overview of the Project, the team members involved, the plan for environmental and social surveys, the potential impacts, timeline and |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project Response / Use of Information |
|---|---|---|---|---|---|---|
| | | of the ESIA Report for the Project. | | 2) Scoping stage meeting:<br>Date: 29.05.2024<br>Venue: Office of MENR<br><br>3) MENR shared a response letter with MASDAR on June 12, 2024, regarding the scoping report review. | (Neftchala) area was discussed. It was noted that there are no major impacts expected on bird life due to existing anthropogenic activities. Field surveys will be conducted to monitor the seasonal movements of birds in the area.<br><br>The response letter from MENR emphasizes the need for a detailed assessment of the project's impact on bird populations due to the project's proximity to important ornithological areas. Additionally, it highlights the requirement for a public hearing to be conducted, with the results included in the Environmental Impact Assessment (EIA) report. The letter also covers | deliverables. The team answered specific questions with regards to potential impacts on microclimate and avifauna. |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project Response / Use of Information |
|---|---|---|---|---|---|---|
| | | | | | various other environmental considerations such as:<br><br>• The current state of project areas, including air, water, and soil quality.<br>• Biodiversity, hydrological and geological conditions, and climate.<br>• The technical aspects of the project, resource requirements, and potential environmental impacts.<br>• Waste management, emergency and risk assessment, and environmental protection measures throughout the project's phases.<br>• Preparation of environmental management and monitoring plans, as well as | |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| | | | | | rehabilitation plans after project completion.<br><br>Furthermore, it is noted that no specific comments were made regarding the scoping report itself. | |
| **Directly Affected Stakeholders** | Affected herders and workers | **A:** Land use change as a result of the Project will change the land use and result in access restrictions. In addition, existing structures will be required to be removed prior to construction start. | • Discussion of previous and current land use situation<br>• Conducting inventory survey to assess impacted structures<br>• Conducting socio-economic surveys to assess the impact to herders' households | 1) Phone call consultations with affected PAPs<br><br>2) Socio-economic surveys of PAPs households<br><br>3) Inventory and valuation surveys of affected assets<br><br>4) Further consultations have been conducted with the PAPs in August 2024, refer to the RAP for further details. | • Herders were informed about Project in 2023 by Bilasuvar Executive Committee;<br>• During the April 2024, initial meetings with PAPs have been carried out to prepare preliminary list of PAPs and determine categories of PAPs;<br>• On May 8th the general meeting with PAPs has been arranged at Bilasuvar Executive Committee to provide detailed information about Project and explain the nature of surveys that should | Information obtained has been used to prepare the project documentation, including the RAP.<br>The Project team have been in frequent communications with the PAPs/PAHs regarding the Project process, the timelines for implementation and to outline the GRM in case of any queries, concerns or grievances. |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| | | | | | be conducted in a framework of Resettlement Action Plan;<br>• On May 10th inventory surveys with participation of PAPs were carried out by independent valuator; and<br>• Socio-economic surveys for PAPs households were conducted between May 8-31st.<br>• Further consultation has been conducted with the PAPs and household members to collect additional information including alternative livelihood restoration and provide information on the grievance mechanism. | |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| **Indirectly affected stakeholders** | Herders and their structures outside of Project boundaries | **A:** The closest structures to Project boundaries that may be indirectly impacted due to the increased traffic, dust, noise and temporary restriction to the areas of construction works (safety concerns). | - Providing Project leaflet and GRM details.<br>- Boundaries/land plots of herders for grazing livestock<br>- Usage of Project area, if any | Face to face meetings and phone call<br><br>Date of meeting:<br>February 20th, and May 10th 2024<br><br>Venue: At the Project site & call | There are 5 settlements located within proximity to the Project boundaries. 1 out of 5 settlements belong to herder whose land plot is going to be impacted by Project.<br><br>1 settlement is located at land plot belonging to neighbouring Salyan District.<br><br>Herders who own these structures confirmed that their leased land plots are not affected by Project area.<br><br>In addition, all herders confirmed that they are not herding outside of leased land plot boundaries. | The Project team have been in communications with the herders regarding the Project process, the potential project impacts, the timelines for implementation and to outline the GRM in case of any queries, concerns or grievances. |

| Stakeholder Group | Stakeholder | Relevance Category | Consultation Agenda | Mode of Engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| **NGOs / CSOs** | Public Unions ("Support to the Social Development of Women in Bilasuvar" Public Union"<br>"Young Leaders" Education-Training and Development Public Union, Azerbaijan Social Work Association) | **I:** Potentially interested in the Project's environmental and social impacts / benefits. | Overview of project details, activities, timeline, impacts, and grievance mechanism. | Online meeting | Online meetings were conducted on 30th July 2024.<br>During the meeting with "Young Leaders" Education-Training and Development Public Union, the importance of training and education to the young and vulnerable groups was highlighted.<br><br>During the meeting with Azerbaijan Social Work Association, the topic of education was also mentioned as well as involving young people and people originally from Neftchala and Bilasuvar so that they can return from Baku and work on projects in their region. Unemployment in the region was also highlighted as a key difficulty.<br><br>During the meeting with "Support to the Social Development of | The Project team provided an overview of the Project, the anticipated project impacts, the status to date and the upcoming milestones and construction/operation timelines. An overview of potential for employment in the project was discussed as were initiatives with local communities and the NGOs/CSOs. |

| Stakeholder group | Stakeholder | Relevance category | Consultation agenda | Mode of engagement | Inputs from Stakeholders | Project response / Use of Information |
|---|---|---|---|---|---|---|
| | | | | | Women in Bilasuvar'' Public Union, suggestions for arranging transportation for women workforce to the Project area were raised, as well as other opportunities for women such as tailoring. Unemployment and water scarcity were highlighted as issues for the region. | |

### 5.4.3 Public Consultation Meeting

As part of the ESIA process, a public consultation meeting was planned. To determine the venue and date, a letter was sent to the officials of the Bilasuvar District Executive Power/Committee. The venue and date were decided based on the preferences of the Bilasuvar Executive Power and the community. The Bilasuvar Executive Power also notified the community and invited the public to the meeting to provide project information, introduce the grievance mechanism established for the project, and hear any feedback or concerns.

The public consultation meeting was held with local community members at the Bilasuvar Executive Power Office in Bilasuvar District on July 11th, 2024, with 25 attendees (3 women and 22 men).

The meeting was conducted in Azerbaijani, starting with an introductory presentation session and ending with a question-and-answer session.

Key subjects discussed during the meeting are summarised below. Further details are provided in the SEP:

- All attendees agreed to the recording of the meeting to ensure a full understanding of the content and transparency.
- Introduction of Masdar, the E&S Consultant Team, and attendees from relevant stakeholder groups.
- Key project information provided, including the construction start in Q4 2024, project area size, and land ownership.
- Project rationale and potential contributions to the country's energy sources.
- Discussion of the project location, baseline surveys, and socioeconomic information gathered from ExCom and Municipalities.
- Stakeholder consultations, potential positive impacts (local employment), and negative impacts (temporary dust generation), along with planned mitigation measures.
- Explanation of the established grievance mechanism and the contact person for grievances or queries.
- Distribution of project brochures to community members.
- Employment opportunities and requirements strategy explained:
    - Job positions will be announced at the Executive Power and Municipalities.
    - Employment requirements subject to job skills and relevant certifications.
    - Emphasis on vulnerable groups and gender equality in job opportunities.

- Explanation of the grievance process, including anonymous submissions.

- Masdar's plans for implementing social projects.
- In the Q/A session, below discussions are noted:
  - Question 1: Enquiry about job opportunities for unskilled workers and average salary.
    - Answer 1: Unskilled workers can apply, employment depends on job requirements. Average wage details based on previous projects were provided.
  - o Question 2: Concern about vacating settlement and the need for an alternative area.
    - Answer 2: Masdar and stakeholders addressed concerns by discussing state land ownership, alternative solutions, and support measures such as fodder provision and relocation assistance.
  - o Question 3: Enquiry about relocation assistance for structures within the project area.
    - Answer 3: Masdar confirmed support for dismantling and relocation, aiming for agreements with all PAPs to ensure a smooth resettlement process.

# 6 AIR QUALITY

## 6.1 Applicable Requirements & Standards

### 6.1.1 National Regulations

Ambient air quality in Azerbaijan is regulated by the Law No. 109-IIQ on Protecting the Atmosphere. This law entered into force on 27th March 2001 with the purpose of:

- Protecting public health;
- Preventing air pollution;
- Regulation air emissions; and
- Gathering information on ambient air quality and pollution amongst others.

Currently, the air quality standards of the Soviet period are still in use in Azerbaijan. The table below provides the ambient air quality standards that should not be exceeded as a result of Project activities.

**Table 6-1 Ambient Air Quality Standards (µg/m³, unless otherwise stated)**

| PARAMETER | AVERAGING PERIOD | MAXIMUM ALLOWABLE CONCENTRATION | |
|---|---|---|---|
| | | $MAC_{ON}$[6] | $MAC_{AD}$[7] |
| **Sulphur Dioxide ($SO_2$)** | 20-30 minutes | 500 | - |
| | 1 hour | - | - |
| | 24 hours | - | 50 |
| **Nitrogen Dioxide ($NO_2$)** | 20-30 minutes | 85 | - |
| | 1 hour | - | - |
| | 24 hours | - | 40 |
| **Carbon Monoxide (CO)** | 20-30 minutes | 5 (mg/m³) | - |
| | 1 hour | - | - |
| | 24 hours | - | 3 (mg/m³) |
| **Ozone ($O_3$)** | 20-30 minutes | 160 | - |
| | 8 hour mean | - | - |
| | 24 hours | - | 30 |
| **Benzene ($C_6H_6$)** | 20-30 minutes | 1500 | - |
| | 8-hour mean | - | - |
| | 24 hours | - | 30 |
| | 24 hours | - | 100 |
| **Lead (Pb)** | 20-30 minutes | 1 | - |

[6] **$MAC_{on}$** - the maximum allowable single concentration of a chemical in the air of residential areas, µg/m3. This concentration inhalation for 20-30 minutes should not cause reflex responses in humans.

[7] **$MAC_{ad}$** - the maximum allowable daily average concentration of a chemical in the air of residential areas, µg/m3. This concentration should not affect a person direct or indirect harmful effects with an indefinite period of time.

| Parameter | Averaging Period | Maximum Allowable Concentration | |
|---|---|---|---|
| | | $MAC_{ON}$[6] | $MAC_{AD}$[7] |
| | 24 hours | - | 0.3 |
| **Arsenic (As)** | 24 hours | - | 2 |
| **Cadmium (Cd)** | 24 hours | - | 0.3 |
| **Nickel (Ni)** | 24 hours | - | 1 |

### 6.1.2 Lender Requirements

**ADB, AIIB AND IFC**

ADB, AIIB and IFC require adherence to the World Health Organisation (WHO) Ambient Air Quality Guidelines (2021).

**Table 6-2 WHO Ambient Air Quality Standards (µg/m³ unless otherwise specified)**

| Parameter | 24 hour | Annual |
|---|---|---|
| **$PM_{10}$** | 150 (Interim target 1) | 70 (Interim target 1) |
| | 100 (Interim target 2) | 50 (Interim target 2) |
| | 75 (Interim target 3) | 30 (Interim target 3) |
| | 50 (Interim target 4) | 20 (Interim target 4) |
| | 45 (guideline) | 15 (guideline) |
| **$PM_{2.5}$** | 75 (Interim target 1) | 35 (Interim target 1) |
| | 50 (Interim target 2) | 25 (Interim target 2) |
| | 37.5 (Interim target 3) | 15 (Interim target 3) |
| | 25 (Interim target 4) | 10 (Interim target 4) |
| | 15 (guideline) | 5 (guideline) |
| **$NO_2$** | 120 (Interim target 1)<br>50 (Interim target 2)<br>25 (guideline | 40 (Interim target 1)<br>30 (Interim target 2)<br>20 (Interim target 3)<br>10 (guideline) |
| **$SO_2$** | 125 (Interim target 1) | 500 (10-minute guideline) |
| | 50 (Interim target 2) | |
| | 40 (guideline) | |
| **$O_3$** | 100 (interim target 1) (8-hour daily maximum) | |
| | 70 (interim target 2) (8-hour daily maximum) | |
| | 60 (8-hour daily maximum guideline) | |

**EBRD**

The following table presents the ambient air quality standards as established by the European Commission Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe.

**Table 6-3 EC Ambient Air Quality Standards (µg/m3 unless stated)**

| POLLUTANT | CONCENTRATION | AVERAGING PERIOD | PERMITTED EXCEEDANCES PER YEAR |
|---|---|---|---|
| **$PM_{2.5}$** | 25 | Annual | n/a |
| **$PM_{10}$** | 50 | 24-hour | 35 |
| | 40 | Annual | n/a |
| **Sulphur Dioxide** | 350 | 1-hour | 24 |
| | 125 | 24-hour | 3 |
| **Nitrogen Dioxide** | 200 | 1-hour | 18 |
| | 40 | Annual | n/a |
| **Lead** | 0.5 | Annual | n/a |
| **Carbon Monoxide** | 10 mg/m3 | Maximum Daily 8-hour mean | n/a |
| **Benzene** | 5 | Annual | n/a |
| **Ozone** | 120 | Maximum Daily 8-hour mean | 25 days averaged over 3 years |
| **Arsenic** | 6 ng/m3 | Annual | n/a |
| **Cadmium** | 5 ng/m3 | Annual | n/a |
| **Nickel** | 20 ng/m3 | Annual | n/a |
| **PAH** | 1 ng/m3 (expressed as concentration of Benzo(a)pyrene) | Annual | n/a |

The EBRD requests that the more stringent thresholds between EU/local/lender requirement apply for the project.

## 6.2 Baseline Conditions

### NATIONAL CONTEXT

Air quality data in Azerbaijan is collected by the National Department of Environmental Monitoring within MENR and by the sanitary and epidemiology centres of the Ministry of Health. The monitoring data is analysed and collated, and the information is distributed among other interested ministries and institutes. The data is published in the Statistical Yearbook.

The Project is located within the Shirvan-Salyan economic region, and the closest monitoring station is in Shirvan. The most recent data from Shirvan is from 2010 and therefore it is considered that there is no recent, relevant ambient air quality data available for the Project site.

### SITE CONDITIONS

The Project site is located away from significant air emission sources. It is expected that ambient air quality is primarily impacted by the nearby roads and any emissions from local agricultural activities, which are considered to be negligible in the context of ambient air quality.

### BASELINE SURVEY

Although significant air quality impacts are not expected, ambient air quality baseline surveys were conducted on the 29th May 2024.

The parameters monitored were: $PM_{10}$, $PM_{2.5}$, $NO_x$, $SO_x$, and CO. All measurements were monitored by a calibrated portable device.

Measurements were conducted as follows:

- 1 hour of measurements in total during the daytime (07:00 am - 10:00 pm) with two 30-minute intervals.
- 1 hour of measurements in total during the nighttime (10:00 pm - 07:00 am) with two 30-minute intervals.

The monitoring was conducted at two locations, one central in the site and one towards the herder structures at the north of the site, their locations are shown on the following figure.

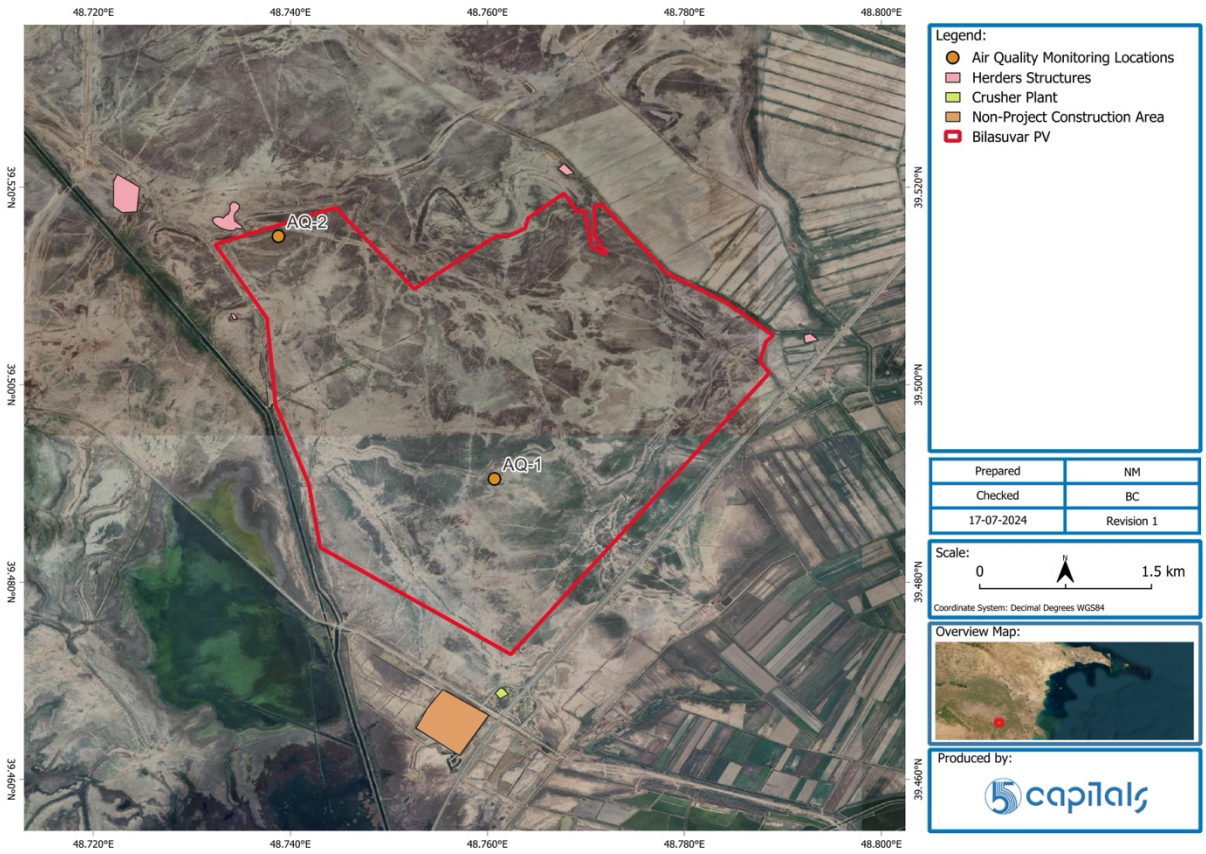


**Figure 6-1 Baseline Air Monitoring Locations**

The following table outlines a summary of the air quality baseline results, for the full suite of results refer to **Appendix E**.

**Table 6-4 Air Quality Baseline Results**

| LOCATION ID | PARAMETER | $PM_{2.5}$ | $PM_{10}$ | CO | $SO_2$ | $NO_2$ |
|---|---|---|---|---|---|---|
| UNIT | | µG/M3 | µG/M3 | MG/M³ | MG/M³ | MG/M³ |
| AQ-1 | Max | 14 | 28 | 0.91 | 0.32 | 0.08 |
| | Min | 5 | 10 | 0.35 | <0.01 | <0.01 |
| | Average | **11** | **23** | **0.58** | **0.09** | **0.02** |
| AQ-2 | Max | 13 | 25 | 0.76 | 0.27 | 0.06 |
| | Min | 5 | 10 | 0.36 | <0.01 | <0.01 |
| | Average | **9** | **18** | **0.56** | **0.05** | **0.02** |

All average results were within the 24-hour WHO Ambient Air Quality guidelines, apart from $SO_2$ at both AQ-1 and AQ-2 where the average value of 0.09 mg/m³ (90 µg/m³) and 0.05 mg/m³ (50 µg/m³) exceeded the WHO 24-hour guideline of 40 µg/m³.

The exceedance of $SO_2$ may potentially be due to emissions during the combustion of fossil fuels, potentially from the nearby herding structures. It is important to highlight that the results

cannot be directly compared with the 24-hour standards as the monitoring period was not 24-hours.

## 6.3 Area of Influence and Receptors

### 6.3.1 Area of Influence

A 250 m buffer (as per the UK Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction (January 2024)) around the Project is shown in the following figure, it is important to highlight that this buffer does not include any construction vehicle routes, which would also result in air quality impacts, and have also been assessed.

This is a precautionary approach, as dust generating activities would not be conducted at the project boundaries (which is where the fence line would be) but likely >50 m inside the fence line.

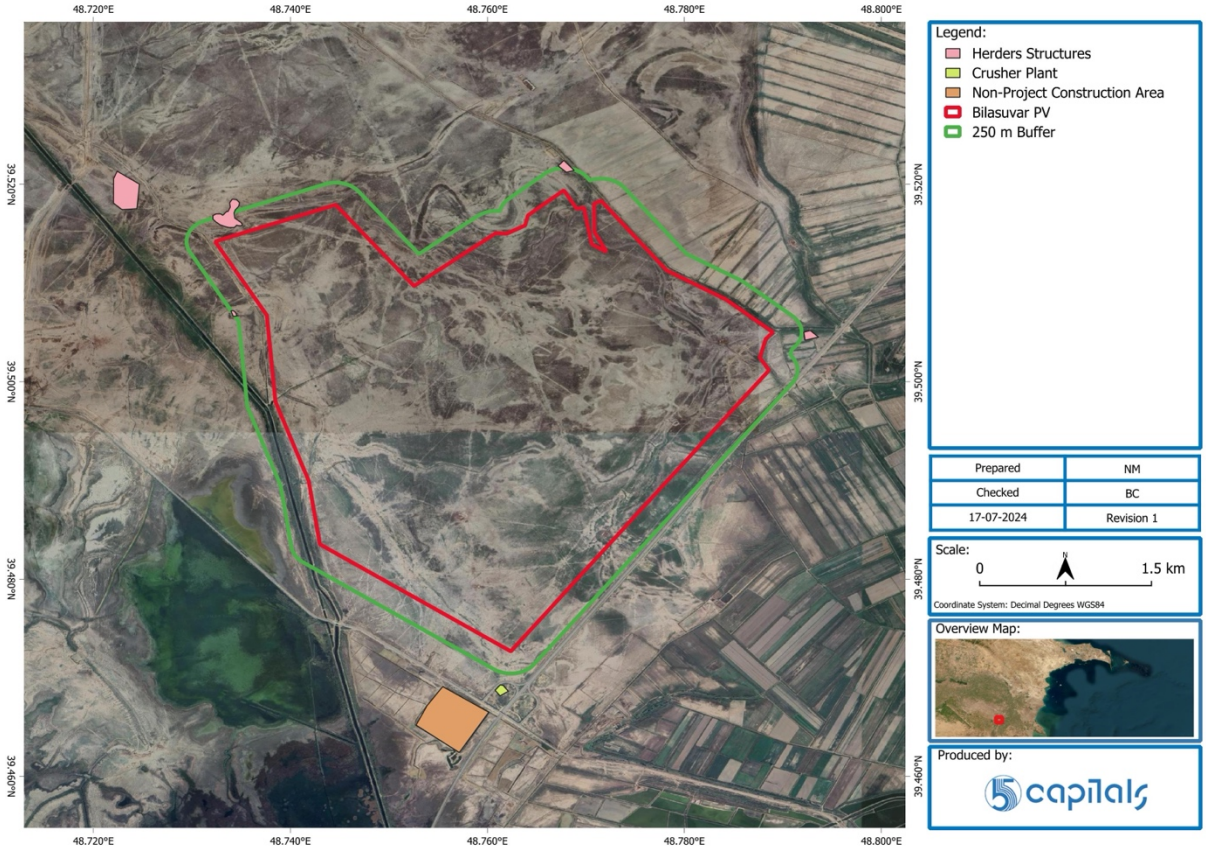


**Figure 6-2 Air Quality Construction 250 m Buffer**

In addition to the above site-specific area of influence, the area of impact for the air quality impact assessment also considers potential areas or communities affected by cumulative or indirect impacts.

### 6.3.2 Receptors

**Table 6-5 Receptor Sensitivity to Air Impacts**

| RECEPTOR | SENSITIVITY | JUSTIFICATION |
|---|---|---|
| Herders using the adjacent agricultural farms | Medium | Herders in the adjacent fields will only be present intermittently and not for a significant duration of time. In addition, they are mobile and therefore would likely avoid the area during times of significant construction activity. |
| Construction workers | Low | The construction workforce will be supplied for PPE to manage potential air impacts arising from the Project. |

## 6.4 Potential Impacts, Mitigation, Management & Residual Impacts

### 6.4.1 Construction Phase

#### 6.4.1.1 Dust Generation

In line with IAQM Guidance on the assessment of dust from demolition and construction, (2024), it is noted that dust / PM will be generated by a multitude of construction activities. As a result of a human receptor being within 250 m of construction activities an assessment of construction dust has been screened in.

As stated previously, this is a precautionary approach, as significant dust generating activities would not be conducted at the project boundaries (which is where the fence line would be) but at a distance of >50 m inside the fence line.

Activities with direct earth movement such as land levelling can generate a significant amount of dust, during site visits it was noted that the area has high amount dust, indicating that nuisance dust may be readily generated, however, the air quality baseline survey did not indicate excessively high dust levels. Other activities can result in indirect generation of dust. For example, it may be generated by the movement of HGVs and other vehicles along unpaved tracks (known as trackout).

The Project is located adjacent to an asphalt road and therefore significant trackout dust impacts are not expected to be significant.

Generated dust will primarily represent a nuisance to construction personnel, however, if not managed, impacts may occur to the herders utilising the agricultural lands surrounding the Project, noting that the herders are not on the lands permanently. Respirable dust can impact directly on human health, due to its physical penetration into the lungs. There is also the potential that dust settling could impact the agricultural fields.

Dust raised during construction activities is likely to settle in close proximity to where the activity is being carried out and impacts are expected to be temporary and contained. Dust impacts are also expected to be managed effectively with GIIP and therefore the impact magnitude is considered to be **minor**.

#### 6.4.1.2 Gaseous Emissions

The main sources of gaseous emissions to air during construction will be the combustion of fossil fuels from the operation of vehicles, generators, construction equipment and mobile plant. Any emissions from these sources are not expected to result in noticeable incremental impacts to the local airshed as the relatively limited emissions will mix in ambient air close to the point of origin resulting in emissions that are not distinguishable from the background concentrations. The key air pollutants associated with these sources include nitrogen oxides (NOx), carbon monoxide (CO) and sulphur dioxide ($SO_2$).

If improperly managed, there is a risk of nuisance and health effects to construction workers onsite and herders in the agricultural fields.

As with dust generation, impacts are expected to be reversible, temporary, contained and easily managed with GIIP, and therefore are considered to be of **negligible** magnitude.

#### 6.4.1.3 Volatile Organic Compounds and Odour Emissions

Emissions of VOCs and odour can arise from improper handling or storage of chemicals, hazardous materials and wastes (including wastewater). However, a limited number of chemicals and hazardous materials are required due to the project type, and with the implementation of good practice management measures there should not be any impact.

With regards to wastewater, the Project will use septic tanks that will be emptied, when required, by a licensed contractor.

Therefore, impacts are considered to be **insignificant** and not assessed further, however, mitigation measures will be included in the respective HSSE-MS.

#### 6.4.1.4 Indirect, Associated and Cumulative Air Emissions

There will be air emissions arising from the supply chain and transportation of materials to the Project site, including the PV panels. These will be typical air emissions related to the transport industry, and significant or unexpected/abnormal emissions are not anticipated and therefore these are deemed to be **insignificant** and are not assessed further.

With regards to impacts arising from the development of the transmission line, these will be largely limited to site preparation works in order to install the tower during the construction phase, this impact will be temporary and contained to the immediate construction areas.

There are also not considered to be the potential for significant cumulative air quality impacts, due to the isolated nature of the site and the fact that the impacts are typically limited to close to the site boundaries.

### 6.4.2 Operation Phase

Although the Project will have back-up generators and require the limited, intermittent use of vehicles for O&M purposes, there will not be significant air emissions during the operation phase and therefore operational air impacts are scoped out of further assessment.

## Table 6-6 Air Quality Impact Significance, Mitigation Measures and Residual Impacts

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| **Construction** | | | | | | |
| Construction Dust | **Minor Negative** | Herders using the adjacent agricultural fields | **Medium** | **Minor** | • Keep construction worksite and roads clean and tidy and free from loose/friable materials.<br>• Where practical, compact the ground in areas that are heavily used by vehicles and machinery.<br>• Limit or suspend earthworks during extreme weather conditions (e.g. strong winds).<br>• Implement dust control facilities (e.g. windbreaks, temporary barriers, netting screens, fences or plastic sheets) to contain dust emissions from earthworks and stockpiled soil.<br>• Water spraying of open or unpaved ground areas such as temporary facilities areas and access roads around the site, will be done as frequent as necessary to minimize dust generation. Only non-potable water will be used for such activities<br>• All vehicles within construction areas onsite shall adhere to a speed limit of: (i) 30km/h at the main access road; (ii) 20 km/h within the project area; and (iii) 10km/h within working areas. Appropriate speed limit signage shall be provided at such construction areas.<br>• Ensure periodic washing of vehicles in order to remove any dusty material in a dedicated area. | **Negligible** |
| | | Construction Workers | **Low** | **Negligible** | • All trucks transporting aggregates, debris, and fine materials must be appropriately covered at all times through the use of tarpaulin or equivalent.<br>• Proper management of stockpiles and excavated material through appropriate enclosures and covers. This entails that it is of appropriate size to ensure entire coverage of the stockpile/excavated material, durable, able to withstand exposure to weather conditions (heat, rain, and strong winds in particular).<br>• Adequate supplies of disposable dust masks shall be provided. Workers shall use them during strong winds or when conditions of worksite and work activities (e.g. earthworks) require their use (such conditions will be determined and identified by the EPC Contractor E&S Manager).<br>• Doors and windows of portable offices shall be kept sealed or closed to minimize if not totally prevent dust accumulation indoors.<br>• Arrange site layout in a way that machineries and dust causing activities are located as far as possible from offices. | **Negligible** |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Visual dust monitoring will be undertaken daily and documented in the Internal Visual Dust Register [MP 17 - REG 3].<br>• Upon receipt of complaints, an air quality and dust monitoring program will be undertaken, this will include [Total Suspended Solids (TSP)], Particulate Matter less than 10 µm in diameter [PM10] and Particulate Matter less than 2.5 µm in diameter [PM2.5], and will include at least two monitoring points which represent activities undertaken (i.e. one point for areas with construction activities and one point at office/recreational areas). Monitoring will be undertaken through a certified and approved third-party entity. Monitoring reports will be maintained onsite. Results will be compared against allowable national limits as well as limits included within the IFC General EHS Guidelines. | |
| Gaseous Emissions | **Minor Negative** | Herders using the adjacent agricultural fields | **Medium** | **Minor** | • Ensure that generators are located in an appropriate area as far as possible from offices.<br>• Ensure that vehicles and trucks comply with the limits for exhaust emissions. This will be through: (i) ensuring all vehicles and trucks are equipped with a catalytic convertor; (ii) ensuring that all vehicles and trucks utilized onsite are properly licensed for operation with relevant authorities which in turn are expected to undertake inspections before issuing such licenses<br>• Develop a regular inspection and scheduled maintenance program for vehicles, machinery, and equipment to be used throughout the construction phase for early detection of issues and to avoid unnecessary pollutant emissions. Smoke belching equipment shall be taken out of service for appropriate repair and will be prohibited for entering the site if not properly serviced.<br>• Turn off any equipment, machine or vehicle not in use.<br>• A suitable respirator (cartridge type air purifying respirator) should be made available in the following cases:<br>  ○ Handling any material or items that requires a respirator as identified within the accompanying Material Safety Data Sheet (MSDS)<br>  ○ Construction activities that require so as included within the occupational health and safety risk assessment, job safety procedure and/or permit to work system. | **Negligible** |
| | | Construction Workers | **Low** | **Negligible** | | **Negligible** |

## 6.5 Monitoring

**Table 6-7 Air Quality Monitoring Requirements**

| MONITORING | PARAMETER | FREQUENCY & DURATIONS | MONITORING LOCATION | RESPONSIBILITY |
|---|---|---|---|---|
| **CONSTRUCTION** | | | | |
| Emissions from engines and plant. | Vehicle Emissions | Pre-site authorisation checks on vehicle status and health, including associated emissions. | All non-road vehicles and engines | EPC Contractor |
| | | Visual assessment of emissions (e.g. black smoke) to be undertaken on a daily basis while vehicles and equipment are in use and annual inspection of vehicles. | | |
| Sanitary Facilities & Hazardous Material Storage Areas | Odour & VOCs | Daily visual and olfactory observations – as part of maintenance and inspection checks (for hygiene, safety and appropriate storage/containment). | All sanitary facilities available within the laydown areas, sub-contractor camps and work fields. All hazardous material, chemical and fuel storage areas. | |
| Construction Dust | TSP, $PM_{10}$ and $PM_{2.5}$ | Upon receipt of complaints, if any | At least two locations, e.g., active construction area and receptor. | |

# 7 NOISE AND VIBRATION

## 7.1 Applicable Requirements & Standards

### 7.1.1 National Regulations

The noise and vibration assessment will consider potential effects relating to noise from the Project at noise sensitive receptors (NSRs). Noise can affect the environment and the quality of life enjoyed by individuals and communities.

Presidential Decree No. 796 on the approval of the rules regarding negative impacts of noise pollution on the environment and well-being of the population includes the following standards.

**Table 7-1 National Noise Standards[8]**

| AREA DESCRIPTION | | MAXIMUM ALLOWABLE NOISE LEVELS, LAEQ (DBA)[9] | |
|---|---|---|---|
| | | DAYTIME 07:00 TO 23:00 | NIGHT-TIME 23:00 TO 07:00 |
| Residential area | | 40 | 30 |
| Commercial areas | | 55 – 60 | 55 – 60 |
| Hotels and hostels | | 45 | 35 |
| Industrial Areas | Special purpose workplaces | 50 | 50 |
| | Workplaces having permanent buildings or lands | 80 | 80 |
| | Workplaces- truck drivers | 70 | 70 |
| | Workplaces- Drivers of tractors and other similar vehicles and drivers of reclamation vehicles | 80 | 80 |
| Sensitive Areas | Hospitals and health centres | 35 | 25 |
| | Schools, libraries, and conference rooms | 40 | 40 |

[8] Noise Standards QOST 12.1.003-83 UDK 534.835.46:658.382.3:006.354; Gost 12.1.036-81 ST SEV 2834-80

[9] *LAeq* is the A-weighted, equivalent continuous sound level, in decibels having the same total sound energy as the fluctuating level measured.
*dB (A):* Decibels 'A' Weighted. The most commonly used standard frequency weighting designed to reflect the response of the human ear to noise. Also written as 'A' weighting or dB(A).
*dB (C):* Decibels 'C' Weighted. A standard frequency weighting commonly used for the measurement of Peak Sound Pressure level. Also written as dB(C) or dBC.

### 7.1.2 Lender Requirements

ADB, AIIB and IFC

ADB, AIIB and IFC require adherence to WHO noise standards as detailed in IFC EHS Guidelines (2007), which stipulate a maximum threshold of 70 dB(A) at industrial and commercial receptors during daytime. The IFC General EHS Guidelines require that the project comply with the WHO noise standards, though these relate to noise received at receptor locations rather than the project boundary.

**Table 7-2 IFC/WBG EHS General Guidelines – Ambient Noise Level Guidelines (2007)**

| Receptor | One Hour LAeq (dBA) | |
|---|---|---|
| | Daytime (7am-10pm) | Night (10pm-7am) |
| Residential, Institutional, Educational | 55 | 45 |
| Industrial, Commercial | 70 | 70 |

Noise impacts should not exceed the levels presented in the table or result in a maximum increase in background levels of 3 dB at the nearest sensitive receptor location off-site.

Furthermore, the following requirements have also been specified in the IFC EHS noise guidelines:

- No employee should be exposed to a noise level greater than 85 dB (A) for duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C);
- The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB (A), the peak sound level reaches 140 dB(C), or the average maximum sound level reaches 110 dB(A). Hearing protective devices provided should be capable of reducing sound level at the ear to at least 85 dB (A);
- For every 3 dB(A) increase in sound levels, the allowed exposure period or duration should be reduced by 50%;
- Where feasible, use of acoustic insulating materials isolations of the noise source and other engineering controls should be investigated and implemented prior to the issuance of hearing protection devices as the final control mechanism; and,
- Medical hearing checks on workers exposed to high noise levels should be performed periodically.

EBRD

The European Commission Environmental Noise Directive (Directive 2002/49/EC) relating to the assessment and management of environmental noise is the main EU instrument to identify noise pollution levels and to trigger the necessary action both at Member State and at EU

level. The Directive applies to noise to which humans are exposed, particularly in built-up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, hospitals and other noise-sensitive buildings and areas. It is important to note, however, that the Directive does not set limit or target values, nor does it prescribe the measures to be included in the action plans, thus leaving those issues at the discretion of the competent Member State authorities.

The EBRD requests that the more stringent thresholds between EU/local/lender requirement apply for the project.

## 7.2 Baseline Conditions

The proposed Project site does not have any significant noise sources. It is expected that noise at the site is primarily influenced by any agricultural activity and nearby traffic noise.

No major noise emissions were observed during the initial site visits conducted in August 2023 and February 2024.

In order to characterise noise levels at the site, a baseline noise survey was conducted on the 29th May 2024 One-hour of measurements, broken into five-minute intervals, as shown in the following figure. The receptor locations were selected to provide baseline noise levels at receptor locations, project boundaries and central to the site.

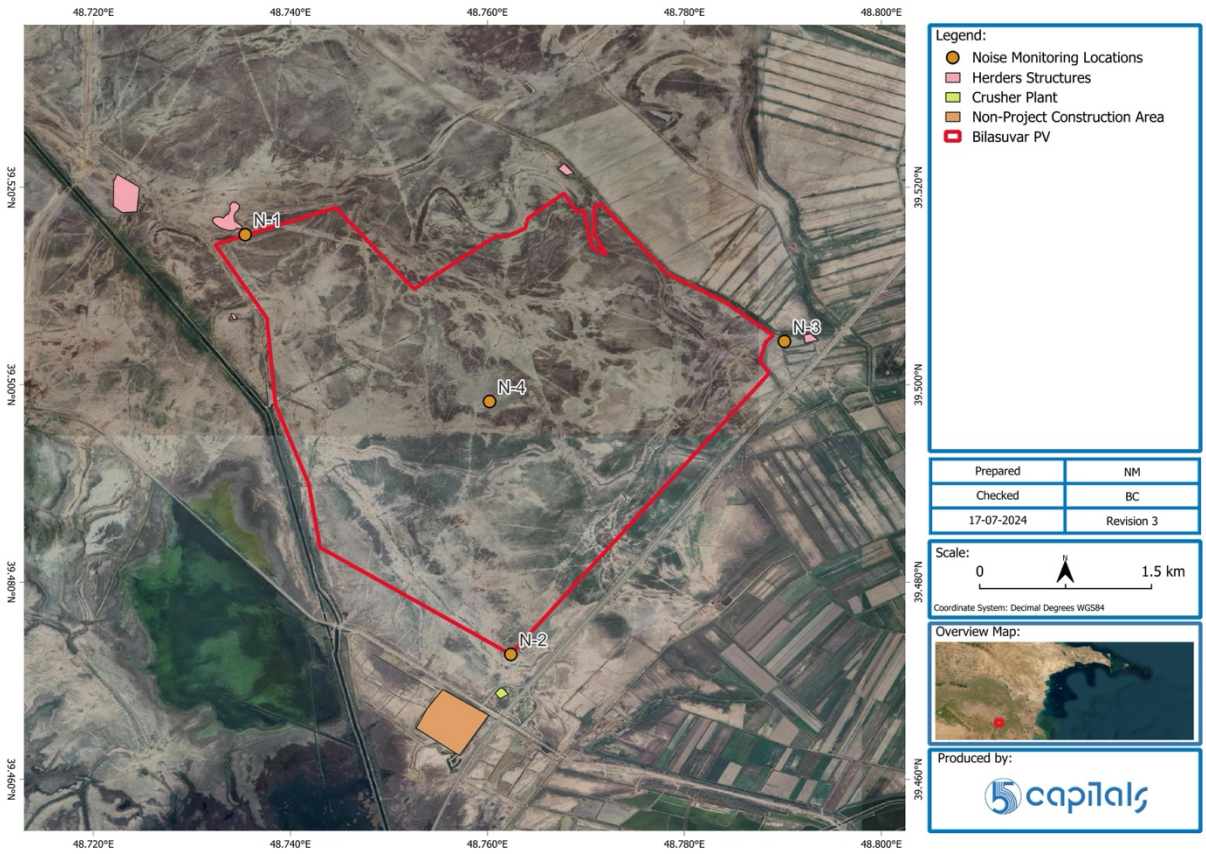


**Figure 7-1 Noise Monitoring Locations**

The recorded noise levels are shown in the following table.

**Table 7-3 Noise Baseline Monitoring Results**

| PARAMETER | N-1 | N-2 | N-3 | N-4 |
|---|---|---|---|---|
| **Average 1-hour $LA_{eq}$** | 43.9 | 56.9 | 57.5 | 41.1 |
| **Noise sources** | Birds, wind | Vehicles on the highway, wind, birds | Vehicles on the highway, wind, birds | Birds, wind |

It is noted that the Project area does not fit into any categories for noise limits in either the national or WHO limits. The noise baseline levels:

- Exceed the national standard for residential areas at all locations, however, it is noted that this standard is extremely stringent;
- All monitoring locations are within the higher limit of the national commercial standard (60); and
- All locations apart from are compliant with the WHO limit for commercial areas.

## 7.3 Area of Influence and Receptors

### 7.3.1 Area of Influence

A 1 km area of influence around the site has been determined for noise impacts, it is important to highlight that this buffer does not include any construction vehicle routes, which would also result in noise and vibration impacts, although this has been considered. The site is located adjacent to major highways on which the majority of construction vehicles would travel and there are not noise and vibration receptors to noise impacts relating from use of this road near the Project site.

The ongoing non-project construction and crusher plant are located within 1 km of the Project boundary and there is the potential for cumulative noise impacts, however, these are not considered to be noise sensitive receptors.

In addition to the site-specific area of influence, the area of impact for the noise impact assessment also considers potential areas or communities affected by cumulative or indirect impacts.

### 7.3.2 Receptors

**Table 7-4 Receptor Sensitivity to Noise and Vibration Impacts**

| RECEPTOR | SENSITIVITY | JUSTIFICATION |
|---|---|---|
| Herders using the adjacent agricultural farms | Low | Herders in the adjacent fields will only be present intermittently and not for a significant duration of time. In addition, they are mobile and therefore would likely avoid the area during times of significant construction activity. |
| Construction workers[10] | Low | The construction workforce will be supplied for PPE to manage potential noise impacts arising from the Project. |

## 7.4 Potential Impacts, Mitigation, Management & Residual Impacts

### 7.4.1 Construction Phase

#### 7.4.1.1 Construction Site Noise and Vibration

**NOISE**

[10] At the time of writing the accommodation camp location is not yet determined, should this camp be located within the site or the noise area of influence, then residential noise limits will apply and the camp will have to be located in such a way, and noise mitigated, that the standards are met.

The spatial extent of construction noise will typically be local, and largely limited to within the immediate surroundings of the works. The duration of the impact will be short considering individual noise emission events relative to the lifespan of the project. The frequency of occurrence is high as noise emissions will likely occur almost daily, but noise emissions are reversible once the activity ceases.

Construction activities for the Project will result in temporary and short duration increases in noise and vibration levels. Pertinent construction activities at the project site in relation to noise are likely to include:

- Access road preparation / construction for the transport of equipment to the site;
- Construction traffic and vehicle movements;
- Site Preparation (e.g. earthworks, compaction);
- Installation of foundations;
- Construction of buildings such as control rooms; and
- Mechanical installation works.

The accumulation of noise from the above sources can introduce potential cumulative impacts when generated in tandem.

The anticipated construction equipment/machinery to be used at the site for various construction activities together with noise data for this equipment are presented in the following table as obtained from 'BS 5228-1:2009 - British Standards: Code of practice for noise and vibration on construction and open sites'.

**Table 7-5 Noise Level of Typical Construction Equipment**

| Construction Activities | BS 5228-1:2009 Reference | Equipment | SPL dB (A) |
|---|---|---|---|
| **Site clearance** | Table C.2, 5 | Tracked Excavator (16t) | 76 |
| **Earthworks** | Table C.2, 13 | Dozer (11t) | 78 |
| | Table C.2, 19 | Tracked Excavator (25t) | 77 |
| | Table C.2, 28 | Wheeled Loader | 76 |
| | Table C.2, 38 | Roller (18t) | 73 |
| | | **Activity Total** | **79.4** |
| **General site activities** | Table C.4, 2 | Articulated Dump Truck (23t) | 78 |
| | Table C.4, 15 | Fuel tanker Lorry (11t) | 76 |
| | Table C.4, 22 | Large Concrete Mixer (26t) | 76 |
| | Table C.4, 40 | Mobile Telescopic Crane (80t) | 66 |
| | Table C.4, 65 | Tracked Excavator (21t) | 71 |
| | Table C.4, 84 | Diesel Generator | 74 |
| | | **Activity Total** | **79.6** |

The predictions assume that each piece of equipment will only be operational for 50% of the working day. The predictions also work on the basis that all of the equipment is located at the same location at the boundary of the site (as a worst-case assumption).

A basic modelling assessment using equations set out in Annex F of 'BS5228-1:2009 Part 1 Noise' has been used to predict the effects of distance propagation and ground absorbance. The adjustment due to ground absorbance has been made based on all nearby receptors being >25m from source and using the equation '25*LOG(10/Distance to receptor)+2'.

The noise calculation on herders utilising the adjacent fields within the area of influence is presented below with adjusted noise levels from the Project's construction accounted for with distance attenuation. As a precautionary estimate for use in the calculation a distance of 250 m has been used, however, it is considered unlikely that herders would be within this distance of construction activity. N-1 has been used as a proxy location for herders for the purpose of baseline noise levels.

Representative baseline noise from noise survey conducted has been used to estimate the worst-case cumulative noise level that can be expected at each of the receptors and the activity total for 'General Site Activities' (79.6) has been used.

**Table 7-6 Cumulative Construction Noise Assessment**

| Receptor | Daytime Baseline Noise Level (dBA) | Distance from Source (m) | Anticipated Construction Noise at Receptor Location (dBA) | Cumulative Noise Level (dBA) | Change from Baseline (dBA) |
|---|---|---|---|---|---|
| Herders utilising adjacent fields. | 43.9 | 250 | 46.7 | 48.5 | + 4.7 |

Paragraph E.3.2 of BS5228 describes the ABC Method, which considers the existing ambient noise environment (the $LA_{eq}$ noise level environment) at the neighbouring sensitive receptors and identifies levels that if exceeded would be considered to result in a significant adverse effect and is noted to apply to residential receptors only.

Table E.1 of BS5228 sets out significance effect threshold values at receptors. The process for determining this requires the determination of the ambient noise level at the relevant receptor (rounded to the nearest 5 dB), which is then compared to the total noise level, including the predicted construction noise level. If the combined noise level exceeds the appropriate category value, then the impact is deemed to be significant. The relevant statistics from Table E.1 are set out in the following table.

**Table 7-7 Construction Phase Noise – ABC Assessment**

| Assessment Category and Threshold Value Period ($L_{AEQ}$) | Threshold Value, in Decibels - dB(A) | | |
|---|---|---|---|
| | Category A | Category B | Category C |
| Daytime (07:00 to 19:00 hrs) and Saturdays (07:00 to 13:00 hrs) | 65 | 70 | 75 |
| Evenings & Weekends | 55 | 60 | 65 |
| Night-time (23:00 to 07:00 hrs) | 45 | 50 | 55 |
| *NOTE 1 A significant effect has been deemed to occur if the total LAeq noise level, including construction, exceeds the threshold level for the Category appropriate to the ambient noise level.* | | | |
| *NOTE 2 If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total LAeq noise level for the period increases by more than 3 dB due to construction activity.* | | | |
| *NOTE 3 Applied to residential receptors only.*<br>*A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.*<br>*B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.*<br>*C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.* | | | |

***Note:*** *The ABC Method does not provide levels of significance, as such professional judgement has been applied to determine this within applicable significance tables.*

The ABC method indicates that construction noise impacts will only be significant for herders surrounding the Project site during the nighttime as the cumulative total exceeds the 45 dB(A) limit. However, it is important to highlight that herders will not typically utilise the land at night and nighttime works will not typically occur. Noise impacts on herders are considered to be **Minor**.

In addition, increased noise levels can impact upon construction workers, however, construction personnel who will be conducting noisy works will be provided with the required training and PPE and therefore impacts upon construction workers are considered to be **Negligible**.

#### Vibration

HGV and general vehicle traffic along the adjacent main transport routes and the use of construction equipment and machinery has the potential to induce ground-borne vibrations.

As a PV project, it is expected that ground-borne vibration arising from construction activities will be limited due to the fact that major civil works are not required.

Based on other similar projects in the, typically the levels of ground borne vibration from a heavy machinery are considered as imperceptible to humans at a distance of approximately 20 m. As there are no residential receptors within this area of influence, resulting levels of

ground borne vibration will be imperceptible to occupants. Therefore, vibration impacts are considered to be **insignificant** and are not assessed further.

#### 7.4.1.2 Indirect, Associated and Cumulative Noise

There will be noise arising from the supply chain and transportation of materials to the Project site, including the PV panels. These will be typical noise emissions related to the transport industry, and significant or unexpected/abnormal emissions are not anticipated and therefore these are deemed to be **insignificant** and are not assessed further.

There is the potential that construction of the transmission line (as outlined within Section 2.7) may overlap with site activities and this could result in cumulative noise impacts, however, this would be of limited duration, and neither construction activities have significant noise impacts. There are no other known significant construction activities in the area that could result in significant cumulative noise impacts.

### 7.4.2 Operation Phase

Operation of the PV facilities will generate no significant noise. Noise impacts from vehicles used for maintenance activities are also not expected to be major sources of noise. Noise from the tracker system, operation of cleaning robots and transformers are negligible at will not be discernible outside of the site. In cases where panels are faulty or damaged, these will be disassembled and transported off site, this will result in the generation of limited, isolated noise that will also be of negligible magnitude.

Due to this, operational noise is not expected to be discernible outside the Project boundary. It is not anticipated that the Project will result in any discernible operational vibration impacts.

Therefore, operational noise and vibration impacts are considered to be **insignificant** and have been scoped out of further assessment.

## Table 7-8 Noise and Vibration Impact Significance, Mitigation Measures and Residual Impacts

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| **Construction** | | | | | | |
| Construction Noise | **Minor Negative** | Herders using the adjacent agricultural fields | **Medium** | **Minor** | • Construction activities will be scheduled, unless otherwise agreed, from Monday to Saturday 08:00 to 22:00.<br>• If construction activities are to take place outside of these times, short term high transient noise events, or activities relatively close to nearby noise sensitive receptors, those will be scheduled with prior notice given to such receptors, such as any herders.<br>• Limit machinery and vehicle movements to defined work area and designated access and roads.<br>• Select construction equipment based on GIIP.<br>• Locate fixed and mobile plants (e.g. generators) with consideration of nearby sensitive receptors.<br>• Select and use the quietest machinery and equipment that can economically undertake the work wherever possible.<br>• Operators of construction machinery and equipment will be informed of the potential noise problems and of techniques to minimize noise emission through a continuous process of training and inspection.<br>• Use well-maintained mufflers and noise suppressants for high noise generating equipment and machinery where applicable, such as compressors, electric motors, machines, etc.<br>• Develop a regular inspection and scheduled maintenance program for vehicles, machinery, and equipment to be used throughout the construction phase for early detection of issue to avoid unnecessary elevated noise levels. Upon detecting any vehicle or machinery that emits unacceptable amount of noise will be ordered for removal from work until it is repaired.<br>• Turn off any equipment, machine or vehicle not in use.<br>• Ensure that all vehicles and machinery used through the execution of the project are properly licensed.<br>• In the event of a noise complaint noise monitoring will be carried out at the relevant receptor, by an approved third party entity. Monitors shall be located approximately 1.5m above the ground and no closer than 3m to any reflecting surface (e.g. wall). Monitoring reports will be maintained onsite.<br>• In areas where noise levels may exceed 85 Decibels (dB) (e.g. excavation and grinding activities and/or workers exposed to excessive noise generating equipment and machinery), noise monitoring shall be undertaken for at least | **Negligible** |
| | **Negligible Negative** | Construction Workers | **Low** | **Negligible** | | **Negligible** |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | 10 mins during peak activities. If 85 dB (LAeq) is exceeded, appropriate hearing protection shall be provided to all workers – this will be based on noise levels and location but can include ear plugs, semi-insert ear plugs, ear protection or earmuffs. It must be ensured that such hearing protection is worn by all affected personnel at all times. Ear plugs or earmuff shall have a Noise Reduction Rating (NRR) of at least 20 to 30 Decibels. Results will be compared against allowable national limits as well as limits included within the IFC General EHS Guidelines.<br>• Safety signs must be installed in areas where noise is expected to be greater than 85 dB to require the use of appropriate Personal Protective Equipment (PPE) (i.e. hearing protection). | |

## 7.5 Monitoring

**Table 7-9 Noise Monitoring Requirements**

| Monitoring | Parameter | Frequency & Durations | Monitoring Location | Responsibility |
|---|---|---|---|---|
| **Construction & Commissioning** | | | | |
| Daytime Construction noise | Leq(A) | Once a week, 1-hour monitoring duration | N-1 | EPC Contractor |

In the event of a recorded exceedance during noise monitoring or upon receipt of complaints/grievances related to noise, a process to investigate and take appropriate corrective actions will be outlined in the HSSE-MS.

# 8 GEOLOGY, SOILS, SURFACE WATER, AND GROUNDWATER

## 8.1 Applicable Requirements & Standards

### 8.1.1 National Regulations

- Water Code of Azerbaijan Republic (approved by Law No. 418-IQ); specifically relevant articles under Chapter V: Usage of water objects, Chapter VI: Rights and obligations of water users, and Chapter XIII: Usage of water objects for water discharge, fire prevention and other purposes, Chapter XIV: Protection of water objects, Chapter XVI: Economical regulation of measures on usage and protection of water objects, and Chapter XVII: Dispute resolution on the issues of usage and protection of water objects for violation of water legislation.
- Law on Water Economy of Municipalities which is enacted with President's Degree on August 2001; specifically relevant articles under Part IV: Use of the Municipal Water Economy Structures, and Part V: Rights and Duties of Municipalities to Regulate Water Relations.
- State Standard No. AZS 834-5-2015 for Soil quality -- Sampling -- Part 5: Guidance on the procedure for the investigation of urban and industrial sites with regard to soil contamination.
- State Standard No. AZS 834-6-2015 for Soil quality -- Sampling -- Part 6: Guidance on the collection, handling and storage of soil under aerobic conditions for the assessment of microbiological processes, biomass and diversity in the laboratory.

### 8.1.2 Lender Requirements

**ADB**

The following is stated in the Bank's SPS (2009): *Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phaseouts. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.*

**AIIB**

ESS1 – Environmental and Social Assessment and Management: Point 38 relates to pollution prevention and references international good practice and internationally recognised standards such as the WBG EHS Guidelines.

**EBRD**

Performance Requirement 3 on Resource Efficiency and Pollution Prevention and Control establishes general requirements for pollution prevention as follows:

- The assessment process must identify technically and financially feasible pollution prevention and control techniques that are best suited to avoid or minimise adverse impacts on human health and the environment. Such techniques will be appropriate to the nature and scale of the project's adverse impacts and issues; and
- The Project must meet the relevant EU substantive environmental standards, where these can be applied at the project level. Where no EU substantive environmental standards at project level exist, the Project will identify, in agreement with the EBRD, other appropriate environmental standards in accordance with good international practice

**IFC**

The IFC Performance Standards requires adherence to IFC Performance Standard 3 on 'Resource Efficiency and Pollution Prevention' and this requires the client and/or the Project to:

- Avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; and
- Prevent the release of pollutants to water and land due to routine, non-routine, and accidental circumstances, or when not feasible, minimize and/or control the intensity and mass flow of their release.

**GOOD INDUSTRY PRACTICE**

The Dutch Standards are typically used as good international practice, the standards identify target and intervention values for soils and groundwater.

## 8.2 Baseline Conditions

### 8.2.1 Geology and Geomorphology

Azerbaijan is geologically diverse and is located at the intersection of the Eurasian and Arabian tectonic plates. The principal tectonic features of Azerbaijan include the east-west-trending Greater Caucasus Mountains to the north, the Kura Depression to their south, the

Lesser Caucasus Mountains further south, and the expansive South Caspian Depression to the east of these three features.

Geomorphologically, the Project falls within the 'Shirvan plain' district, which is part of the Kur-Araz lowland in the South Caucasian depression zone. The Kur-Araz lowland is situated between the Greater and Lesser Caucasus and comprises a large, intermontane depression with various sites that differ in their geological structure and topographic features. The following figure shows the geomorphological zoning map of Azerbaijan, including the Project location.


**Figure 8-1 Scheme Geomorphological zoning of Azerbaijan territory (Adapted from Alizadeh, Guliyev, Kadirov and Eppelbaum, 2016)**

## 8.2.2 Groundwater

The region has eighteen hydrogeological basins featuring various types of water resources: porous-stratal, porous-fractured, and fractured. The Project area is situated within the Kur-Araz Lowland's geostructural region and falls under the hydrological basin of the Shirvan porous-stratal water basin. The following figure shows the hydrogeological zones in Azerbaijan, including the project location.

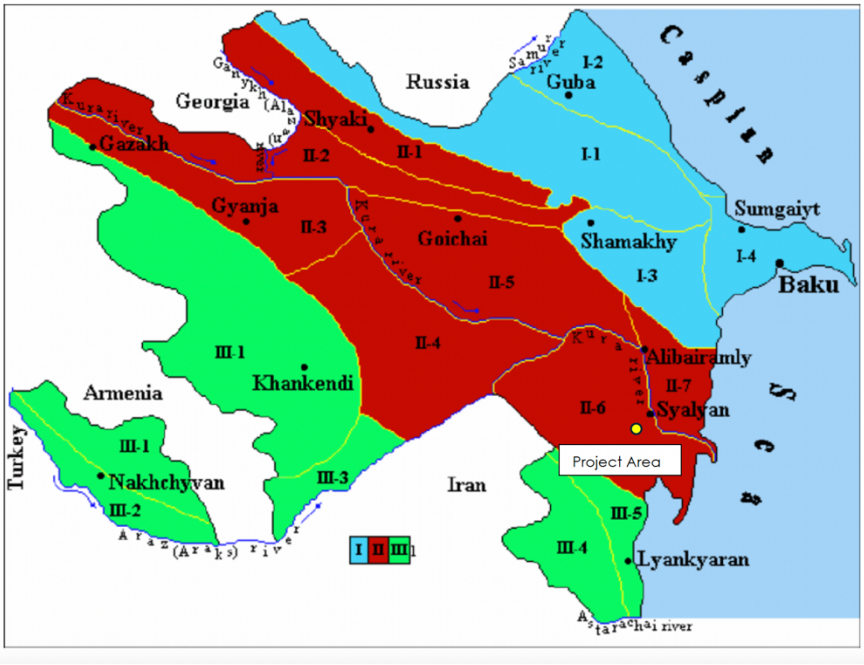


**Figure 8-2 Scheme of Hydrogeologic Zoning of Azerbaijan (Alakbarov, nd)**

## 8.2.3 Seismology

According to ThinkHazard[11] Azerbaijan's earthquake risk is 'high', meaning that there is more than a 20% chance of potentially-damaging earthquake in Azerbaijan in the next 50 years. However, the Project area is categorised as 'medium' according to the information that is currently available. This means that there is a 10% chance of potentially-damaging earthquake in the next 50 years.

## 8.2.4 Project Site Conditions

**TOPOGRAPHY**

The following figure depicts the digital elevation model of the Project with a spatial resolution of 0.5 m. The territory lies between 19.5 – 25.4 m below sea level, with the site generally sloping from east to west.

[11] https://thinkhazard.org/en/report/19-azerbaijan/EQ

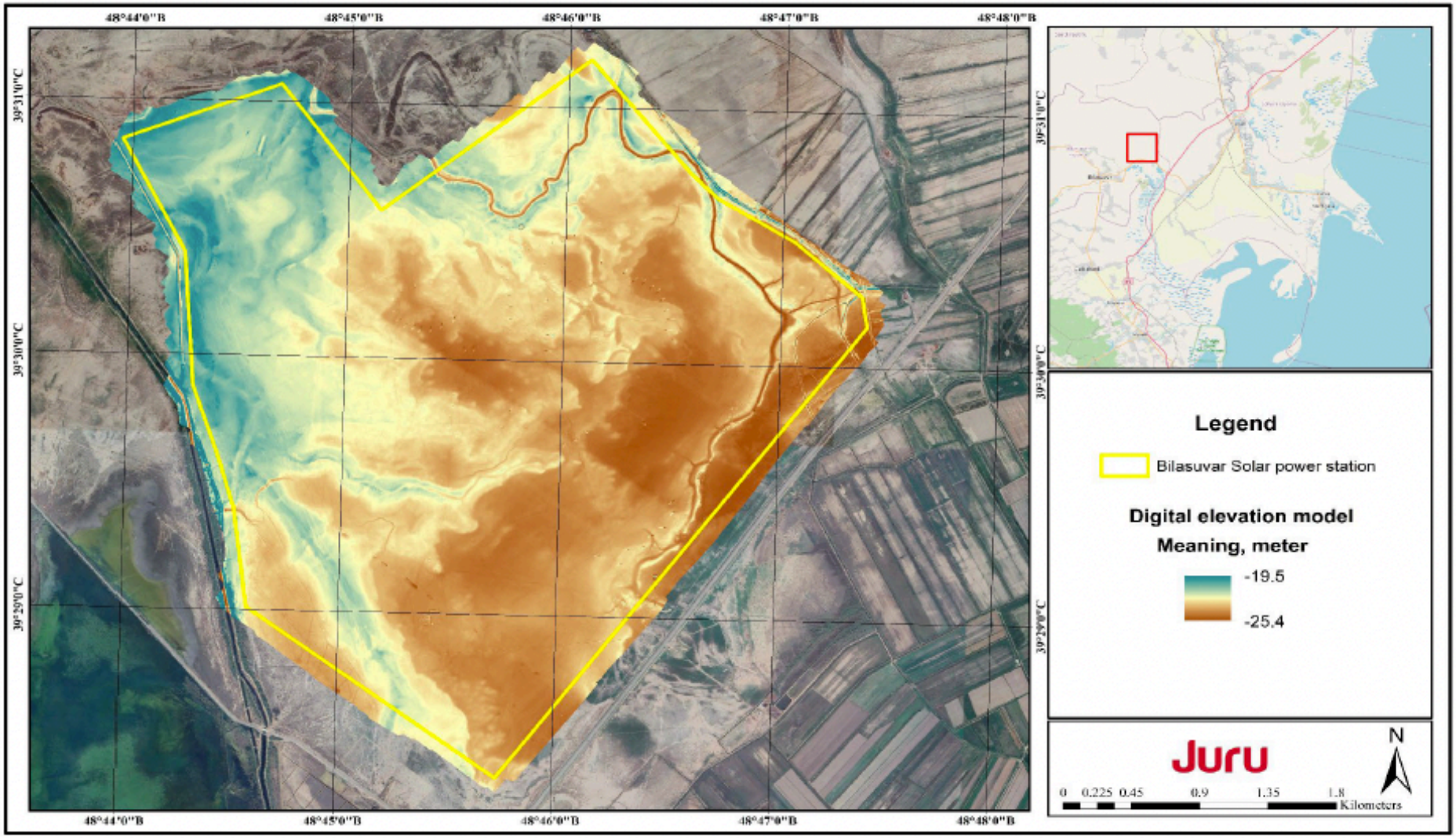


**Figure 8-3 Digital Elevation Model (Juru Energy 2024a)**

#### SOIL PROFILE

In the substation area, beneath a minimum topsoil depth of 0.50 m, a layer of stiff to very stiff silty clay, with an average thickness of 1.50 m, was identified. Beneath this clay layer lies a stratum of silty sand, confirmed through boreholes reaching a depth of 10.0 m. The sand layer exhibits loose to medium density characteristics.

In the PV area, below a minimum topsoil depth of 0.50 m, a layer of soft to medium stiff silty clay has been encountered. Boreholes drilled to a depth of 4.0 m confirm this soil composition. The consistency of the clay layer in the PV area varies.

#### GROUNDWATER

In the substation area, the groundwater table was not encountered within the 10.0 m depth of the boreholes. However, within the PV area, the groundwater table was measured between the depth of 0.40 m and 2.80 m.

#### SUB BASINS, DRAINAGE NETWORK AND SURFACE WATER

Juru Energy (2024a) have developed the following figure of sub basins and the local drainage network for use in the hydrology report (which is further described in the standalone CCRA). The image was prepared using the digital elevation model, topography data and ArcGIS software.

The figure shows that the Project is located within one catchment area and a limited number of drainage lines cross the site.

Assessment of construction and operation flood risk impacts, both coastal and rainfall, is included within the Climate Change Risk Assessment (**Appendix B**). The main conclusions are as follows:

The 10% Annual Exceedance Probability (AEP[12]) flood depth (1 in 10-year event) indicates that the majority of the Project area will be subject to 0.1m and 1m with limited areas of 1m to 2m flood depth.

These areas expand in the remaining three scenarios, 5% (1 in 20-year event), 2% (1 in 50-year event) and 1% (1 in 100-year event) with the majority of the site experiencing flood levels 0.7m to 1m flood depth and larger areas experiencing flood depth reaching 2m flood depth. Similarly, the flood velocity under the 10% AEP flood flow velocity (10 years return period), ranges between 0.4m/s and 1.2m/s in the flooded areas with certain places reaching flow

[12] AEP is the probability of a certain size flood occurring in a single year. A 10% AEP means there is a 10% chance of the flood event happening in any given year, which on average would occur once every 10 years. This is also referred to as a 1 in 10-year event.

velocity of 2m/s. The flood flow velocity increases under the remaining three scenarios where larger areas of the site may experience flood flow velocity of 1.6m/s to 2m/s.

With regards to mitigation:

- The indicative project design (Refer to Figure 2-8) depicts a number of flood avoidance areas, which are an indicative design for flood mitigation which will be further finalised.
- Stormwater drainage systems shall be designed to withstand the maximum discharge in the most extreme foreseeable precipitation events to ensure no loss of operation for a flooding level with a return period of 1 in 100 years;
- The EPC Contractor will finalise the drainage network and flood mitigation during the detailed design phase;
- Drainage networks should be checked after flood events to ensure they are free from debris;
- Hazardous materials and wastes should be stored in accordance with the mitigation measures outlined within the HSSE-MS to ensure that leaks to the soil, surface water and groundwater do not occur during flood events.

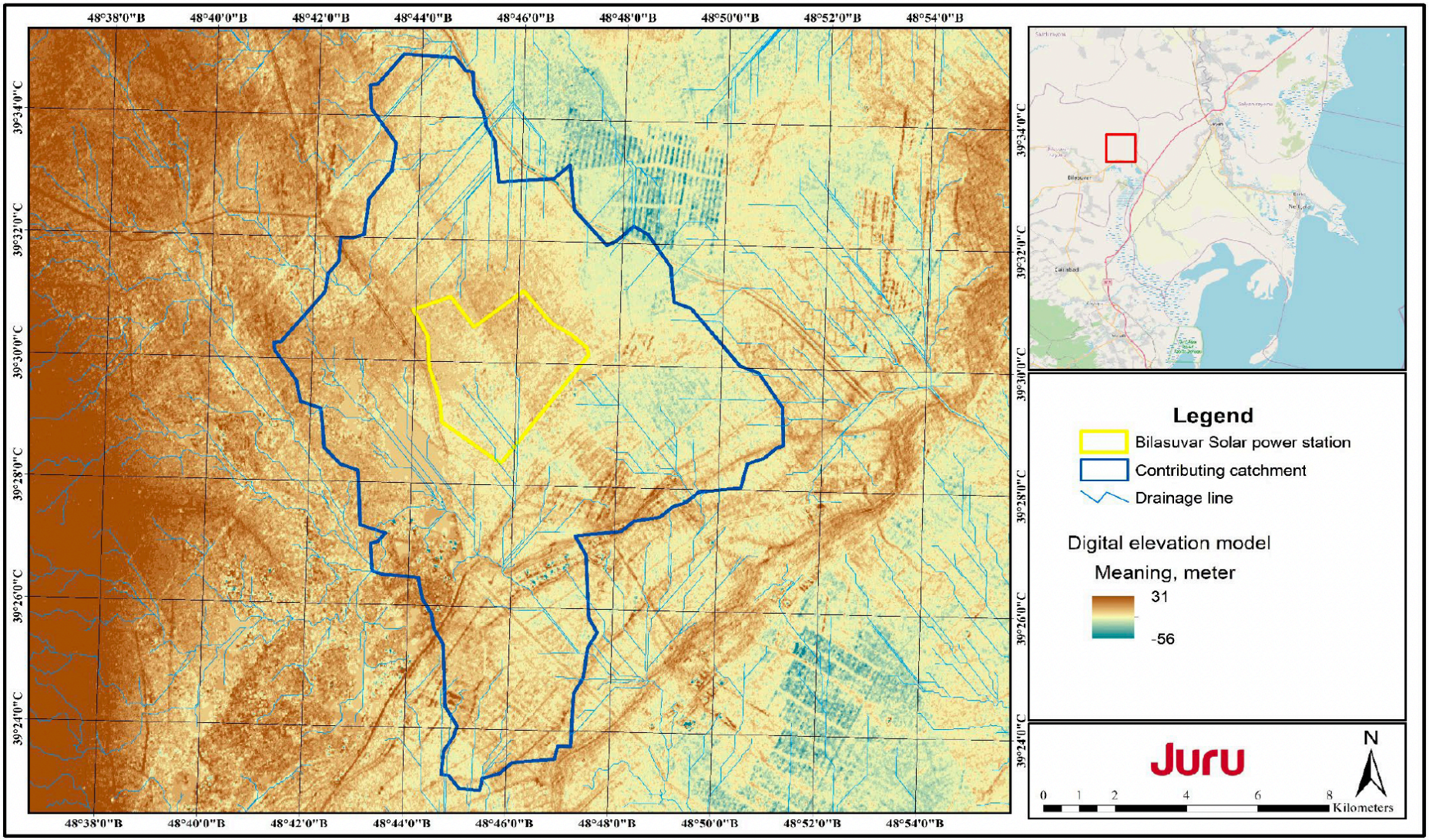


**Figure 8-4 Sub Basins and Drainage Network (Juru Energy 2024a)**

**SOIL AND SURFACE WATER SAMPLING AND ANALYSIS**

Soil and surface water samples were collected and analysed at an accredited laboratory as a precautionary approach and to establish the baseline.

Surface water samples were to be collected within two irrigation channels running along either side of the Project; however at the time of sampling W-1 (refer to the following figure) there was no water present and therefore only one surface water sample was collected and analysed. Total Petroleum Hydrocarbons were identified in a low concentration and the sulphate concentration is relatively high, however, all other parameters are in line with expectations.

Soil samples were located at three locations within the Project boundary. The pH of the soil was within expected limits and petroleum hydrocarbons were not recorded. The majority of metals were within Dutch target levels, indicating unpolluted soil, however, Dutch target values were exceeded at all three samples for Nickel and S-3 exceeded the Cobalt target value, however, all were well below the Dutch intervention value.

The locations of the sampling are shown in the following figure, and the results are detailed in the following tables.

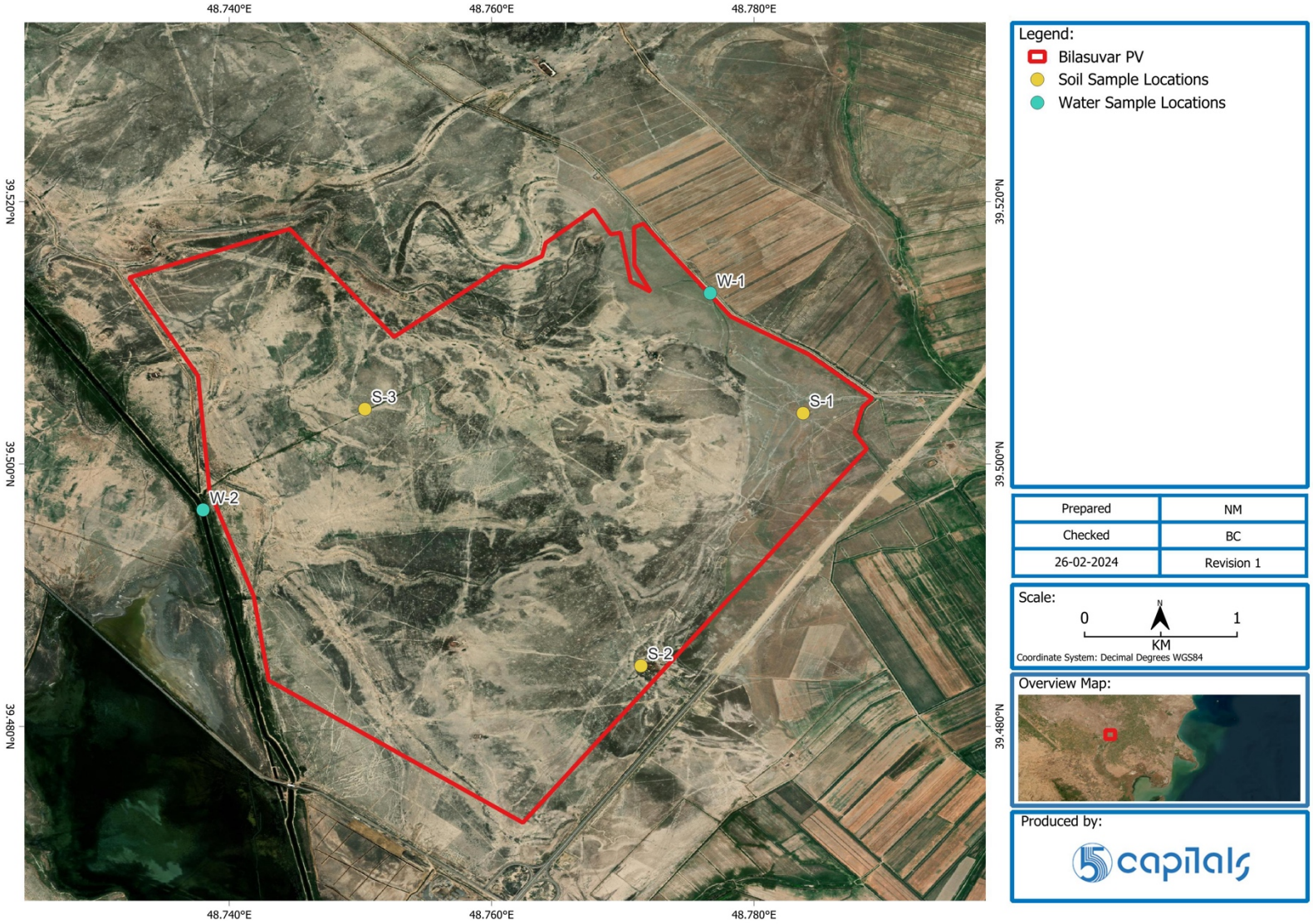


**Figure 8-5 Soil and Surface Water Sampling Locations**

**Table 8-1 Surface Water Analysis Results**

| PARAMETER | W-1 |
|---|---|
| pH | 7.54 |
| Sulphate (mg/L) | 1300 |
| Ammonium (mg/L) | 0.03 |
| Phosphate (mg/L) | 0.18 |
| Total Petroleum Hydrocarbons (mg/L) | 1.5 |
| COD (mg/L) | 31 |
| BOD (mg $O_2$/l) | 9 |
| V (ppb) | 5 |
| Cr (ppb) | <1 |
| Co (ppb) | <1 |
| Ni (ppb) | 2 |
| Cu (ppb) | 1 |
| Zn (ppb) | <1 |
| As (ppb) | 9 |
| Cd (ppb) | <1 |
| Ba (ppb) | 32 |
| Pb (ppb) | <1 |
| Hg (ppb) | <3 |

**Table 8-2 Soil Analysis Results**

| Parameter | Sample ID | | | Dutch | |
|---|---|---|---|---|---|
| | S-1 | S-2 | S-3 | Target | Intervention |
| pH | 7.52 | 7.40 | 7.98 | - | - |
| Sulphate (mg/kg) | 2950 | 1500 | 1700 | - | - |
| Nitrate (mg/kg) | 141.7 | 159.4 | 15.5 | - | - |
| Ammonium (mg/kg) | 0.19 | 0.26 | 0.26 | - | - |
| Phosphate (mg/kg) | 15.1 | 78.8 | 2.1 | - | - |
| Total Petroleum Hydrocarbons (mg/kg) | <0.1 | <0.1 | <0.1 | - | - |
| Cr (mg/kg) | 21.9 | 21.8 | 34.4 | 100 | 380 |
| Co (mg/kg) | 7.4 | 7.6 | **10.7** | 9 | 240 |
| Ni (mg/kg) | **38.0** | **38.7** | **56.2** | 35 | 210 |
| Cu (mg/kg) | 22.0 | 23.6 | 25.1 | 36 | 190 |
| Zn (mg/kg) | 35.8 | 39.5 | 42.1 | 140 | 720 |
| As (mg/kg) | 4.9 | 5.6 | 6.8 | 29 | 55 |
| Cd (mg/kg) | 0.17 | 0.18 | 0.20 | 0.8 | 12 |
| Ba (mg/kg) | 60.2 | 75.3 | 86.8 | 160 | 625 |
| Pb (mg/kg) | 7.2 | 8.6 | 9.0 | 85 | 530 |
| Hg (mg/kg) | 0.002 | 0.001 | 0.029 | 0.3 | 10 |
| Fe (mg/kg) | 18,309 | 12,923 | 19,072 | - | - |
| Mn (mg/kg) | 927 | 1,433 | 749 | - | - |

## 8.3 Area of Influence and Receptors

### 8.3.1 Area of Influence

The area of influence for soils, surface water and groundwater vary. For soils the area of influence is generally limited to the construction footprint, while surface water and groundwater extend further due to their mobility.

### 8.3.2 Receptors

**Table 8-3 Geology, Soils, Surface Water and Groundwater Sensitive Receptors**

| RECEPTOR | SENSITIVITY | JUSTIFICATION |
|---|---|---|
| Soil | Low | The sensitivity of the soil quality can be classed as low considering that it is only used intermittently for grazing activities, in addition is considered to be unpolluted. |
| Groundwater | Medium | Local groundwater can be assigned a medium sensitivity due to the relatively shallow water table, however it is not used for drinking and agriculture. |
| Surface water | High | Local surface water can be assigned a high sensitivity due to use of it in local communities for irrigation, domestic use. |

## 8.4 Potential Impacts, Mitigation, Management & Residual Impacts

Assessment of construction and operation flood risk impacts is included within the Climate Change Risk Assessment (Appendix B).

### 8.4.1 Construction Phase

#### 8.4.1.1 Land Degradation, Erosion and Compaction

The Project's construction phase will entail excavation, backfilling and grading operations in order to prepare the PV array field and the locations of control buildings / substation.

It is expected that the excavations for the control buildings / substation will be the most significant. Mass excavation activities could result in the destabilisation of erosion-prone soils, such as those located on slopes. Progressive soil erosion can in turn lead to sediment loading within receiving surface water bodies and drainage ditches.

The presence of heavy loads, construction equipment and vehicles, and compaction activities in particular can lead to soil compaction within the construction footprint and access road alignments.

The magnitude is considered to be **Moderate** as this impact will occur over a significant portion of the site, however, it is noted that it will only be for a limited period. Once the foundations of the Project are in place, a much smaller area (i.e., internal roads) will be impacted and previously disturbed areas will recover.

**CUMULATIVE IMPACTS**

The Project is part of an overall program to increase Azerbaijan's national renewable energy generation, and therefore there are number of renewable energy projects, including solar PV, that are being developed. This has the potential to result in cumulative impacts relating to land use change, clearance and erosion.

However, it is noted that the Project site's baseline ground coverage is very flat and open, with very few trees, and sparse cover of small shrubs. significant land cover changes and not required. In addition, given the national context, the proposed sites are relatively far from one another (for example Banka and Bilasuvar are 40 km apart) and the development of these Projects, and other renewable energy projects, on isolated plots of land, are not considered to result in cumulative impacts with regards to clearance and erosion.

#### 8.4.1.2 Accidental Spills and Leaks

Construction will involve the transportation and storage of various construction materials and wastes, as well as the operation and maintenance of heavy machinery. Bare ground within the Project's access roads and off-loading and pick-up bays is subject to contamination due to accidental spillage of transited products. Soil within areas designated for light and bulk storage of construction materials and waste (e.g., diesel, concrete washout water, used oils, hydraulic fluids), is equally prone to contamination from inadvertent spills and leakages associated with compromised containment structures/ packaging and handling.

Concrete washout will be generated during the site preparation, building construction and some civils activities. Concrete washout is caustic and has high pH. the inappropriate disposal or other exposure to soils can result in impacts to soil quality and can potentially affect surface and groundwater quality.

In addition, areas dedicated for maintenance of heavy machinery (e.g., workshops) also bear the risk of contamination resulting from accidental spills and leakages. Given the high groundwater levels and the presence of nearby surface water features, contamination can have a localised knock-on effect on the quality of surrounding water features.

The impact is considered to be relatively unlikely and reversible, noting that any spills are likely to be very small and contained, and therefore of **Minor** magnitude.

#### 8.4.1.3 Alteration of Groundwater Level/Availability

The high groundwater levels at the PV array field potentially necessitate dewatering to allow for excavation and foundation works, particularly during the wet season.

Depending on the aquifer transmissivity, intensive dewatering may drive a localised decline in groundwater levels and drawdown, which may extend beyond the construction sites. Protracted changes in groundwater levels could lead to lack of water availability, and therefore crop damage and/or reduced yields from water-intensive cultivation, albeit this impact is considered to be **insignificant** as local communities use surface water rather than groundwater and in addition, the impact carries a low likelihood given the dewatering duration, rate of abstraction and intrinsically high-water table. Dewatering will be managed in line with the Dewatering Management Plan, which will include the scope of dewatering, the responsibilities, the management of sediment within the effluent, location of disposal of effluent, and any permitting that is required.

### 8.4.2 Operation Phase

Potential significant risks during the operational phase are expected to be limited to the storage and management of limited hazardous materials, chemicals, and wastes, Good practice measures for this will be outlined in the HSSE-MS and therefore, a detailed operation phase impact assessment is scoped out.

As stated previously, flood risk impacts, both coastal and rainfall, are assessed within the Climate Change Risk Assessment.

## Table 8-4 Geology, Soils, Surface Water and Groundwater Impact Significance, Mitigation Measures and Residual Impacts

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| **Construction** | | | | | | |
| Land Degradation, Erosion and Compaction | **Moderate Negative** | Soil | **Low** | **Minor** | • Salvage and store topsoil and subsoil before areas are excavated, with topsoil stripped and stockpiled separately.<br>• Segregate excavated soils into stockpiles dependent on material type and provide erosion control while stockpiled as per requirements identified below. Stockpile heights should not exceed 2 m.<br>• On completion of earthworks, backfill material in the same stratigraphic sequence.<br>• Maintain grass cover on berms and ditches.<br>• Re-stabilize existing eroded tracks and restore vegetation cover as needed.<br>• Do not collect firewood from the site.<br>• Reseeding and restoring areas that have been cleared of vegetation (including in erosion control channels) with indigenous plants and grasses as soon as possible, as well as utilizing mulching to stabilize exposed areas.<br>• Drainage infrastructure will be constructed during dry periods to reduce erosion risk and the potential for sediment movement downstream.<br>• Vehicles should be confined to demarcated roadways at all times. To extent possible, minimize activities during wet conditions. When activities must occur in wet conditions, control storm water by using measures identified below to impede storm water flow and prevent erosion. | **Negligible** |
| Accidental Spills and Leaks | **Minor Negative** | Soil | **Low** | **Negligible** | • Ensure proper PPE is worn; to include at a minimum: gloves, safety shoes, and safety googles<br>• Prompt and effective action be initiated to stop the spillage/leakage and its pollution at source.<br>• Contain the spillage and prevent it from reaching sensitive areas by using the absorbent materials in the available spill kit<br>• After the spillage or leakage has been contained, the contaminated material and the absorbent material should be placed within the disposal bags available in the spill kit and properly enclosed with tape or twist ties. Disposal bag shall be removed and treated as hazardous waste.<br>• Make sure that the used spill kits are replaced with new ones and that enough absorbing materials are available for future potential environmental accidents.<br>• If the situation cannot be controlled, refer to [MP 11 – Emergency Preparedness and Response Plan] for additional details on handling of the incident. | **Negligible** |
| | | Groundwater Quality | **Moderate** | **Minor** | | **Negligible** |
| | | Surface Water Quality | **High** | **Minor** | | **Negligible** |

## 8.5 Monitoring

**Table 8-5 Geology, Soils, Surface Water and Groundwater Monitoring Requirements**

| MONITORING | PARAMETER | FREQUENCY & DURATIONS | MONITORING LOCATION | RESPONSIBILITY |
|---|---|---|---|---|
| **Construction** | | | | |
| Soil, surface water and groundwater quality | Visible spills & leaks of hydrocarbons and other potentially hazardous or chemicals | Daily during construction as part of the daily walkdown | The entire project area during construction | EPC Contractor |
| Soil integrity | Visible erosion features | Daily during construction as part of the daily walkdown | Soil stockpiling areas (where applicable) and disturbed sites | |
| **Operation** | | | | |
| Soil, surface water and groundwater quality | Visible spills and leaks of chemicals/ waste | Daily during operations | Storage and maintenance areas | O&M Company |

# 9 TERRESTRIAL ECOLOGY AND AVIFAUNA

## 9.1 Applicable Requirements & Standards

### 9.1.1 National Regulations

National laws that govern protection of biodiversity include:

- Law of the Azerbaijan Republic on Specially Protected Natural Territories and Objects No. 840-IQ;
- Law of the Azerbaijan Republic on Fauna No. 675-IQ;
- Law of the Republic of Azerbaijan on Specially Protected Natural Areas and Objects;
- Law of the Republic of Azerbaijan on Addition to the Law of the Republic of Azerbaijan "On Specially Protected Natural Areas and Objects"; and
- Law of the Republic of Azerbaijan on accession to the European Convention for the Protection of Wildlife and the Natural Environment of Europe.

### 9.1.2 Lender Requirements

**ADB**

SPS (2009) page 16, policy principle 8 states "*Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development, and management of renewable natural resources.*"

Safeguard Requirements 1: Environment, paragraph 8, further states that "*the borrower/client will assess the significance of project impacts and risks on biodiversity and natural resources as an integral part of the environmental assessment process.... The assessment will focus on the major threats to biodiversity, which include destruction of habitat and introduction of invasive alien species, and on the use of natural resources in an unsustainable manner. The borrower/client will need to identify measures to avoid, minimize, or mitigate potentially adverse impacts and risks and, as a last resort, propose compensatory measures, such as biodiversity offsets, to achieve no net loss or a net gain of the affected biodiversity*". This

section also refers to specific requirements for modified, natural and critical habitats as well as legally protected areas and invasive species.

**AIIB**

As outlined in AIIB's ESF, the Bank "*recognises that protecting and conserving biodiversity, sustainably managing terrestrial and aquatic natural resources and maintaining core ecological functions and services are fundamental to sustainable development. The objective of biodiversity conservation and sustainable management of natural resources should be balanced with a commitment to sustainable use of the multiple economic, social and cultural values of biodiversity and natural resources in an optimized manner. Through the Projects it finances, the Bank seeks, where applicable, to: (a) avoid adverse impacts on biodiversity and ecosystem services; and (b) assist its Clients in protecting and conserving biodiversity and promoting the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities*."

**EBRD**

EBRD PR6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources establishes general requirements for the conservation of biodiversity and sustainable management of living natural resources covering aspects such as the assessment of issues and impacts on biodiversity. The Bern Convention (June 1979) is also applicable.

Where applicable, the Project will follow the EBRD's E&S Eligibility Criteria for On-Shore Wind Power Projects. This includes targets set out by the EU Biodiversity Strategy including the Habitats Directive 92/43/EEC, the Birds Directive 2009/147/EC, the Bern Convention (June 1979), and EU Regulation 1143/2014 on Invasive Alien Species.

Baseline studies will conclude with a critical habitat assessment to determine if any features in the Project area qualify as priority biodiversity features or critical habitat. This assessment addresses the importance of the study area for conservation, and which PR6 requirements will apply. It does not consider specific impacts at this stage of analysis.

PR6 defines critical habitat and priority biodiversity features as:

Critical Habitat: The most sensitive biodiversity features, which comprise one of the following:

- Highly threatened or unique ecosystems;
- Habitats of significant importance to endangered or critically endangered species;
- Habitats of significant importance to endemic or geographically restricted species;
- Habitats supporting globally significant migratory or congregatory species;
- Areas associated with key evolutionary processes; or

- Ecological functions that are vital to maintaining the viability of biodiversity features described in this paragraph.

Priority Biodiversity Features (PBF): This concept replaces the previous definition of natural habitat used by the EBRD (in the 2008 ESP) and encompasses a sub-set of biodiversity that is particularly irreplaceable or vulnerable, but at a lower priority level than critical habitats, which include:

- Threatened habitats;
- Vulnerable species;
- Significant biodiversity features identified by a broad set of stakeholders or governments (such as Key Biodiversity Areas or Important Bird Areas); and
- Ecological structure and functions needed to maintain the viability of priority biodiversity features.

The criteria used by the EBRD's PR6 to define critical habitat are closely aligned with those outlined in IFC PS6. PR6 also explicitly includes ecological functions that are vital for maintaining the viability of critical habitat features.

**IFC**

The assessment of impacts upon terrestrial ecology is required with due consideration to IFC Performance Standard 6 on Biodiversity Conservation and Sustainable Natural Resource Management which establishes requirements for protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources. When avoidance of impacts is not possible, measures to minimise impacts and restore biodiversity and ecosystem services should be implemented. Specifically, it is necessary to determine baseline conditions and categorise the project's habitats as 'critical', 'modified', or 'natural' to undertake the necessary assessment. The Performance Standard defines the different habitats as follows:

- Natural Habitat: "Natural habitats are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition";
- Critical Habitat: "Critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes"; and
- Modified Habitat: "Modified habitats are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species

composition. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones, and reclaimed wetlands".

## 9.2 Baseline Conditions

### 9.2.1 KBA and LPA Proximity

Although a project's overlap with, or proximity to an internationally recognised Key Biodiversity Area (KBA) or Legally Protected Area (LPA) do not automatically result in a Critical Habitat (CH) determination, there is generally a strong correlation with KBA overlap, as the international KBA standard promulgated by the IUCN, is the same standard that has been incorporated into the CH criteria in IFC PS6 and EBRD PR6.

Beyond the possible triggering of CH, overlap with, or close proximity to KBA and/or LPA is an important factor in ecological risk assessment for a project, as it generally connotes a measure of ecological sensitivity, as well as priority status of certain species, habitats, or other biodiversity features among international or regional biodiversity science/conservation stakeholders.

For the present analysis, the results of the proximity analyses from the Integrated Biodiversity Assessment Tool (IBAT) report are presented, in the form of map figures showing the location of the Project area in relation to KBA (Figure 9-1) and LPA (Figure 9-2).

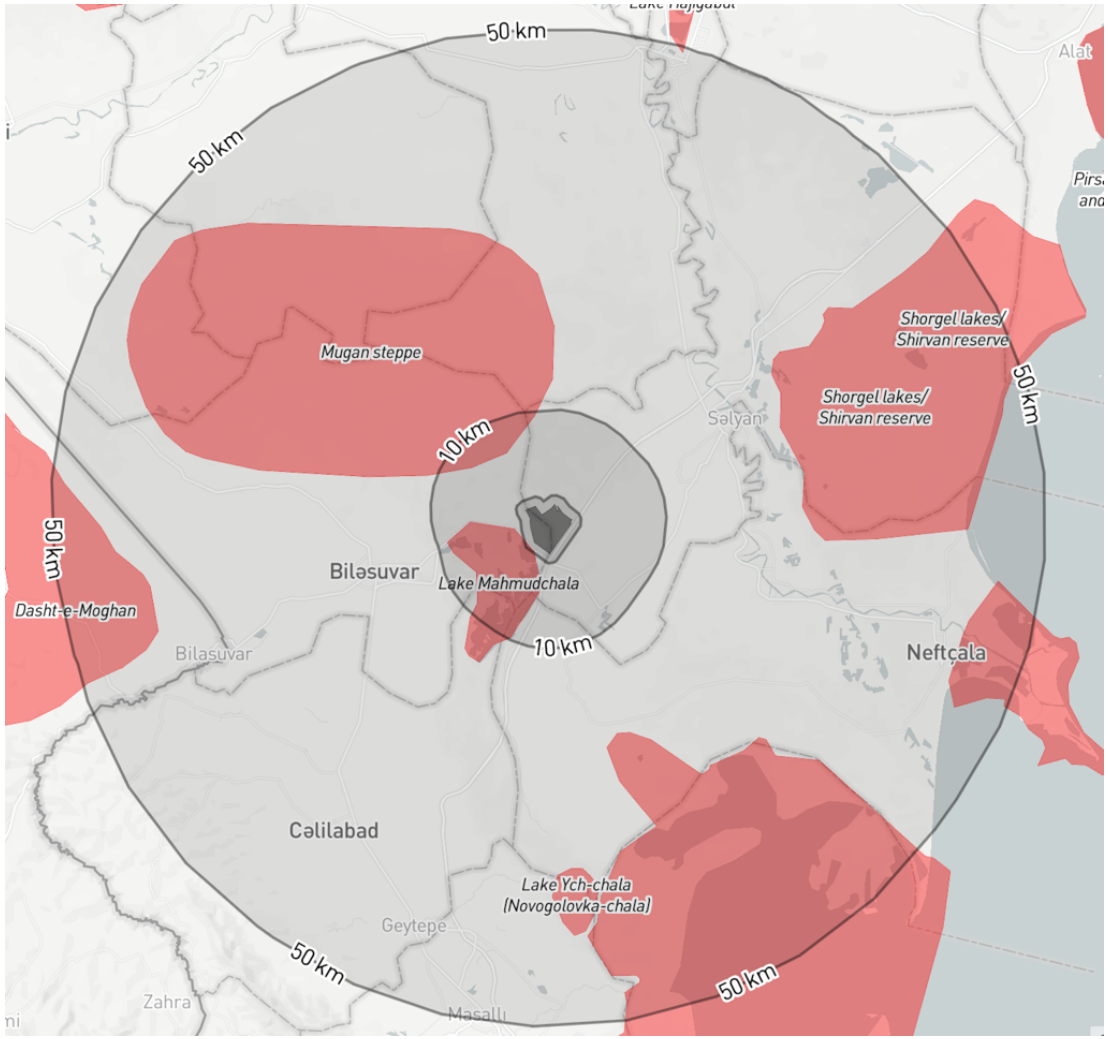


**Figure 9-1 Location of the Bilasuvar PV Solar project area (dark gray polygon) in relation to KBA (pink areas), according to the IBAT database (from IBAT report dated 8 February 2024). Illustrating the conclusion that the nearest KBA, located as close as ca. 1 km from the Project area, is the Lake Mahmudchala Important Bird Area.**

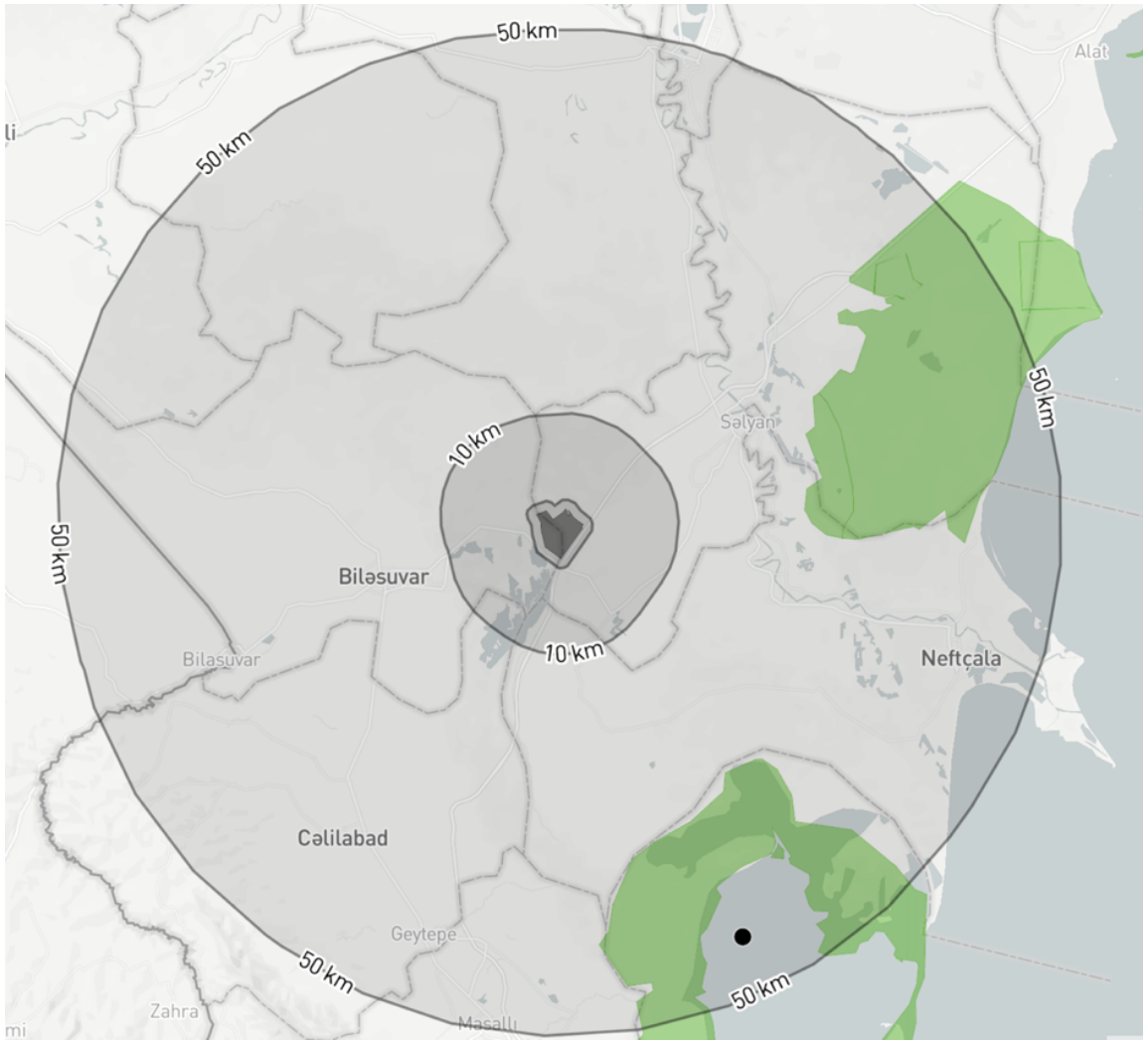


**Figure 9-2 Location of the Bilasuvar PV Solar project area (dark gray polygon) in relation to LPA (green areas), according to the IBAT database (from IBAT report dated 8 February 2024). Illustrating that the nearest LPA to the Project area, Shirvan National Park, is located roughly 20 km to the east.**

Figure 9-1 illustrates that the Project area comes within 1 km of an internationally recognized KBA, specifically the Lake Mahmudchala Important Bird Area (IBA, AZ045 – BirdLife International). This IBA is triggered for 14 species of waterbirds, including both breeding and wintering species, as well as a few species that are year-round residents. National specialists highlighted that hunting by locals and tourists is common in the IBA.

Although there is no direct overlap, the proximity of the Project area to this KBA represents a potentially significant biodiversity concern for the Project. For this reason, examination of Lake Mahmudchala, and the ecological conditions present within the area that lies in between the Project area and this IBA was a focus of the March 2024 site visit.

During the visit, it was evident that the Project area is ecologically isolated, and effectively separated from this IBA, in terms of the ecology of most of the birds that use the IBA, even though it is in relatively close proximity. The IBA consists of Lake Mahmudchala, as well as extensive reedbeds and additional wetlands to the south of it. On the north side of Lake Mahmudchala, a very busy, major road (called "M3" on maps) cuts directly across the Lake on an artificial impoundment, separating the main portion of the Lake from a smaller waterbody on the north side of the road.

According to the BirdLife International database, the Lake Mahmudchala IBA only extends from this road to the south, as shown in Figure 9-1. Therefore, the nearest distance between the boundary of the Project area and the IBA is roughly 530 m. Although 530 m is not a very large distance, with regard to the potential for impacts, the distance, itself, is not as important as the composition and configuration of habitats and ecological conditions in the landscape. In this case, the Project area consists of relatively uniform, highly disturbed upland habitats, that are not likely to be used frequently by most of the wetland associated birds that inhabit the Lake Mahmudchala IBA. Furthermore, the Project area is physically separated from the IBA by a canal, a strip of brushy upland habitat, and a busy road, that was in the process of being expanded from two lanes to four lanes at the time of the March site visit.

Considering this distribution of habitats and other features in the vicinity of the Project area, the Project is considered unlikely to generate a significant impact on the Lake Mahmudchala IBA, or the bird species that utilise it. This is further supported by the avifauna surveys conducted and outlined within this report. Nonetheless, for some highly dispersive species (e.g. water-associated raptors), this IBA is considered part of the Ecologically Appropriate Area of Analysis (EAAA) for the Project, and the proximity of the Project area to this IBA is an important factor to consider in managing biodiversity issues for the Project.

With regard to Legally Protected Areas (LPA), Figure 9-2 indicates that the Project does not overlap any, and that the nearest one is roughly 20 km to the east. This LPA is Shirvan National

Park, which is an IUCN category II LPA, and contains significant and substantial biodiversity values, including among the largest wintering concentrations of Little Bustard in the country.

### 9.2.2 Baseline Surveys

#### METHODS AND EFFORT SUMMARY

Baseline biodiversity surveys were conducted for the Project between February and June 2024 by the regional biodiversity experts, the surveys were as follows:

- Little Bustard surveys – transect and point count surveys conducted on-site by regional ornithologists on seven days from 24 February – 28 April, 2024, roughly 4 hours per day. 21 km total transect length surveyed each visit by vehicle, with stops for point counts roughly every km. In addition to bustards, any bird species with elevated national or global listed status observed during these surveys was also documented;
- Bird transect surveys – surveys conducted on-site by regional ornithologists on four dates from 11 May – 2 June, 2024. 10 – 13 km of transect surveyed each visit from dawn until 9:00 or 10:00am;
- Botany – six days of transect-based habitat mapping and botanical surveys conducted on-site by regional botanists from 11 April – 12 May 2024;
- Mammals – six days of diurnal transect surveys, small mammal trapping with Gero live traps, and nocturnal active acoustic bat surveys conducted on-site by a regional mammalogist from 11 April – 28 May 2024; and
- Reptiles – eight days of transect-based surveys, with focused searches in rocky areas conducted on-site by a regional herpetologist from 7 April – 28 May 2024.

#### HABITATS AND BOTANY

The concept of Natural Habitat (NH), as a specific biodiversity feature triggering a certain mitigation standard is only applicable to IFC PS6. There is no parallel concept in EBRD PR6. IFC PS6 defines NH as "*areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition*." In practice, IFC applies the concept of NH fairly broadly, including habitats that are utilized by humans for various activities, including domestic livestock grazing, as long as the fundamental vegetation structure and basic ecosystem functions resemble the "natural" condition in the area, and as long as the species composition is largely composed of native species.

With regards to the expected natural habitat of the region and Project site, it is likely best represented by the habitat of the Mugan Steppe, with vegetation such as *Halocnemum strobilaceum*.

Initial screening of Natural Habitat was conducted by examination of Google Earth imagery on 20th February 2024, with imagery dated July to October 2023. Based on review of the imagery across the Project site, the impression was that there is little or no NH on the site.

A site visit was conducted in March 2024, in which four hours were spent driving and walking across the site and immediate surroundings to observe and photograph habitat conditions and wildlife. The observations and in-field discussions that occurred during this site visit provided further support for the conclusion that the site is covered primarily, if not entirely by Modified Habitat, with no little or no presence of Natural Habitat, per IFC PS6 definitions.

The Project area is very flat and open, with very few trees, and sparse cover of small shrubs. Extensive grooves, ditches, mounds, and berms in the soil indicate that the area was historically plowed and planted to crops. As the site appears to have been fully ploughed and cultivated in the past, it all represents Modified Habitat. Currently the area is fallow and used as pasture for sheep and cows.

A set of photographs of the habitat conditions at the site are shown in the following images.

| | |
|---|---|
|  |  |
| An artificial ditch is visible in the foreground. Grooves in the dirt indicative of historical plowing. The sparse and low shrub cover, and thin green layer of spring weedy herbaceous vegetation with extensive bare dirt typical of the site are also evident in the photo. | Artificially created ditches and berms, and typical vegetation present at the site |

| | |
|---|---|
|  |  |
| Herder structure visible in background and sheep in the foreground. | Thin and low layer of spring herbaceous growth present at the site during the time of the site visit, with sparse, low shrubs interspersed. |

**Figure 9-3 Habitat Conditions at the Project Site**

A final, and most definitive source of information supporting the NH determination is the botanical baseline survey, which is further outlined in the following subsections. Botanists surveyed the area in Spring 2024 and produced a habitat map, as well as a floristic characterisation of the Project area, presented in the botanical baseline report.

The entire area is covered by upland habitats, primarily various mixes of semi-arid desert/grasslands, though there is a strip of "partially swampy" Tamarix-dominated shrub desert habitat bordering the canal, along the Project area's southwestern border (as shown in the following figure). Although only one of the habitat types described in the botany report is described as "degraded area," the basic vegetation types of the entire Project site reflect heavy domestic livestock grazing pressure, with very low height and thin coverage of grasses and other herbaceous cover, and no rare, redlisted, or otherwise sensitive species of plants were found on site by the botanists.

The heavily grazed aspect of the vegetation within the Project area was cited in the Little Bustard survey report, as the basis for the authors to conclude that the area was not likely to support Little Bustards.

On the basis of synthetic consideration of all evidence pertinent to the NH determination, we conclude that the Project area is covered entirely by Modified Habitat, per the IFC PS6 definition.

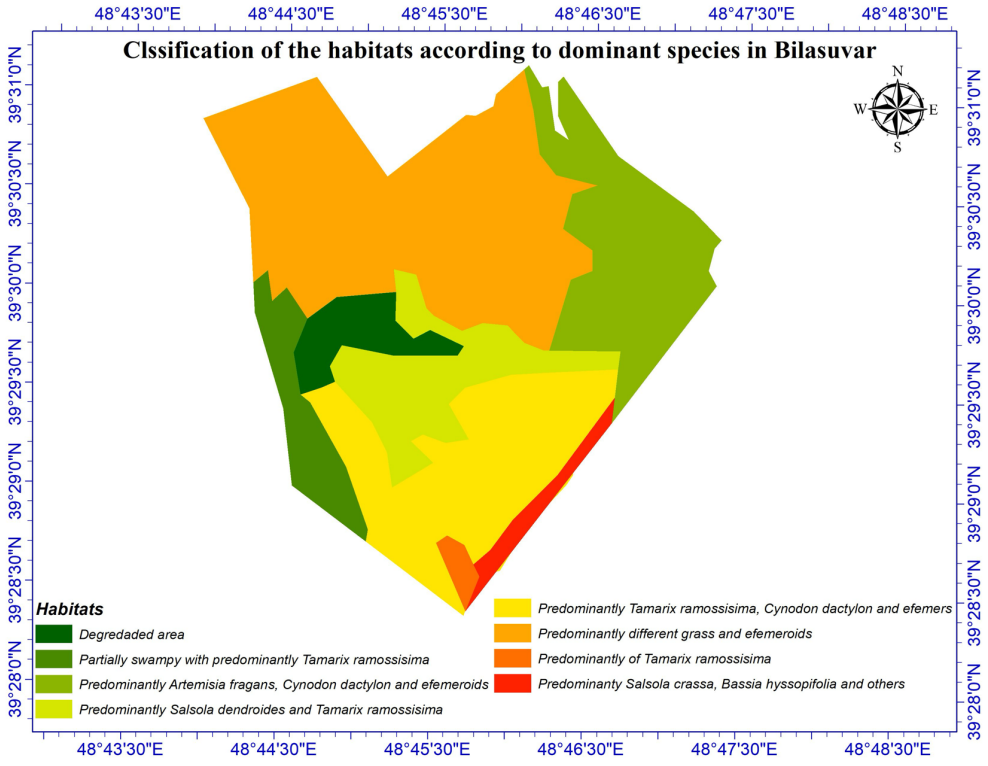


**Figure 9-4 Habitat Map of the Project Site**

Botany

278 plant species on the site, consisting primarily of upland herbaceous species (262 species), with no trees, 8 species of shrubs, and 6 species of sub-shrubs. No rare, redlisted, or otherwise sensitive species of plants were found on site by the botanists.

Caspian Bilacunaria (IUCN EN) is a very narrowly distributed (hence restricted-range classification under IFC PS6) herbaceous plant species typical of lowland sandy environments, especially in the marine intertidal zone and also extending inland in sandy lowland areas. Its entire global distribution is limited to a small portion of the Caspian Sea coast of Azerbaijan, where it is only known from 4-5 localities. The geographic range of this species, as drawn in the IUCN red list account, just barely overlaps the Project area, and based on this species' habitat affinity, it was considered possible that it could occur. The modified nature of the habitat, and lack of overlap between this species' known range and the Project area suggest that this species is unlikely to occur in the Project area or trigger CH, but was hypothesized to possibly occur at the site, based on desktop review.

This species was not found at the site during the spring baseline survey, and the highly disturbed nature of the vegetation associations documented at the site reduce the likelihood that it would occur at the site.

One invasive species was recorded, *Sorghum halepense,* however, this was only recorded once and has not spread in a way that affects the ecosystem.

**AVIFAUNA**

Little Bustard

Azerbaijan hosts globally significant wintering concentrations of the Little Bustard, with some flocks of up to 20,000 birds reported on eBird. These flocks inhabit the central lowlands of Azerbaijan, from the south coast, extending up to the northwest into the center of the country. The Project area is not located in one of the primary known wintering areas, according to the national red book of Azerbaijan, but there is an observation of 2600 individuals from agricultural fields roughly 17 km WSW of the Project area in the eBird database, and several observations of smaller wintering flocks to the north and west of the Project site.

With the flat, open nature of the terrain in the Project area, it was initially hypothesized that wintering flocks of this species could utilize the area. No Little Bustards were observed at the Project site during the spring bird transect surveys or the winter/spring Little Bustard surveys.

According to the regional ornithologists conducting these surveys, the area is not likely to be used by wintering Little Bustards because there is not enough grass and herbaceous vegetation cover, and too much disturbance by humans and livestock, a conclusion generally

supported by technical literature[13], though we note that Little Bustards are also known to utilize heavily overgrazed fields under some circumstances[14].

It should be noted that Little Bustards arrive on their wintering grounds in Azerbaijan as early as September, and most of the wintering population is present within the country by the end of October, but the baseline surveys for Little Bustards did not start until 24 February, 2024. Therefore, it cannot be ruled out that large wintering flocks of Little Bustards may make some use the Project area during the late autumn/early winter period.

Additional bird surveys are to be conducted for the Project to characterise the use of the sites during autumn/winter by Little Bustards and waterbirds. The survey results will be incorporated into the BMP.

Waterbirds

Eleven species of migratory waterbirds were documented at the Project site during the 2024 baseline surveys. These observations are summarised in the following table. Only one of these species, Eurasian Curlew, has elevated status on both the global and national redlists. All of the species in this category documented at the site are widespread species with very large global populations.

**Table 9-1 Waterbird Species Documented**

| English Name | Scientific Name | Lake Mahmudchala IBA trigger species | IUCN Status | Azeri Red Book Status | Total Observations |
|---|---|---|---|---|---|
| Whimbrel | *Numenius phaeopus* | | | | 4 |
| Eurasian Curlew | *Numenius arquata* | | NT | VU | 14 |
| Green Sandpiper | *Tringa ochropus* | | | | 50 |
| Black-headed Gull | *Chroicocephalus ridibundus* | | | | 22 |
| Caspian Gull | *Larus cachinnans* | | | | 19 |

[13] Faria, N., M. B. Morales, 2018. Population productivity and late breeding habitat selection by the threatened Little Bustard: the importance of grassland management. Bird Conservation International 28:521-533.
[14] Faria, N., M. B. Morales, 2018. Population productivity and late breeding habitat selection by the threatened Little Bustard: the importance of grassland management. Bird Conservation International 28:521-533.

| English Name | Scientific Name | Lake Mahmudchala IBA trigger species | IUCN Status | Azeri Red Book Status | Total Observations |
|---|---|---|---|---|---|
| Common Tern | *Sterna hirundo* | | | | 10 |
| Black-crowned Night-Heron | *Nycticorax nycticorax* | | | | 20 |
| Little Egret | *Egretta garzetta* | yes | | | 23 |
| Western Cattle Egret | *Bubulcus ibis* | yes | | | 73 |
| Great Egret | *Ardea alba* | | | | 10 |
| Purple Heron | *Ardea purpurea* | yes | | | 2 |

The scattered observations of small numbers of migratory waterbirds at the Project site during the spring, 2024 migration period are primarily comprised by observations of small flocks or individuals flying over the area, likely due to its proximity to Lake Mahmudchala. Some of the species that were observed on the ground within the area are waterbirds that are also known to utilize upland habitats for foraging, such as Western Cattle Egret and Eurasian Curlew.

In summary, the area is utilised by a variety of migratory water bird species, but this utilization is quite limited in extent, particularly for obligate wetland species, such that the Project is expected to generate only minor disturbance/displacement impacts to this group of species.

As stated previously autumn/winter surveys will be conducted for waterbirds. The waterbird surveys have a specific objective, which is to provide spatially precise information on waterbird occurrence in the vicinity of the nearby Important Bird Area.

Migratory Upland Birds

Over the course of the bird transect baseline surveys conducted, 27 species in this category were observed at the site, including four raptor species, one upland fowl species, and a wide variety of songbirds (order Passeriformes) and similar bird taxa.

The only species in this category observed over the course of these surveys with elevated status on either the IUCN global redlist or the national red data book of Azerbaijan was Black Francolin (IUCN LC, Azeri NT), documented in two separate observations of single individual birds during the spring bird transect surveys. All of the species in this category documented at the site are relatively abundant species with large geographic distributions and large global

populations, and most are species with an affinity, or at least tolerance for utilizing habitats with a high level of human alteration and/or disturbance. None are considered highly sensitive species.

#### REPTILES

In total, the spring herpetological baseline surveys yielded observations of 7 species of reptiles at the site, of which only the skink (*Ablepharus pannonicus*) has elevated status on either the IUCN global, or the national redlist.

The Asian Snake-eyed Skink (IUCN LC, Azerbaijan EN) is a species of small, terrestrial lizard that is common throughout much of its range in the Arabian Peninsula through Uzbekistan and Tajikistan, but rare within marginal regions of its global distribution, including the Caucasus region.

Within Azerbaijan, it is primarily known from Chilov and Chigil islands, but has also been recorded in Gobustan. The documentation of this species within the Project area, representing only the second mainland record of this species for the country, is significant from a regional scientific standpoint. However, the conservation significance of this observation is less clear, as its distribution within the country likely reflects limited survey effort. The observation of only a single individual of this species at the site is not suggestive of a substantial or "important" concentration, it is more suggestive of a limited, marginal population of a species that is much more abundant in the core of its geographic range further south and east.

The Common Tortoise (IUCN VU, Azerbaijan NT) is herbivorous upland species of tortoise has a wide distribution throughout Azerbaijan, particularly in low-mid-elevations, and one of the known localities for this species is in Shirvan National Park, located 20 km to the east of the Project area, hence it was considered possible that it could occur at the site, however, the surveys yielded no evidence that Common Tortoise is present at the site.

Reptiles that were observed that are included in the Bern Convention are *Emys orbicularis*, *Ophisops elegans* and *Natrix tessellate*.

#### MAMMALS

In total, the spring baseline mammal survey for the Project documented the presence of 20 species of mammal at the site, of which only the Marbled Polecat has elevated status on either the IUCN global, or the national redlist.

The Marbled Polecat (IUCN VU, Azerbaijan DD) is a specialised predator of small rodents in desert and steppe habitats of Eurasia. It is rare throughout its range, but it is a very widespread species, occurring in middle latitude desert and steppe environments from the Balkans through eastern Mongolia and China.

Marbled Polecats were observed twice over the course of the mammal baseline surveys at the Project. Both observations were in May, with a single individual observed on one occasion, and a pair observed on the other occasion, as shown in the following figure.

**Figure 9-5 A Pair of Marbled Polecats Observed in May 2024**

Other mammals that were observed that are included in the Bern Convention (all Appendix II) are *R. ferrumequinum, Vespertilio murinus, Lepus europaeus* and *Allactaga elater*.

### 9.2.3 Critical Habitat and Priority Biodiversity Feature Assessment

Preliminary screening for any triggers of a CH or PBF determination was conducted following the most recent guidance for such issued by IFC[15] and EBRD[16].

The Project area does not have any highly unique or threatened ecosystem types or distinctive evolutionary processes that could result in a CH determination under IFC CH criteria 4 or 5 (roughly equivalent to EBRD CH criteria 1 and 5, respectively), hence the CH/PBF screening was then accordingly limited to species, and multi-species groupings of biological taxa.

[15] IFC, 2019. Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. June 27, 2019, World Bank Group, Washington, DC.

[16] EBRD, 2022. EBRD Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources: Guidance Note. September, 2022.

A master list of potential CH/PBF trigger species was first compiled by reviewing the IBAT report, the IUCN red list of threatened species, the eBird database, and the national redlist. From this master list, species falling into the following categories were considered to have negligible likelihood of being affected by the Project, and were eliminated:

- species that are extinct from the country/region;
- species that occur in Azerbaijan only as extreme rarities (i.e. vagrants or accidentals);
- species that occur in Azerbaijan only in the pelagic or coastal environments of the Caspian Sea;
- Species with no geographic and/or ecological overlap with the Project area.

This produced a list of species that were considered possible CH/PBF triggers, and subjected to additional screening against the IFC and EBRD CH/PBF criteria. For the final CHA, the list of potential CH/PBF trigger species was revised and updated, based on the results of baseline biodiversity surveys and additional research (Table 9-1). Then, a set of distinct Ecologically Appropriate Area of Analyses (EAAA) were developed for different potential CH/PBF trigger species, based on their ecology, movement patterns, and use of space, per IFC guidance. These EAAA are described in Table 9-2, and Table 9-1 includes a column indicating which EAAA were used for which taxa.

With the EAAA defined, all of the data from baseline surveys and desk-based materials was reviewed against the specific CH and PBF definitions and criteria in IFC PS6 and EBRD PR6 , including the most recent Guidance Notes , to make final determinations of which species or other biodiversity features triggered a CH or PBF determination under IFC or EBRD biodiversity policies.

The results of this assessment are presented in the following table. As is evident, criticality has not been triggered, however, there are a number of PBFs.

**Table 9-2 Results of Critical Habitat and Priority Biodiversity Feature Assessment for the Bilasuvar PV Solar Project. Red list categories for both global IUCN and national redlists are abbreviated as follows: LC = Least Concern, NT = Near Threatened, VU**

| Feature | Higher taxon | IUCN global status | Azerbaijan status | Bern Convention? | Applicable CH/PBF criterion | | | IUCN minimum global population estimate | EAAA (refer to table 9-3) | Determination | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Threatened/Vulnerable Species | Range-restricted Species | Migratory/Congregatory Species | | | | |
| | | | | | CH criterion II, PBF criterion II | CH criterion III, PBF criterion II | CH criterion IV, PBF criterion II | | | | |
| Lesser White-fronted Goose (*Anser erythrops*) | Bird | VU | VU | No | X | | X | 16,000 | 1 | PBF | Project not likely to result in species' up-listing to globally CR/EN. EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle. |
| Mute Swan (*Cygnus olor*) | Bird | LC | CR (breeding)/NT (non-breeding) | No | X | | X | 598,000 | 1 | PBF | EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle, nor to contain nationally important concentration |
| Common Pochard (*Aythya farina*) | Bird | LC | VU | No | X | | X | 760,000 | 1 | PBF | Project not likely to result in species' up-listing to globally CR/EN. EAAA not likely to contain ≥ 1% of the global population at any point in species' life cycle |
| White-headed Duck (*Oxyura leucocephala*) | Bird | EN | VU | Yes, Appendix II | X | | X | 5,300 | 1 | PBF | EAAA not likely to contain ≥ 0.5% of the global population and 5 pairs, nor 1% of global population at any point in species' life cycle |

| Feature | Higher taxon | IUCN global status | Azerbaijan status | Bern Convention? | Applicable CH/PBF criterion | | | IUCN minimum global population estimate | EAAA (refer to table 9-3) | Determination | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Threatened/Vulnerable Species | Range-restricted Species | Migratory/Congregatory Species | | | | |
| | | | | | CH criterion ii, PBF criterion ii | CH criterion iii, PBF criterion ii | CH criterion iv, PBF criterion ii | | | | |
| Horned Grebe (*Podiceps auratus*) | Bird | VU | | Yes, Appendix II | X | | X | 239,000 | 1 | PBF | Project not likely to result in species' up-listing to globally CR/EN. EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle |
| Great Bustard (*Otis tarda*) | Bird | EN | CR | No | X | | X | 29,600 | 2 | PBF | EAAA not likely to contain ≥ 0.5% of the global population and 5 pairs, nor 1% of global population at any point in species' life cycle |
| Little Bustard (*Tetrax tetrax*) | Bird | NT | NT | No | | | X | 260,000 | 2 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle |
| Common Crane (*Grus grus*) | Bird | LC | CR (wintering)/NT migrant | No | X | | X | 491,000 | 1 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, and unlikely to contain a nationally important wintering concentration |
| Black Stork (*Ciconia nigra*) | Bird | LC | EN | No | X | | X | 24,000 | 1 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, and unlikely to contain a nationally |

| Feature | Higher taxon | IUCN global status | Azerbaijan status | Bern Convention? | Applicable CH/PBF criterion | | | IUCN minimum global population estimate | EAAA (refer to table 9-3) | Determination | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Threatened/Vulnerable Species | Range-restricted Species | Migratory/Congregatory Species | | | | |
| | | | | | CH criterion ii, PBF criterion ii | CH criterion iii, PBF criterion ii | CH criterion iv, PBF criterion ii | | | | |
| | | | | | | | | | | | important concentration |
| Eurasian Oystercatcher (*Haematopus ostralagus*) | Bird | NT | CR | No | X | | X | 500,000 | 1 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, and unlikely to contain a nationally important concentration |
| Northern Lapwing (*Vanellus vanellus*) | Bird | NT | EN | No | X | | X | 5,600,000 | 1 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, and unlikely to contain a nationally important concentration |
| Great White Pelican (*Pelecanus onocrotalus*) | Bird | LC | EN | No | X | | X | 265,000 | 1 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, and unlikely to contain a nationally important concentration |
| Eurasian Spoonbill (*Platalea leucorodia*) | Bird | LC | NT | No | | | X | 63,000 | 1 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle |

| Feature | Higher taxon | IUCN global status | Azerbaijan status | Bern Convention? | Applicable CH/PBF criterion | | | IUCN minimum global population estimate | EAAA (refer to table 9-3) | Determination | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Threatened/Vulnerable Species | Range-restricted Species | Migratory/Congregatory Species | | | | |
| | | | | | CH criterion ii, PBF criterion ii | CH criterion iii, PBF criterion ii | CH criterion iv, PBF criterion ii | | | | |
| Osprey *(Pandion haliaetus)* | Bird | LC | CR | No | X | | X | 100,000 | 3 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, and unlikely to contain a nationally important concentration |
| Egyptian Vulture *(Neophron percnopterus)* | Bird | EN | EN | No | X | | X | 12,400 | 4 | PBF | EAAA contains less than 0.5% of global population and is not likely to contain ≥ 1% of the global population at any point in species' life cycle |
| Greater Spotted Eagle *(Clanga clanga)* | Bird | VU | CR | No | X | | X | 3,900 | 3 | PBF | Project not likely to result in species' up-listing to globally CR/EN. EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, nor a nationally important concentration |
| Steppe Eagle *(Aquila nipalensis)* | Bird | EN | EN | No | X | | X | 50,000 | 4 | PBF | EAAA contains less than 0.5% of global population and is not likely to contain ≥ 1% of the global population at any point in species' life cycle |

| Feature | Higher taxon | IUCN global status | Azerbaijan status | Bern Convention? | Applicable CH/PBF criterion | | | IUCN minimum global population estimate | EAAA (refer to table 9-3) | Determination | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Threatened/Vulnerable Species | Range-restricted Species | Migratory/Congregatory Species | | | | |
| | | | | | CH criterion ii, PBF criterion ii | CH criterion iii, PBF criterion ii | CH criterion iv, PBF criterion ii | | | | |
| Imperial Eagle (*Aquila heliacal*) | Bird | VU | EN | No | X | | X | 2,500 | 4 | PBF | Project not likely to result in species' up-listing to globally CR/EN, and EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, nor an important national concentration |
| White-tailed Eagle (*Haliaeetus albicilla*) | Bird | LC | CR | No | X | | X | 20,000 | 3 | PBF | EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, and unlikely to contain a nationally important wintering concentration |
| Red-footed Falcon (*Falco vespertinus*) | Bird | VU | CR | Yes | X | | X | 287,500 | 4 | PBF | Project not likely to result in species' up-listing to globally CR/EN, and EAAA unlikely to contain ≥ 1% of the global population at any point in species' life cycle, nor an important national concentration |
| Saker Falcon (*Falco cherrug*) | Bird | EN | CR | Yes | X | | X | 12,200 | 4 | PBF | EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 reproductive units, nor to contain ≥ 1% of the global population at any point in species' life cycle, or a nationally |

| Feature | Higher taxon | IUCN global status | Azerbaijan status | Bern Convention? | Applicable CH/PBF criterion | | | IUCN minimum global population estimate | EAAA (refer to table 9-3) | Determination | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Threatened/Vulnerable Species | Range-restricted Species | Migratory/Congregatory Species | | | | |
| | | | | | CH criterion ii, PBF criterion ii | CH criterion iii, PBF criterion ii | CH criterion iv, PBF criterion ii | | | | |
| | | | | | | | | | | | important concentration |
| Other migratory waterbird species | Bird | variable | variable | - | | | X | ≥100,000 (per species) | 1 | PBF | No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle. |
| Other upland migratory bird species | Bird | variable | variable | - | | | X | ≥100,000 (per species) | 4 | PBF | No species for which EAAA likely to contain ≥ 1% of the global population at any point in species' life cycle. |
| Common Tortoise (*Testudo graeca*) | Turtle | VU | NT | Yes | X | | | unknown | 2 | PBF | Project not likely to result in species' up-listing to globally CR/EN |
| Asian Snake-eyed Skink (*Apleparus pannonicus*) | Lizard | LC | EN | No | X | | | Unknown | 5 | PBF | EAAA unlikely to contain a nationally important concentration |
| Marbled Polecat (*Vormela peregusna*) | Mammal | VU | DD | Yes | X | | | unknown | 2 | PBF | Project not likely to result in species' up-listing to globally CR/EN |

| Feature | Higher taxon | IUCN global status | Azerbaijan status | Bern Convention? | Applicable CH/PBF criterion | | | IUCN minimum global population estimate | EAAA (refer to table 9-3) | Determination | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Threatened/Vulnerable Species | Range-restricted Species | Migratory/Congregatory Species | | | | |
| | | | | | CH criterion ii, PBF criterion ii | CH criterion iii, PBF criterion ii | CH criterion iv, PBF criterion ii | | | | |
| Caspian bilacunaria (*Bilacunaria caspia*) | Plant | EN | | No | X | X | | Unknown (4-5 known localities) | 5 | PBF | EAAA not likely to support ≥ 0.5% of the global population and ≥ 5 reproductive units |

**Table 9-3 Description and justification of the different Ecologically Appropriate Areas of Analysis applied to the different potential CH and PBF triggers in the CH/PBF assessment**

| EAAA # | Applicable Species | Description | Rationale |
|---|---|---|---|
| 1 | Lessser White-fronted Goose, Mute Swan, Common Pochard, White-headed Duck, Horned Grebe, Common Crane, Black Stork, Eurasian Oystercatcher, Northern Lapwing, Great White Pelican, Eurasian Spoonbill, other migratory waterbird species | Entire Project area buffered by 500m. | Used for all water-associated birds except water-associated raptors. This group of bird species is strongly associated with water bodies and wetland habitats while feeding or roosting, though some may use upland habitats as well. This group includes several of the species listed as trigger species for the Lake Mahmudchala IBA, but note that the IBA, itself, is not considered part of the EAAA for the Project due to its ecological distinctness and ecological separation from the Project area (see text). Almost all species in this category are migratory, but the EAAA is defined as a project-specific local area, rather than encompassing their entire migratory routes or year-round ranges, following typical practice for CHA. We note that the selection of a 500m buffer to define the EAAA for mobile waterbirds expressly excludes the spatial scale of many species' daily "commuting" movements, and is, instead, directed at the spatial scale of habitat selection for these species. This is justified by the guidance in paragraph GN59 of IFC GN617 which |

[17] International Finance Corporation (IFC), 2019. Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. June 27, 2019, World Bank Group, Washington, DC, paragraph GN59.

| EAAA # | Applicable Species | Description | Rationale |
|---|---|---|---|
| | | | states, "For some wide-ranging species, critical habitat may be informed by areas of aggregation, recruitment, or other specific habitat features of importance to the species." |
| 2 | Great Bustard, Little Bustard, Common Tortoise, Marbled Polecat | Entire Project area buffered by 5 km. | Great and Little Bustards may overwinter in Azerbaijan, and both are associated with open, upland habitats, including a variety of steppe and grassland habitats, as well as agricultural fields. The 5 km buffer was selected on the basis of these species' general patterns of dispersal and movements while on their wintering grounds in Azerbaijan. This EAAA was also used for Common Tortoise and Marbled Polecat, as the upland habitat association and 5km buffer are also suited to this species' ecology and dispersiveness |
| 3 | Osprey, Greater Spotted Eagle, White-tailed Eagle | Entire Project area plus the Lake Mahmudchala IBA, all buffered by 10 km. | The three species for which this EAAA was applied are large, migratory raptor species that are highly associated with water bodies and wetlands for foraging, hence the inclusion of the Lake Mahmudchala IBA in addition to the Project area within the core of this EAAA. During migration, these species may occur in flight over virtually any habitat, and while on nesting (Osprey nests in the region) or wintering (White-tailed Eagle winters in the region) grounds, these species are highly dispersive and wide-ranging, hence the application of a 10 km buffer to the core area in defining this EAAA. |
| 4 | Egyptian Vulture, Steppe Eagle, Imperial Eagle, Red-footed Falcon, Saker Falcon, Other upland migratory bird species | Entire Project area buffered by 10 km. | This EAAA was applied for migratory bird species associated with various upland habitats. The buffer of 10km reflects the dispersiveness and local home range size of the most dispersive and wide-ranging species in this category (e.g. eagles, Egyptian Vulture, falcons) but is also conservatively applied to all other upland-associated species of migratory birds that are potentially CH or PBF triggers. |
| 5 | Caspian bilacunaria, Asian Snake-eyed Skink | Entire Project area buffered by 1 km | This EAAA, defined to include only the actual footprint of the Project site, plus a small (1 km) buffer, reflects the sessile nature of the single plant species, and the limited scale of dispersal of the skink species for which it was applied. This is intended to include all areas in which these species could be impacted by permanent or temporary soil/vegetation disturbance or alteration, as a result of the construction and operation of the Project |

### 9.2.4 Ecosystem Services

Ecosystems provide services that result in beneficial human impacts. A decline or loss of any of these services and their benefits can result in socio-economic impacts that extend beyond environmental damages (World Resources Institute, 2013).

Ecosystems services are divided into four categories (World Resources Institute, 2013 and also consistent with the four types outlined in IFC PS6):

- "Provisioning services are the goods or products obtained from ecosystems, such as food, timber, fibre, and freshwater.
- Regulating services are the contributions to human well-being arising from an ecosystem's control of natural processes, such as climate regulation, disease control, erosion prevention, water flow regulation, and protection from natural hazards.
- Cultural services are the nonmaterial contributions of ecosystems to human well-being, such as recreation, spiritual values, and aesthetic enjoyment.
- Supporting services are the natural processes, such as nutrient cycling and primary production, that maintain the other services."

IFC PS6 outlines that ecosystem services valued by humans are often underpinned by biodiversity, and hence impacts to biodiversity can adversely affect the delivery of ecosystem services.

IFC PS6 also states that "Priority ecosystem services are two-fold: (i) those services on which project operations are most likely to have an impact and, therefore, which result in adverse impacts to Affected Communities; and/or (ii) those services on which the project is directly dependent for its operations (e.g., water).

The provisioning ecosystem service of livestock herding is considered to be applicable to the Project, and is further discussed and assessed within Section 13 of this Report and the RAP. Following review of the four categories of ecosystem services, no other priority ecosystem services are applicable to the Project.

## 9.3 Area of Influence and Receptors

### 9.3.1 Area of Influence

The area of influence for ecological impacts vary, for example, with regards to habitat loss or displacement, the impact would pertain to species that currently occupy the Project's footprint; disturbance could extend beyond the Project's immediate footprint depending on the behavioral sensitivity of the species, for example, many large-bodied waterbirds may be disturbed by the presence of humans or vehicles for distances on the scale of 1 km.

In addition to the primary area of influence, and in line with lender requirements, the area of influence also accounts for associated facilities and the project's proximity to areas of known biodiversity value, such as the Lake Mahmudchala IBA. Therefore, receptors for the OHTL are included in Table 9-4.

The following figure depicts the proposed transmission line in proximity to nearby protected areas.

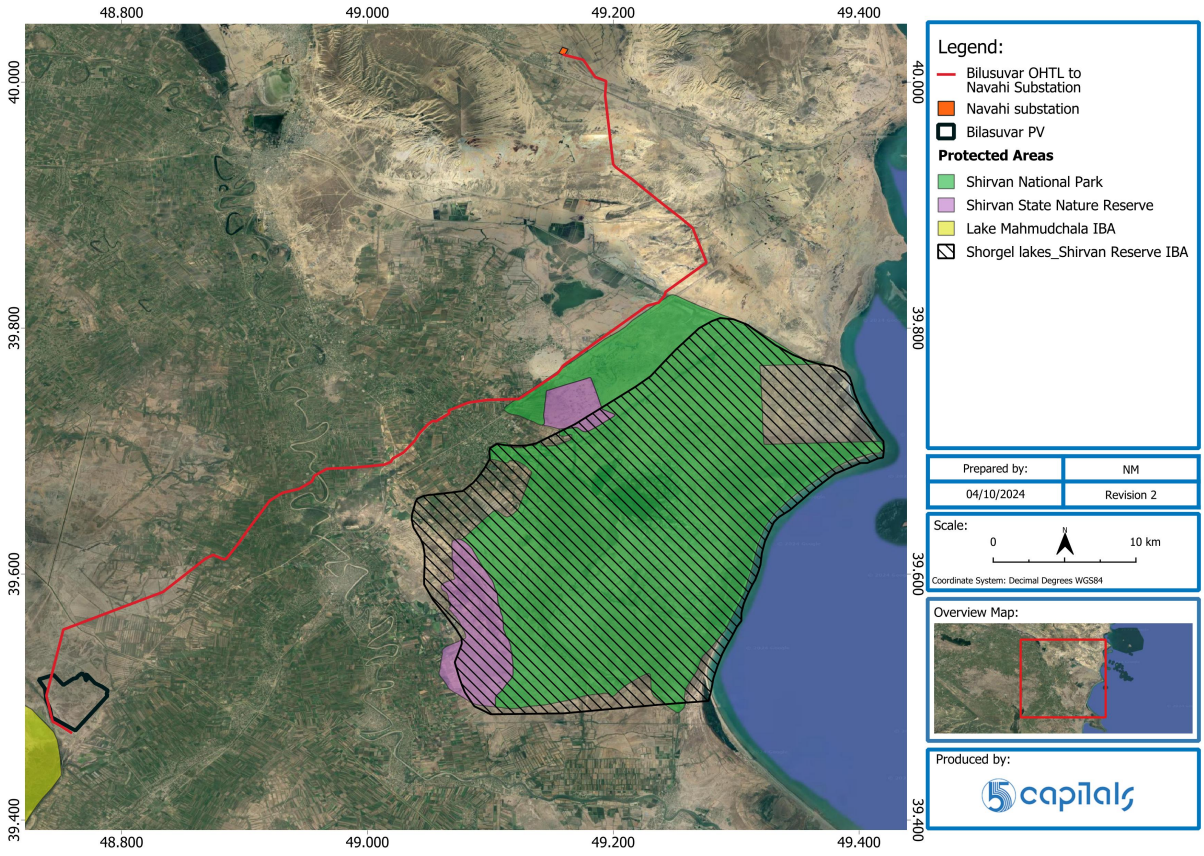


**Figure 9-6 OHTL Route to Navahi Substation and Protected Areas**

## 9.3.2 Receptors

The following table groups the ecological receptors into distinct receptor groups for use in the impact assessment, however, it is important to highlight that an assessment of Project impacts is also conducted on each PBF independently. For the purpose of this impact assessment, receptor sensitivity for individual PBFs has not been conducted.

**Table 9-4 Terrestrial Ecology and Avifauna Sensitive Receptors**

| RECEPTOR | SENSITIVITY | JUSTIFICATION |
|---|---|---|
| **Solar PV Site** | | |
| Habitats and Flora | Very Low | There is no natural habitat at the site and no species of rare or redlisted plants were documented at the Project site during the botanical baseline surveys, |
| Fauna (including avifauna) | Medium | One mammal and one reptile recorded have elevated conservation status.<br>The site is not deemed to be of significance with regards to avifauna. |
| Lake Mahmudchala Important Bird Area | Very High | The Project area, at its nearest point, comes within 530 m of an internationally recognized KBA, specifically the Lake Mahmudchala Important Bird Area (IBA, AZ045 – BirdLife International). This IBA is triggered for 14 species of waterbirds, including both breeding and wintering species, as well as a few species that are year-round residents. |
| **OHTL** | | |
| Lake Mahmudchala Important Bird Area | Very High | The Project area, at its nearest point, comes within 530 m of an internationally recognized KBA, specifically the Lake Mahmudchala Important Bird Area (IBA, AZ045 – BirdLife International). This IBA is triggered for 14 species of waterbirds, including both breeding and wintering species, as well as a few species that are year-round residents. |
| Shirvan State Nature Reserve / Shirvan National Park | Very High | The transmission line from Bilasuvar to Navahi passes close (<50m) to Shirvan State Nature Reserve and Shirvan National Park. |
| Avifauna | Very High | The transmission line is located in a flyway of which, for the following species more than 1% of their world population has been counted passing through during migration: Ruddy Shelduck, Garganey, Little Bustard, Eurasian Spoonbill, Glossy Ibis, Grey Heron, Dalmatian Pelican, Pygmy Cormorant, Great Cormorant, Pied Avocet, Black-winged Pratincole, Black-headed Gull, Great Black-headed Gull, Caspian Gull, Steppe Eagle, Western Marsh Harrier, which are of higher collision risk.<br>In addition, the Lake Mahmudchala IBA has significant concentrations of Little Egret, Common Pochard, Ferruginous Duck, Glossy Ibis, Pygmy Cormorant and Whiskered Tern |

## 9.4 Potential Impacts, Mitigation, Management & Residual Impacts

This impact assessment first outlines construction impacts, then operational phase impacts, then both construction and operation phase impacts on identified PBFs.

### 9.4.1 Construction Phase

#### 9.4.1.1 Loss of Habitat and Flora

The initial stages of construction will require the clearance of habitat and flora in order to construct the Project, this will be limited to within the Project boundaries and access road, and it is considered likely that the EPC Contractor will utilise the current access road and road through the site during the initial stages of construction.

The impact is typically permanent, however, it is noted that vegetation will begin to regenerate during the operation phase, however, this will have to be managed to ensure that impact to electrical generation does not occur as a result of the shading of panels, noting that the panels are bi-facial.

There is no natural habitat at the site and there are no flora species of elevated conservation concern and therefore the impact is considered to be of **Negligible** magnitude.

#### 9.4.1.2 Direct Mortality of Fauna

This impact would be limited primarily to highly sedentary animals, especially those that are partly or wholly fossorial, though some fatality of more mobile animals could also occur during the construction phase, as a result of vehicular traffic. Small mammals and reptiles are more susceptible to this impact compared to larger wildlife.

The baseline surveys recorded the presence of the Marbled Polecat and the Asian Snake-eyed Skink. No other mammals or reptiles of elevated conservation were recorded and the Common Tortoise was not observed at the Project site.

This impact is considered to be of **Moderate** magnitude.

#### 9.4.1.3 Disturbance

Disturbance and other indirect impacts can arise from the presence of humans and construction equipment, construction noise, air emissions, dust generation, lighting and soil/water contamination.

Construction noise and vibration can cause acoustic masking, disturbance and displacement, and general reduction in survivorship and reproductive success in a variety of fauna. Most heavily impacted are acoustic communicators and a growing body of research is also investigating acoustic impacts on herpetofauna.

It is noted that swans may feed in or adjacent to the Project area. All three species of swans that could potentially occur in the region (Mute, Whooper, Tundra) are primarily associated with waterbodies. This pattern is borne out by review of eBird data for all three species in the

Project region. Thus the potential for the Project to impact these species is highly limited. Furthermore, all three species are IUCN LC. Wintering populations of Whooper Swan and Mute Swan have VU and NT status, respectively on the Azerbaijan national redlist (note that CR status for Mute Swan is in breeding season only, when it is highly restricted to aquatic habitats, generally, and Shirvan National Park in Azerbaijan, specifically). It is also highlighted that autumn/winter surveys for waterbirds are to be undertaken, with results incorporated into the BMP.

Night-time lighting can impact nocturnal wildlife behaviour. It can act as an attractant, which can cause congregation and higher predation rates or change movement and migration behaviour; act as a repellent which causes displacement or interfere with the circadian cycle and cause lower survivorship and reproductive success. This can be of particular concern for migratory birds, noting the presence of the Lake Mahmudchala IBA However, lighting will be required only at specific work areas and not across the wider area or along access roads, thereby limiting lighting to relatively small areas, and only when and where night work is required.

Disturbance impacts are typically temporary in nature and largely localised to the construction boundaries and immediate surroundings, with the exception of lighting impacts which can act as an attractant, also noting the presence of the nearby IBA. The impacts are considered to be of **minor** magnitude for the fauna of the site, and of **negligible** magnitude for the Lake Mahmudchala IBA.

#### 9.4.1.4 Poaching

The presence of site workers can lead to increased hunting and poaching, as well as persecution of certain species. In addition, there is the risk of this also occurring in the nearby IBA. In consultations with local ornithologists, the prevalence of hunting in the IBA, both by locals and tourists, has been highlighted.

The impact is considered to be of **minor** magnitude.

#### 9.4.1.5 Introduction of Invasive Species

Soil imports, intentional or via previously used excavation and earthworks equipment, may contain pathogens that can spread and infect native vegetation and fauna that do not have natural defence mechanisms.

Exotic seeds in soil imports can allow the spread of invasive, weedy species which outcompete native species. Secondary impacts may occur on wildlife which utilise the reduced native vegetation for foraging or shelter.

One invasive species was recorded during the baseline surveys, *Sorghum halepense,* however, this was only recorded once and has not spread in a way that affects the ecosystem.

This impact is considered to be of **moderate** magnitude.

## 9.4.2 Operations Phase

### 9.4.2.1 Disturbance

Vehicles and operational workforce will be present during the operations and maintenance phase of the Project, although on a significantly reduced scale to that of the construction phase. Therefore, there is still the potential for disturbance and indirect impacts, although these are considered to be of **Negligible** magnitude.

### 9.4.2.2 Lake Effect / Bird Collision with PV Panels

The 'lake effect hypothesis' posits that aquatic habitat birds are attracted to PV solar facilities, mistaking the reflective surfaces of PV panels for the surface of a water body and, therefore, landing upon the panels, resulting in injury and/or mortality. There is a lack of evidence in support of the hypothesis (BirdLife, 2011; Hathcock, 2018; The Wildlife Society, 2021; Kosciuch et al., 2021), and 5 Capitals have not identified this occurring despite conducting operational monitoring at numerous PV projects worldwide.

This ESIA therefore does not include an assessment of the lake effect, however, an operational phase chance finds monitoring procedure will be included within the HSSE-MS.

### 9.4.2.3 OHTL Collisions / Electrocution

Thin, dark wires used in overhead transmission lines are visually difficult to detect. Bird mortality by collisions with these wires have been documented for a variety of species.

In the case of power lines, the bird collides with one of the wires, generally the earth wire, which is less visible. Particularly at risk are birds migrating between 20 – 50 m altitude, birds flying at night, birds flying in flocks, and / or large and heavy birds of limited manoeuvrability.

It is noted that Little Bustard is particularly at risk of collision with transmission lines, and a portion the line passes adjacent Shirvan National Park, a known wintering ground for the species. In addition, the Lake Mahmudchala IBA has significant concentrations of Little Egret, Common Pochard, Ferruginous Duck, Glossy Ibis, Pygmy Cormorant and Whiskered Tern.

In addition, transmission lines present potential electrocution risk to birds. In particular, larger-bodied birds which tend to prefer perching.

**Note:** this impact has been screened as a potential risk, it is assessed as part of the ESIA being conducted for the transmission line (refer to Section 2.7).

The Scoping Report[18] for the line refers to the line routing being altered to ensure that it does not pass through the National Park, due to the potential ecological impacts. In addition, the Scoping Report refers to the following mitigation:

- Designing the OHTLs to minimise bird strike by implementing International Best Practice regarding provision of bird diverters such as spiral markers, coloured balls, and flappers, on transmission lines to make them more visible to birds. These devices can significantly reduce collision rates.
- Line Marking: Use high-visibility markers on the wires, especially in areas with high bird traffic, to increase the lines' visibility and help birds avoid them
- Consideration of perching sites for large birds such as raptors (insulator spacing etc).

In addition, disclosed documents[19] state the commitment to adopt and implement a Biodiversity Management Plan (BMP), as part of the ESMP, in accordance with the guidelines of the ESIA prepared for the transmission line, and consistent with WB ESS6. Further, the OHTL's ESIA/ESMP, BMP and C-ESMP will be updated to accommodate the findings of the additional bird assessment surveys, which will be undertaken during autumn and spring bird migratory seasons. Another commitment is the construction works being aligned with the availability of the bird assessment data and updated C-ESMP.

**It is important to highlight that Masdar is not responsible for undertaking the above mitigation measures or any monitoring related to the OHTL, and has no control over the WB/GoA OHTL.**

### 9.4.3 Project Impacts on PBFs

Although the determination and assessment of CH and PBF under IFC PS6 and EBRD PR6 does not take into account the level of impact, the potential for a Project to impact biodiversity receptors is factored into the delineation of EAAA for the CH/PBF assessment, and furthermore, it is also pertinent to the assessment of risk to each of the potentially affected biodiversity receptors for the purpose of this ESIA.

Please note the impacts considered below exclude impacts arising from the associated transmission line.

18 https://documents1.worldbank.org/curated/en/099082524135528588/pdf/P5052081afda380fc192451697539b09005.pdf

19 https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099082824173027860/p50520815b0cda0961a0bb17294c1dff0e0

#### LESSER WHITE-FRONTED GOOSE (IUCN VU; AZERBAIJAN VU)

This species is generally present in Azerbaijan only as a rarity in winter or during migration. It is generally associated with waterbodies and wetlands, but may also forage or stopover in migration in agricultural fields or grassy upland areas. Potential impacts from the Project are limited to temporary disturbance of small numbers of birds that may utilize the area as a migratory stopover on rare occasion. No Lesser White-fronted Geese were observed at the Project site during the spring bird transect surveys. Due to this species' rarity in the region, absence from the bird survey observations, and the lack of substantial wetlands or waterbodies on the site, it is considered unlikely that the Project will generate a significant adverse impact on this species.

#### MUTE SWAN (IUCN LC; AZERBAIJAN CR [BREEDING]/NT [NON-BREEDING])

The Mute Swan can be quite abundant in winter in Azerbaijan, especially along the coast or at large inland water bodies, but during the breeding season, it is present in Azerbaijan only in Shirvan National Park, ca 20 km east of the Project area, hence their CR national status as a breeder. No Mute Swans were observed during the baseline surveys conducted in the Project area. As with virtually all of the waterbirds, impacts are likely limited to temporary disturbance, as Mute Swans are not likely to occur on the terrestrial habitats of the Project site. Mute Swans generally only occur on the water, or shorelines of waterbodies.

#### COMMON POCHARD (IUCN VU; AZERBAIJAN NT)

This species is a moderately common wintering species in Azerbaijan, found in large waterbodies, including the Caspian Sea. Its recent global population declines have resulted in its recent listing on global and national redlists. Impacts are likely limited to temporary disturbance, as Common Pochards are not likely to occur on the terrestrial habitats of the Project site. No Common Pochards were observed at the Project site during the spring bird surveys. Due to the lack of substantial water bodies on the site, the Project is not considered likely to generate a significant adverse impact on this species. In order to trigger a CH determination under IFC CH criterion 3, the EAAA would need to contain at least 7,600 individuals of this species, which is highly unlikely.

#### WHITE-HEADED DUCK (IUCN EN; AZERBAIJAN VU)

This species may be present year-round in Azerbaijan, breeding in small numbers on small, marshy lakes, including Lake Mahmudchala. The more regular and larger wintering areas are further inland to the west (e.g. Agh Gol National Park, ca 110 km NW of the Project area). No White-headed Ducks were observed at the Project site during the spring bird surveys. Due to the ecological separation of the Project area from the Lake Mahmudchala IBA, this IBA is not considered to be part of the EAAA for White-headed Duck, reflecting the extreme restriction

of this species to aquatic habitats. EDue to the lack of substantial water bodies on the site, the Project is not considered likely to generate a significant adverse impact on this species.

#### HORNED GREBE (IUCN VU: AZERBAIJAN UNLISTED)

This species is an uncommon wintering bird within Azerbaijan, found in large waterbodies, including the Caspian Sea. Impacts are likely limited to temporary disturbance, as Horned Grebes are not likely to occur on the terrestrial habitats of the Project site. No Horned Grebes were observed at the Project site during the bird surveys. Due to the lack of substantial water bodies on the site, it is considered impossible for the Project to result in this species' uplisting to globally EN/CR, and there is a negligible likelihood that the Project could generate a significant adverse impact on this species.

#### GREAT BUSTARD (IUCN EN, AZERBAIJAN CR)

Great Bustard is a migrant that only occurs in Azerbaijan as a very rare wintering bird, when it occupies flat, open plains habitats. It could occur in the Project area as an extreme rarity in winter, though this species is not known historically from the immediate region of the Project. No Great Bustards were observed at the Project site during the spring bird transect surveys or the winter/spring Little Bustard surveys. Based on this evidence, it is concluded that Great Bustard does not trigger a CH determination for the Project. This is an extremely rare wintering species in Azerbaijan, generally present in large, wide open spaces with more grass and low shrub cover, and less human disturbance than the Bilasuvar Project site. Therefore, it is considered unlikely that this species would utilize the area, or would be adversely impacted by the Project.

#### LITTLE BUSTARD (IUCN NT, AZERBAIJAN NT)

Azerbaijan hosts globally significant wintering concentrations of the Little Bustard, with some flocks of up to 20,000 birds reported on eBird (and note that IUCN estimates global population at 260,000, hence any concentration of over 2,600 birds triggers CH under criterion 3).

These flocks inhabit the central lowlands of Azerbaijan, from the south coast, extending up to the northwest into the center of the country. The Project area is not located in one of the primary known wintering areas, according to the national red book of Azerbaijan, but there is an observation of 2,600 individuals from agricultural fields roughly 17 km WSW of the Project area in the eBird database, and several observations of smaller wintering flocks to the north and west of the Project site. With the flat, open nature of the terrain in the Project area, it was initially hypothesized that wintering flocks of this species could utilize the area.

No Little Bustards were observed at the Project site during the spring bird transect surveys or the winter/spring Little Bustard surveys. According to the regional ornithologists conducting these surveys, the area is not likely to be used by wintering Little Bustards because there is not

enough grass and herbaceous vegetation cover, and too much disturbance by humans and livestock, a conclusion generally supported by technical literature[20], though we note that Little Bustards are also known to utilize heavily overgrazed fields under some circumstances[21]. Based on this evidence, it is concluded that Little Bustard does not trigger a CH determination for the Project, nor is it likely that the Project will generate a significant adverse impact on this species

**COMMON CRANE (IUCN LC, AZERBAIJAN CR [WINTERING]/NT [MIGRANT])**

In Azerbaijan, the Common Crane is a scarce migrant, especially along the coast. It is extremely rare as a wintering bird in the central lowlands, when it may occur in wetlands or in agriculture fields, and is classified as nationally CR. No Common Cranes were observed at the Project site during the bird surveys, and there are no historical records of this species within 10 km of the Project site in the eBird database. Based on this evidence, it is concluded that Common Crane does not trigger a CH determination for the Project. Due to the rarity of this species in the region, and the absence of substantial water bodies on the site, it is considered unlikely that the Project would generate a significant adverse impact on this species. However, it is possible that migrating flocks could occasionally stopover and feed in the cropfields or other upland habitats of the site during their spring and/or autumn migrations.

**BLACK STORK (IUCN LC, AZERBAIJAN EN)**

In Azerbaijan, Black Stork is a scarce, but fairly widespread migrant, only occurring in the country during migration seasons. Small migrating flocks may pass through the Project area on a rare-occasional basis, but it is not likely to utilize the Project area unless there is open water or wetland habitat. This species was not observed during the spring baseline surveys, and there are no eBird records of this species from the vicinity of the Project area or Lake Mahmudchala. Based on this evidence, it is concluded that Black Stork does not trigger a CH determination for the Project, and it is considered unlikely that the Project could generate a significant adverse impact to this species.

**EURASIAN OYSTERCATCHER (IUCN NT, AZERBAIJAN CR)**

This species is an uncommon coastal breeder in Azerbaijan, only occurring within the country during spring through autumn. Habitat affinity is primarily coastal, but it can be found at inland wetlands, or in upland habitats as well. The Project area is not likely to support breeding, or significant concentrations of this species, hence the potential for impact is limited to temporary

[20] Faria, N., M. B. Morales, 2018. Population productivity and late breeding habitat selection by the threatened Little Bustard: the importance of grassland management. Bird Conservation International 28:521-533.
[21] Faria, N., M. B. Morales, 2018. Population productivity and late breeding habitat selection by the threatened Little Bustard: the importance of grassland management. Bird Conservation International 28:521-533.

disturbance of migrating or dispersing individuals. No Eurasian Oystercatchers were observed at the Project site during the spring bird surveys, and none have been reported within 10 km of the Project area in the eBird database. Based on this evidence, it is concluded that the Project area does not support a nationally important concentration of this species. Therefore, it does not trigger a CH determination under IFC CH criterion 1c, and it is considered unlikely that the Project would generate a significant adverse impact on this species.

**NORTHERN LAPWING (IUCN NT, AZERBAIJAN EN)**

This is a formerly very widespread and abundant shorebird of Eurasia, present in Azerbaijan primarily during winter and migration seasons. Its recent global population decline has resulted in its recent redlist classification, both globally and nationally. It is a habitat generalist, especially during winter and migration, when it can be found in a variety of coastal and inland wetland habitats, but also open upland habitats including agricultural fields. This species could be impacted by temporary and permanent displacement of a small number of individuals that might otherwise utilize the habitats of the Project site for migratory stopover and/or overwintering. No Northern Lapwings were observed at the Project site during the spring bird baseline surveys. In the eBird database, there are ten records of this species within 10 km of the Project area, all during spring migration, and with a maximum number of 5 individuals observed. Based on this evidence, it is concluded that the Project area does not support a nationally important concentration of this species. Therefore, it does not trigger a CH determination under IFC CH criterion 1c. It is also considered unlikely that the Project would trigger a significant adverse impact on this species, though small flocks may occasionally use the upland habitats and ephemeral ponds/ditches present on the site during spring and/or autumn migration, thus a small level of permanent displacement impact on this species is anticipated.

**GREAT WHITE PELICAN (IUCN LC, AZERBAIJAN EN)**

The Great White Pelican is present in Azerbaijan only as a migrant, when flocks may pass through any part of the country, but especially along the coast or the central valley. Migrating flocks may pass through the Project area on a somewhat regular basis, and there is a single eBird record from Lake Mahmudchala of a flock of 75 individuals on November 5, 2022, but no observations of this species were recorded during the bird baseline surveys for the Project, and there are no water bodies within the Project area. Therefore, it does not trigger a CH determination under IFC criterion 1c and it is unlikely to be significantly affected by the Project.

**EURASIAN SPOONBILL (IUCN LC, AZERBAIJAN EN)**

In Azerbaijan, Eurasian Spoonbill is primarily a migrant, and primarily coastal, though it may be present throughout the warmer months and nests in colonies near wetlands. This species was

not observed during the spring baseline surveys at the Project site, and there are only two records of this species at Lake Mahmudchala in the eBird database, both from the autumn migration period, suggesting that this species does not utilize this Lake often, and does not have a nearby breeding colony. Therefore, this species does not trigger a CH determination for the Project under criterion 1c, and it is unlikely to be significantly affected by the Project.

**OSPREY (IUCN LC, AZERBAIJAN CR)**

This is an eagle-sized raptor that feeds exclusively on fish, hence it is only found near water. It is an abundant, cosmopolitan species, but in Azerbaijan, it is extremely rare, especially as a breeder, only breeding in a few coastal locations in very small numbers, hence its nationally CR status. This species was not observed during the baseline surveys conducted at the Project site, but single individuals have been reported from Lake Mahmudchala on several occasions in mid-late May in the eBird database, and one was observed at the Lake during the March 2024 site visit, indicating that there could be a nesting location nearby, though all of these observations also could have been migrants. This species is not likely to be significantly impacted by the Project because of the purely upland nature of the Project site, and this species' exclusive reliance on water bodies for feeding. Therefore, the Project does not trigger a CH determination for this species under IFC criterion 1c. Nonetheless, Osprey is expected to occasionally fly over the Project area, and could occasionally use utility poles in the area for perching, thus minor disturbance/displacement effects are possible.

**EGYPTIAN VULTURE (IUCN EN, AZERBAIJAN EN)**

This medium-sized vulture is present in Azerbaijan only during the warmer months, when it nests on bluffs and cliffs in low-lying desert mountains. It is listed as a PBF because of its high conservation sensitivity and wide ranging behaviour, including long-distance migration, which may result in rare or occasional flyovers of this species over the Project area, but the Project area does not contain suitable nesting habitat for this species, it was not observed at the site during the spring baseline surveys, there are no historical eBird records of it from the vicinity of the Project area, and there is little or no potential for the Project to adversely impact it.

**GREATER SPOTTED EAGLE (IUCN VU, AZERBAIJAN CR)**

This is a wetland-associated eagle that occurs in Azerbaijan only as a rare migrant or wintering species. Due to the proximity of this Project to Lake Mahmudchala, this species may occur within the Project area as a rare flyover, and it may occasionally make use of the Lake as stopover habitat during migration. However, it was not observed at the site during the spring baseline surveys and there are no eBird records of this species from the Lake, or anywhere within ca. 10 km of the Project. Therefore, the potential for the Project to impact this species is minimal or negligible.

**STEPPE EAGLE (IUCN EN, AZERBAIJAN EN)**

This large eagle may occur in the Project area during migration seasons, especially autumn, when concentrations of this species generally follow the western Caspian Sea coast southward, also migrating through inland portions of the country. It is listed as a PBF because of its high conservation sensitivity and wide-ranging behaviour, including long-distance migration, which may result in rare or occasional flyovers of this species over the Project area. There is a single eBird record of a single individual Steppe Eagle observed in June, roughly 15 km west of the Project area, but the Project area contains only marginally suitable migratory stopover habitat for this species, it was not observed at the site during the baseline surveys, and there is little or no potential for the Project to adversely impact it.

**IMPERIAL EAGLE (IUCN VU, AZERBAIJAN EN)**

A congener of the previous species, this large eagle has a similar risk profile for the Project in most respects, including the likelihood that it will occur in the Project area exclusively as a flyover during migration seasons, especially autumn, though it may be somewhat more common at the site than Steppe Eagle, as indicated by a handful of eBird observations from the vicinity, including one at Lake Mahmudchala, and an observation of three individuals at the Mugan Steppe, ca 10 km north of the Project area. Nonetheless, the Project area contains only marginally suitable migratory stopover habitat for this species, it was not observed at the site during the spring baseline surveys, and there is little or no potential for the Project to adversely impact it.

**WHITE-TAILED EAGLE (IUCN LC, AZERBAIJAN CR)**

This is a large eagle species that primarily feeds on fish, and is thus primarily associated with coastal habitats and large waterbodies. It is extremely rare in Azerbaijan, hence its national conservation status, and it only occurs in the country during winter and migration seasons, when it is almost always seen along the coast, or at large inland waterbodies. In spite of its national rarely, its occurrence at Lake Mahmudchala during winter is somewhat regular, as indicated by numerous recent winter eBird records. The spring bird baseline surveys resulted in a single observation of two individuals of this species within the Project area, recorded during a Little Bustard survey in the southwestern portion of the Project area on 28 April, 2024. Based on consideration of all of the evidence, it is concluded that the Project does not trigger CH for this species under any of the applicable CH criteria (IFC criteria 1c, 3). Significant impacts on this species from the Project are considered unlikely due to the upland nature of the Project site, itself, though minor and temporary disturbance/displacement effects are possible, particularly during construction activities occurring in the colder months (autumn through spring).

**RED-FOOTED FALCON (IUCN VU, AZERBAIJAN CR)**

This is a medium-sized falcon species that only occurs in Azerbaijan as a very rare migrant along the coast. A migrant could occasionally pass through the Project area during migration as a rarity, but the Project has little potential to generate significant adverse impacts on this species. There are no eBird records of this species from the Project's vicinity and it was not observed at the Project site during the baseline surveys. Based on this evidence, it is concluded that the Project does not trigger CH for this species under any of the applicable CH criteria (IFC criteria 1b, 1c, 3).

**SAKER FALCON (IUCN EN, AZERBAIJAN CR)**

This species has the highest conservation sensitivity of any falcon potentially occurring in the Project area, but its rarity in Azerbaijan, and the fact that it is only likely to pass through the Project site as a very rare migrant, effectively preclude a CH determination, and limit the extent of risk for the Project. In addition to passing through the country as migrants, when they are rare but widespread throughout the country, Sakers also winter in very small numbers in Azerbaijan, when they occur primarily around wetlands or waterbodies with substantial concentrations of waterbirds, potentially including Lake Mahmudchala, though there are no eBird records from the vicinity. This species was not observed at the Project site during the spring baseline surveys. Based on this evidence, it is concluded that the Project has negligible potential to generate adverse impact.

**OTHER MIGRATORY WATERBIRDS**

In addition to the migratory waterbird species individually considered PBF for the Project and listed above, a wide variety of additional species could potentially occur within the Project area, and are collectively considered a PBF under EBRD PBF criterion iii, as substantial impacts would be of concern to a broad set of scientific and conservation stakeholders, were they to occur. Included in this multispecies category are many species of "waders" (British) or "shorebirds" (American), in the order Charadriiformes, as well as numerous ducks, geese and swans (order Anseriformes), gulls and terns (order Charadriiformes), grebes (order Podicipediformes), cormorants (order Pelecaniformes), rails and allies (order Gruiformes), and storks, herons, ibis and allies (order Pelecaniformes). Several species in this category are listed as trigger species for the Lake Mahmudchala IBA located roughly 1 km SW of the Project area. Not all such species are identified individually as PBF for the Project, as some of them are very common and widespread species with low conservation sensitivity. Nonetheless, the high concentrations and diversity of wetland birds that utilize the Lake Mahmudchala IBA could be a concern for the Project, if these birds utilize habitats that overlap, or are in close enough proximity to the Project area to potentially be impacted.

Eleven species of migratory waterbirds were documented at the Project site during the spring 2024 baseline surveys. One of these species, Eurasian Curlew, has elevated status on both the global and national redlists, but its threatened status is not high enough for it to potentially trigger CH under IFC CH criterion 1, or PBF under EBRD criterion ii. All of the species in this category documented at the site are widespread species with very large global populations, hence the low numbers of observations recorded during the baseline surveys indicate that the Project does not trigger CH or PBF under the migratory/congregatory species criteria, as a CH determination would require the EAAA to contain at least 1% of a species' global population at any point in its life cycle , and a PBF determination would require the EAAA to be recognized nationally or internationally for its importance to migratory birds . The scattered observations of small numbers of migratory waterbirds at the Project site during the spring, 2024 migration period are primarily comprised by observations of small flocks or individuals flying over the area, likely due to its proximity to Lake Mahmudchala. Some of the species that were observed on the ground within the area are waterbirds that are also known to utilize upland habitats for foraging, such as Western Cattle Egret and Eurasian Curlew. In summary, the area is utilized by a variety of migratory water bird species, but this utilization is quite limited in extent, particularly for obligate wetland species, such that the Project is expected to generate only minor disturbance/displacement impacts to this group of species.

#### OTHER MIGRATORY UPLAND BIRDS

In addition to the upland bird species individually considered PBF for the Project and listed above, a wide variety of additional upland migratory bird species could potentially occur within the Project area, and are collectively considered a PBF under EBRD PBF criterion iii, as substantial impacts would be of concern to a broad set of scientific and conservation stakeholders, were they to occur. Included in this multispecies category are many species of songbirds (order Passeriformes), as well as numerous raptors with low conservation sensitivity (orders Accipitriformes, Falconiformes), owls (order Strigiformes), nightjars (order Caprimulgiformes), swifts (order Apodiformes), woodpeckers and allies (order Piciformes), kingfishers and allies (order Coraciiformes), cuckoos (order Cuculiformes), upland fowl (order Galliformes) and others. Most such species generally have low potential to be impacted by the Project, particularly the species in this category that are highly associated with forests, or other habitats that are not represented within the Project area. However, more significant impacts, including displacement, habitat loss, and/or disturbance may be expected for a small set of upland bird species that utilize flat, relatively open steppe or agricultural habitats for breeding and/or wintering habitat.

Over the course of the bird transect baseline surveys conducted in spring, 2024 at the Project site, 27 species in this category were observed at the site, including four raptor species, one

upland fowl species, and a wide variety of songbirds (order Passeriformes) and similar bird taxa. The only species in this category observed over the course of these surveys with elevated status on either the IUCN global redlist or the national red data book of Azerbaijan was Black Francolin (IUCN LC, Azeri NT), documented in two separate observations of single individual birds during the spring bird transect surveys. All of the species in this category documented at the site are relatively abundant species with large geographic distributions and large global populations, and most are species with an affinity, or at least tolerance for utilizing habitats with a high level of human alteration and/or disturbance. None are considered highly sensitive species. A variety of species in this category are likely to experience temporary and/or permanent displacement/disturbance impacts, and some species, particularly those that breed and/or overwinter on the site, will experience a habitat loss impact, caused by the installation of PV solar panels and associated infrastructure on the site. However, this impact is not considered to be biologically significant for any species in this category, or to the category as a whole, due to the low sensitivity of the bird species that have been documented inhabiting the site.

**ASIAN SNAKE-EYED SKINK (IUCN LC, AZERBAIJAN EN)**

This is a species of small, terrestrial lizard that is common throughout much of its range in the Arabian Peninsula through Uzbekistan and Tajikistan, but rare within marginal regions of its global distribution, including the Caucasus region. Within Azerbaijan, it is primarily known from Chilov and Chigil islands, but has also been recorded in Gobustan.

The documentation of this species within the Project area, representing only the second mainland record of this species for the country, is significant from a regional scientific standpoint. However, the conservation significance of this observation is less clear, as its distribution within the country likely reflects limited survey effort. The observation of only a single individual of this species at the site is not suggestive of a substantial or "important" concentration, that could trigger a CH determination under IFC criterion 1c. It is more suggestive of a limited, marginal population of a species that is much more abundant in the core of its geographic range further south and east.

The project is expected to generate disturbance, displacement and potentially direct mortality impacts to reptile species that occupy the Project area.

**COMMON TORTOISE (IUCN VU, AZERBAIJAN NT)**

This herbivorous upland species of tortoise has a wide distribution throughout Azerbaijan, particularly in low-mid-elevations, and one of the known localities for this species is in Shirvan National Park, located 20 km to the east of the Project area, hence it is considered possible that it could occur at the site. It may be impacted by the Project either by destruction or

disturbance of its burrows in the Project's infrastructure footprint during Project construction, or by direct mortality or disturbance caused by vehicular traffic and/or human activity during Project construction or operation. Its broad geographic distribution renders it unlikely that the Project could trigger a CH determination under IFC criterion 1b for this species, which would require a likelihood of the species' global uplisting to EN/CR because of the Project. Nonetheless, its global VU status and potential for occurrence on the Project site justify its inclusion as a PBF for the Project. The reptile baseline surveys conducted in spring 2024 at the Project site yielded no evidence that Common Tortoise is present at the site.

**MARBLED POLECAT (IUCN VU, AZERBAIJAN DD)**

This species is a specialized predator of small rodents in desert and steppe habitats of Eurasia. It is rare throughout its range, but it is a very widespread species, occurring in middle latitude desert and steppe environments from the Balkans through eastern Mongolia and China. Because of its widespread distribution, it is not considered possible that the Project could cause this species' uplisting to globally EN/CR, thus it does not trigger CH. However, its global and national (DD) redlisted status elevate it to the level of a PBF, under EBRD PR6.

Marbled Polecats were observed twice over the course of the mammal baseline surveys at the Project. Both observations were in May, with a single individual observed on one occasion, and a pair observed on the other occasion.

The project is expected to generate disturbance, displacement and potentially direct mortality impacts to mammal species that occupy the Project area.

**CASPIAN BILACUNARIA (IUCN EN)**

This is a very narrowly distributed (hence restricted-range classification under IFC PS6) herbaceous plant species typical of lowland sandy environments, especially in the marine intertidal zone. Its entire global distribution is limited to a small portion of the Caspian Sea coast of Azerbaijan, where it is only known from 4-5 localities. The geographic range of this species, as drawn in the IUCN red list account, does not actually overlap the Project area, but it comes close (ca 15km), and based on this species' habitat affinity, it is considered possible that it could occur. If a substantial population of this species were to be discovered at the Project site, it could possibly trigger a CH determination under IFC PS6 criterion 1a (if the EAAA were to contain ≥ 0.5% of the global population). Note that this species is also a restricted range species, but triggering CH under IFC PS6 criterion 2 has a much higher threshold (EAAA must contain ≥ 10% of the global population) compared with criterion 1a, so it is not necessary to consider this factor separately.

This species was not found during the spring baseline survey, and the highly disturbed nature of the vegetation associations documented at the site reduce the likelihood that it would occur at the site and therefore impacts are not expected.

A Project-specific Biodiversity Management Plan will be drafted following finalisation of the ESIA. Mitigation and management measures which will be included in the BMP include the following listed in Table 9-5 but additional measures may be developed as part of the BMP. The BMP will also include monitoring and reporting requirements.

**Table 9-5 Terrestrial Ecology and Avifauna Impact Significance, Mitigation Measures and Residual Impacts**

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| **Construction** | | | | | | |
| Loss of Habitat and Flora | **Negligible** | Habitats and Flora | **Very Low** | **Negligible** | • Construction effort shall be limited to the Project boundaries.<br>• All construction activities will be restricted to demarcated construction zones within the project site and designated access roads.<br>• Construction vehicles will utilise designated access routes.<br>• Excavated soil will be stockpiled and preserved within dedicated sites to enable its reuse in backfilling excavations and landscaping as part of site rehabilitation post the completion of construction works.<br>• Any identified notable ecological species will be reported to the Environmental and Social Manager.<br>• Cleared areas no longer required for construction activities will be rehabilitated to re-establish vegetation. | **Negligible** |
| Direct Mortality of Fauna | **Moderate** | Fauna (including avifauna) | **Medium** | **Moderate** | • Construction effort shall be limited to the Project boundaries.<br>• Pre-construction check for the Marbled Polecat, Common Tortoise and Asian Snake-eyed Skink.<br>  ○ This will include the use of orthoscopes - if required – to confirm whether burrow sites are occupied.<br>  ○ If individuals are identified during pre-construction surveys, translocations to a suitable translocation site away from construction activity will be conducted. All works will be coordinated with the Service of the Protection of Biodiversity of the Ministry of Ecology and Natural Resources.<br>  ○ Per the framework BMP, monitoring for sensitive species will be conducted throughout the construction period.<br>  ○ In addition, worker training will be provided on sensitive species and resource protection measures such as driving behaviour and footprint creep. | **Negligible** |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Strict speed controls which will be enforced by EPC HSE and Security teams. Exceedances will be reported and recorded as per the observation and corrective actions data recorded at site.<br>• Ban against driving outside of delineated access roads and restricting driving and machinery operation to daylight hours, to the extent possible. There may be situations in which this is required for example emergency situations or critical path activities.<br>• Site clearance for delineated construction zones within the project sites will be progressed in a unidirectional manner, to facilitate the successful self-dispersion of various resident fauna, including burrowing mammalian and reptilian species.<br>• Removal of any road-kill carcasses immediately upon observation to at least 10 meters away from the access roads.<br>• The collection, harvesting or hunting of any plants or animals is strictly prohibited. A 'no tolerance' policy will be adopted.<br>• Should any animals get trapped or be harmed in any way, the Environmental and Social Manager must be informed.<br>• Fencing around the Project site will be designed to allow small mammals and fauna to pass safely underneath the area. | |
| Disturbance | **Minor** | Fauna (including avifauna) | **Medium** | **Minor** | • Stated mitigation measures for air, noise, soils, surface and groundwater will be implemented (refer to relevant chapters of this report).<br>• Pre-construction check for the Marbled Polecat, Common Tortoise and Asian Snake-eyed Skink. (Refer to previous mitigation measures for further information).<br>• Strict speed controls which will be enforced by EPC HSE and Security teams, an example of how this can be enforced is by use of speed gun. Exceedances will be reported and recorded as per the observation and corrective actions data recorded at site.<br>• Ban against driving outside of delineated access roads and restricting driving and machinery operation to daylight hours, to the extent possible. There may be situations in which this is required for example emergency situations or critical path activities.<br>• Site clearance for delineated construction zones within the project sites will be progressed in a unidirectional manner, to facilitate the successful self-dispersion of various resident fauna, including burrowing mammalian and reptilian species.<br>• Work will be carried out in such a manner as to reduce disturbance as far as practicable, for example, acoustic covers on machine engines to remain closed at all times (as applicable). | **Negligible** |
| | **Negligible** | Lake Mahmudchala IBA | **Very High** | **Moderate** | | |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Construction lighting spill will be managed to ensure excessive lighting and light spill is minimised. Lighting will be fit for purpose and duration of lighting to be controlled and minimized as much as possible.<br>• Lights will be shielded to prevent skyglow, spill and glare.<br>• Construction vehicles will utilise designated access routes.<br>• Any identified notable ecological species will be reported to the Environmental and Social Manager.<br>• Fencing around the Project site will be designed to allow small mammals and fauna to pass safely underneath the area. | |
| Poaching | **Minor** | Fauna (including avifauna) | **Medium** | **Minor** | • Strict controls forbidding the gathering, poaching or otherwise disturbance of any flora or fauna on site, this will also be included in the induction training.<br>• A no tolerance approach will be adopted. This will be enforced by the HSE team.<br>• Staff training such as toolbox talks on the importance of ecosystem integrity, especially focused on species of importance. | **Negligible** |
| | | Lake Mahmudchala IBA | **Very High** | **Moderate** | | |
| Introduction of Invasive Species | **Moderate** | Habitats and Flora | **Very Low** | **Minor** | • Construction effort shall be limited to the Project boundaries.<br>• Excavated soil will be stockpiled and preserved within dedicated sites to enable its reuse in backfilling excavations and landscaping as part of site rehabilitation post the completion of construction works.<br>• Plant and machinery will require an HSE certificate of inspection, issued by the EPC, before coming onto site and this will include necessary cleaning / washing to reduce risks of importing invasive species in mud or soil.<br>• Any soil imports will be taken from local quarry or borrow pit as close to the site as reasonably practical to avoid risk of foreign seeds and invasive species.<br>• Invasive species surveys will be carried out during and after construction. | **Negligible** |
| | | Fauna (including avifauna) | **Medium** | **Moderatee** | | **Negligible** |
| **Operation** | | | | | | |
| Disturbance | **Negligible** | Fauna (including avifauna) | **Medium** | **Negligible** | • Stated mitigation measures for air, noise, soils, surface and groundwater will be implemented (refer to relevant chapters of this report)<br>• Work will be carried out in such a manner as to keep any disturbance from noise to a minimum.<br>• Acoustic covers on machine engines to remain closed at all times (as applicable).<br>• Where practical, electrically powered plant will be preferred to mechanically powered alternatives.<br>• Lighting spill will be managed to ensure excessive lighting and light spill is minimised.<br>• Vehicles will utilise designated access routes. | **Negligible** |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Any identified notable ecological species will be reported to the Environmental and Social Manager.<br>• Fencing around the Project site will be designed to allow small mammals and fauna to pass safely underneath the area during operations. | |

## 9.5 Monitoring

### 9.5.1 Project

A Project-specific Biodiversity Management Plan will be drafted following finalisation of the ESIA. Monitoring and reporting requirements which will be included in the BMP include those listed in the following table, but additional measures may be developed as part of the BMP.

**Table 9-6 Terrestrial Ecology and Avifauna Monitoring Requirements**

| Monitoring | Parameter | Frequency & Durations | Monitoring Location | Responsibility |
|---|---|---|---|---|
| **Pre-construction** | | | | |
| Pre-construction check for the presence of the Asian Snake-eyed Skink, Common Tortoise and Marbled Polecat | Presence of Common Tortoise / Marbled Polecat / Snake-eyed Skink, including burrows | Once prior to construction | All construction areas | EPC Contractor |
| **Construction** | | | | |
| Construction limits | Construction activity is to be limited to within demarcated areas within the Project boundary and access roads | During formal site walkdown as part of HSE inspections. General observations during day-to-day activities | Throughout the site. | EPC Contractor |
| Ecological chance find / mortality | Fauna mortality / injury / collision with construction equipment / vehicle | | | |
| **Operation** | | | | |
| Bird collisions / ecological chance find. | Avifauna mortality / injury / collision with PV panels | During formal site walkdown as part of HSE inspections. General observations during day-to-day activities | Throughout the site. | O&M Company |

### 9.5.2 Transmission Line

It is noted that the disclosed World Bank documents[22] do not refer to specific monitoring requirements for the OHTL, however, refer to a BMP being developed, implemented and updated based on bird survey results. It is expected that the BMP will outline specific monitoring

[22] https://documents.worldbank.org/en/publication/documents-reports/documentlist?qterm=P505208

measures such as fatality monitoring / carcass searches along the line, particularly at areas identified as high risk.

# 10 LANDSCAPE AND VISUAL AMENITY

## 10.1 Applicable Requirements & Standards

### 10.1.1 National Requirement

Specific legislation regarding landscape and visual impacts is not known to exist in Azerbaijan, however, Azerbaijan is a signatory member of the European Landscape Convention of 2000, which promotes the protection, management, and planning of the landscapes, and organises international co-operation on landscape issues. Azerbaijan ratified the convention in 2011.

### 10.1.2 Guidelines

The Landscape and Visual Impact Assessment methodology will be based on current good practice, guidelines and guidance from the following sources:

- Guidelines for Landscape and Visual Impact Assessment', Landscape Institute and Institute of Environmental Management and Assessment, Third Edition, 2013; and
- 'An Approach to Landscape Character Assessment', Natural England, 2018.

## 10.2 Baseline Conditions

**LANDSCAPE CHARACTER**

The site is homogenous semi-desert without any notable features of interest or landscape characteristics. Herder structures are located both within the site and in the surrounding areas.

From the site visit and review of satellite imagery, it is considered that there are not sensitive visual receptors to the site and the site is not part of a highly valued view.

Images from the site, depicting the landscape character. are shown in the following figure.



**Figure 10-1 Landscape Character**

The Project area comes within roughly 1 km of the Lake Mahmudchala IBA, however, it is separated by a canal and the highway. In addition, the landscape character types between the Project site and the IBA are different, and it is not considered that the development of the Project will have any impact on the landscape character of the IBA.

The landscape value is considered as low. This is due to the fact that it is not formally designated and can be considered as modified. It does not have particularly scenic qualities, does not include rare elements or landscape features, and does not have strongly evident cultural or heritage associations.

#### VISUAL RECEPTORS

There are not considered to be visual receptors to the development, besides road users of the E119/M1 Highway, which is approximately 250 m at its closest point, who will not have focus on the Project site area but instead on the road. The susceptibility of the visual receptor is considered to be low as the focus is not on the landscape and the view. The value attached to the view is also considered to be low as the view has no distinctive features.

## 10.3 Potential Impacts, Mitigation, Management & Residual Impacts

### 10.3.1.1 Landscape and Visual

Based on site visits, review of satellite imagery, and consultations, it has been determined that the Project will not result in significant landscape character and visual amenity impacts during either construction and operation, therefore a detailed impact assessment has been scoped out.

The EPC Contractor and the O&M Company will implement good practice mitigation and management measures (such as housekeeping, waste management, timely removal of equipment when not in use etc.) which will be captured in the HSSE-MS. Any grievances on this topic will be managed on a case-by-case basis.

### 10.3.1.2 Transmission Line

The development of the transmission line (refer to Section 2.7) will pass through undeveloped land, farmland, and along the E119. The erection of the transmission line, and the presence of towers along the line, will result in landscape and visual amenity impacts.

With regards to mitigation measures for landscape and visual amenity impacts resulting from transmission lines, there is little that can be done to mitigate impacts, besides location selection. It is noted that the line passes adjacent to the Shirvan National Park on the northwestern boundary, while running alongside the E119 road.

At its closest point the line is 20 km from the Gobustan Rock Art Cultural Landscape, and it is not considered that there will be any landscape and visual impact associated with this.

### 10.3.1.3 Cumulative Landscape and Visual Impacts

There is the potential for cumulative landscape and visual impacts, however, this is only considered to be at the location in which the transmission line and Project meet. In this location the landscape character will be transformed into one of a more industrial feel with the presence of the solar PV plant and the transmission line. In this location the only visual receptors will be those on the highway and the susceptibility of the visual receptor is considered to be low as the focus is not on the landscape and/or the view and impact is not deemed to be significant.

#### 10.3.1.4 Glint and Glare

Glint refers to a momentary flash of bright light, while glare refers to a continuous source of bright light. These can present a hazard/nuisance to light sensitive receptors such as residents and road users.

Solar PV systems are constructed of dark, light-absorbing materials designing to maximise light adsorption and to minimise reflection. Studies show that modern PV panels reflect as little as 2% of incoming sunlight and this is similar to water, and less than soil or wood shingles (Massachusetts Department of Energy Resources, 2015).

It is also important to consider the shading effects from the neighbouring rows of panel, which reduces any glare hazard, as well as the movement of the solar panels in which the panel positions are optimised to move to capture the maximum energy potential.

Of more concern for glint and glare impacts, are concentrated solar polar (CSP) projects, which use mirrors to focus sunlight onto a smaller area and convert the focused sunlight into heat using a heat transfer fluid. However, this Project does not utilise this technology.

The only concern with regards to glint and glare impacts is the potential hazard to road users on the adjacent highways, who would have an unobstructed view towards the Project site. It is noted that the highway also passes the Lake Mahmudchala IBA, with water having a higher reflectivity (5%) than solar panels. Therefore, significant impacts resulting from glint and glare are not expected and are not considered further.

Any grievances on this topic will be managed on a case-by-case basis, and if impacts are being reported there is mitigation that can be implemented such as screening with vegetation.

# 11 SOLID WASTE AND WASTEWATER MANAGEMENT

## 11.1 Applicable Requirements & Standards

### 11.1.1 National Regulations

**SOLID WASTE**

- Law of Azerbaijan Republic on Industrial and Domestic Waste No. 514-IQ of 1998.
  - It determines the policy for protecting the environment against industrial and municipal waste and reducing impact of hazardous waste. It provides the requirements for managing, recycling, and disposing waste during the design, construction, and operation of Projects.
- Ministerial Decree on Approval of Rules for Hazardous Waste Permit No. 41 of 2003.
  - It sets specific requirements for applying for and obtaining a hazardous waste permit to ensure safe treatment, storage, and disposal of hazardous wastes. As per the Decree, the permit shall include the codes and characteristics of hazardous waste in accordance with the Basel Convention.
- Ministerial Decree on Responsibilities of Waste Collection, Waste Utilization and Waste Disposal of No. 185 of 2008.
  - It sets out the principles of responsibility for waste collection, utilization, and disposal.
- Ministerial Decree on Approval of Rules on Inventory of Wastes Arising from Production Process No. 13 of 2008.
  - It sets the procedures and principles of waste inventory, based on the Basel Convention, to include definition, risk assessment, and identification and classification of waste.
- Ministerial Decree on Approval of Rules for Storage of Hazardous Wastes No. 228 of 2016.
  - Sets the provisions related to the storage, handling and disposal of hazardous waste and workers safety.

**WASTEWATER**

- Law of the Azerbaijan Republic on Water Supply and Wastewater No. 723-1Q of 1999.
  - It regulates wastewater management and requires complying with standards for the discharge of effluent wastewater. The Law consists of seven Sections divided into 72 articles where article two addresses state regulation of water and sewerage while article four addresses the regulation of wastewater discharge.

### 11.1.2 Lender Requirements

**ADB**

ADB Safeguard Requirements 1: Environmental provides the requirements on waste management as follow:

- The Project will avoid, or where avoidance is not possible, will minimize or control the generation of hazardous and non-hazardous wastes and the release of hazardous materials resulting from project activities. Where waste cannot be recovered or reused, it will be treated, destroyed, and disposed of in an environmentally sound manner. If the generated waste is considered hazardous, the project will explore reasonable alternatives for its environmentally sound disposal considering the limitations applicable to its transboundary movement. When waste disposal is conducted by third parties, the project will use contractors that are reputable and legitimate enterprises licensed by the relevant regulatory agencies.

Environmental Safeguards policy principle 9 also refers to avoiding and minimising waste generation and Safeguard Requirements 1 paragraph 36 states to: "*avoid the manufacture, trade, and use of hazardous substances and materials subject to international bans or phaseouts*".

**AIIB**

ESS1 – Environmental and Social Assessment and Management: Point 38 states the need to '*Minimize and manage waste generation, including through waste reduction and recycling, and release of hazardous materials from production, transportation, handling and storage.*'

**EBRD**

EBRD PR3 on Resource Efficiency and Pollution Prevention and Control establishes general requirements with regards to:

Waste Management:

- The Project must strive to avoid the generation of hazardous and non-hazardous waste materials and reduce their harmfulness as far as practicable. Where waste generation cannot be avoided, the waste must be reused, recycled, or recovered, or used it as a source of energy. Where waste cannot be recovered or reused, the waste must be treated and disposed of it in an environmentally sound manner;
- The Project must identify technically and financially feasible alternatives for the environmentally sound disposal of any hazardous waste considering the limitations applicable to trans boundary movement; and
- When waste disposal is transferred offsite and/or conducted by third parties, chain of custody documentation to the final destination must be obtained and only contractors that are reputable and legitimate enterprises licensed by the relevant regulatory agencies must be commissioned. The Project must

ascertain whether licensed disposal sites are being operated to acceptable standards. Where this is not the case, alternative disposal options must be considered, including the possibility of the Project developing its own recovery and disposal facilities at the project site.

Wastewater:

- The Project must seek to minimise water usage to minimise wastewater generation; and
- The Project must identify technically and financially feasible techniques for reusing and recycling effluents in accordance with GIP, which should be implemented as part of the project design.

**IFC**

Section 1.6 of "the IFC General EHS Guidelines" is entitled Waste Management and is applicable to all projects that generate, store or handle any quantity of waste; whilst Section 1.5 of the IFC EHS Guidelines covers Hazardous Materials Management. The waste management guidelines state that facilities that generate and store wastes should practice the following:

- Establish waste management priorities at the outset of activities;
- Identify EHS risks and impacts and consider waste generation and its consequences;
- Establish a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes;
- Avoid or minimize the generation of waste materials, as far as practicable;
- Identify where waste generation cannot be avoided but can be minimized or where opportunities exist for, recovering and reusing waste; and
- Where waste cannot be recovered or reused, identify means of treating, destroying, and disposing of it in an environmentally sound manner.

## 11.2 Baseline Conditions

**WASTE**

Despite World Bank-funded projects aimed at improving waste management and environmental conditions, waste disposal remains a significant issue across Azerbaijan due to insufficient infrastructure. The issue is particularly significant outside of the capital, Baku, in rural communities in which waste management services including proper waste collection, transportation and disposal are non-existent.

**WASTEWATER**

Poor wastewater management and a lack of wastewater treatment facilities are also issues in Azerbaijan. Only a small percentage of the total wastewater generated in the country is

treated and this has impacted inland water quality and the Caspian Sea (ZOI Environment, 2013).

"Azersu" Open Joint Stock Company was established by the Presidential Order of the Republic of Azerbaijan dated June 11, 2004. "Azersu" OJSC organises the collection, transportation, treatment and disposal of wastewater.

At the local level, it is understood that the wastewater management services are also non-existent, and it is not clear whether there are any plans to develop a sewage network and a treatment facility for the area in the future. It is currently understood that sewage is discharged into excavated pits where wastewater slowly seeps into the ground.

**REGIONAL AVAILABILITY**

Regarding waste treatment plants, there are no waste treatment facilities in the Bilasuvar district. In the Bilasuvar region, one enterprise, Bilasuvar City Communal Enterprises Combine, is engaged in collecting and disposing of waste. This enterprise manages a 3.7-hectare waste landfill and employs various techniques for transporting and disposing of waste. The company handles solid, construction, and hazardous waste. The project will coordinate with the Bilasuvar Executive Power and the enterprise to collect and send their wastes.

There is no centralized wastewater treatment plant in the Bilasuvar district. The project will need to collect wastewater in septic tanks. Wastewater from the construction and operation phases will be collected and transferred with licensed vehicles to a location approved by the Bilasuvar Executive Power.

To dispose of hazardous waste, there are licensed hazardous waste treatment facilities in Baku City. Hazardous wastes will be sent to these facilities based on their waste types and the specific hazardous waste codes that each facility is licensed to handle.

Potential for Asbestos

There is a possibility that the structures at site have materials containing asbestos, demolition of which could potentially expose the those dismantling the structures to this hazardous substance. Exposure to asbestos, including chrysotile asbestos, occurs through inhalation of fibres in the air in the working environment.

Prior to removal from the site, a pre-demolition survey for asbestos should be conducted to survey all structures for removal to identify the presence of asbestos-containing materials.

Only licensed and certified asbestos removal contractors should be engaged to handle the identification, removal, and disposal of asbestos containing materials, and the workforce should have all necessary PPE. The company should use appropriate containment and enclosure methods to prevent the spread of asbestos fibres to surrounding areas.

## 11.3 Area of Influence and Receptors

### 11.3.1 Area of Influence

In the context of waste, the Project area of influence is the site level for construction workers and neighbouring land-users and it extends up the regional level when considering the wider assimilative capacity of waste management infrastructure or systems.

### 11.3.2 Receptors

Interfaces between planned Project activities and relevant valued receptors represent potential Project impacts. The following table provides a descriptive list of receptors pertaining to waste and wastewater management within the Project's areas of influence.

Note this section considers the management of solid waste and wastewater and not its impacts to environmental receptors (such as soil, groundwater, ecology etc.).

**Table 11-1 Waste Receptors**

| RECEPTOR | SENSITIVITY | JUSTIFICATION |
|---|---|---|
| Existing waste infrastructure | High | The sensitivity is considered to be high due to the lack of available waste management facilities in the Region, with waste likely to have to be transported to facilities within or in proximity to Baku city. |

## 11.4 Potential Impacts, Mitigation, Management & Residual Impacts

### 11.4.1 Construction Phase

#### 11.4.1.1 Strain on Existing Waste Infrastructure Due to the Generation of Construction Wastes

Construction activities such as site preparation, civil works, electrical and mechanical works, materials delivery (particularly the PV panel packaging) will generate construction, domestic and hazardous waste streams in both solid and liquid form.

The Project's construction phase will last for a total period of 24 months and employ a maximum of approximately 1,000 personnel during peak construction.

Waste generation will be relatively limited at first, as site preparation works are ongoing, however, will ramp up considerably once panels are delivered and unpacked. The primary waste with panel deliveries is the wooden pallets, cardboard packaging and plastic straps, the majority of which can be reused and/or recycled. If not managed, this waste can cause

issues when dispersed by wind across the site, and interspersed with the soil and waterbodies nearby. It is also a potential fire risk. Considerable effort is typically required at PV sites to manage construction phase wastes.

Waste streams associated with the construction phase of the Project are as follows:

**NON-HAZARDOUS SOLID WASTE**

- PV panel packaging wastes which primarily include:
  - Cardboard
  - Wooden pallets
  - Plastic wraps. including plastic bags
- Concrete waste;
- Metal;
- Glass;
- Food wastes; and
- General refuse.

With proper waste management practices in place these types of waste are generally manageable, with a large component that is either reusable on-site (e.g., excavated materials to be used for backfilling, where applicable) or recyclable (e.g., PV panel packaging wastes) at designated facilities.

Non-hazardous construction waste is typically inert and does not pose a significant threat to human health or the environment. However, inappropriate handling, storage, transport and/or disposal of these solid non-hazardous waste types during construction can pose the potential to pollute the surrounding environment (i.e., soil and groundwater and surface water resources), cause odour and visual nuisance, encourage pests or result in occupational health and safety issues.

Due to the magnitude of waste generated, the impact is considered to be of **Moderate** magnitude.

**HAZARDOUS WASTES**

Asbestos

There is a possibility that the structures at site have materials containing asbestos, demolition of which could potentially expose the those dismantling the structures to this hazardous substance. Exposure to asbestos, including chrysotile asbestos, occurs through inhalation of fibres in the air in the working environment, such as when demolished / removed.

Prior to removal from the site, a pre-demolition/removal survey for asbestos should be conducted to survey all structures for removal to identify the presence of asbestos-containing materials.

Only licensed and certified asbestos removal contractors should be engaged to handle the identification, removal, and disposal of asbestos containing materials, and the workforce should have all necessary PPE. The company should use appropriate containment and enclosure methods to prevent the spread of asbestos fibres to surrounding areas.

Construction Hazardous Wastes

Due to the nature of the project and the construction works being undertaken, there will be limited hazardous materials used. Such materials may result in fuel containers waste, oily residues, paints, paint cans, chemical drums, used spill kits, replacement parts from vehicles, plant and equipment and wastes from chemical cleaning products.

Hazardous wastes require segregation from the non-hazardous waste and suitable storage facilities on-site prior to collection for off-site disposal. While hazardous waste is commonly generated in much smaller quantity than non-hazardous waste, the environmental risk associated with its storage and disposal is considered to be significantly greater. Inappropriate management, storage, handling, transferring or transportation through lack of personnel training on site may lead to accidental spills or leaks to the soil or groundwater resulting in environmental impacts and potential health risk to workers.

| |
|---|
| The potential impact of spills and leaks of hazardous wastes on soils, surface and groundwater is assessed within Section 8.4.1.2. |

Due to the magnitude of hazardous waste generated, the impact is considered to be of **Negligible** magnitude.

#### WASTEWATER

The following are the key components of wastewater anticipated during the Project construction:

- Domestic sewage (sanitary wastewater) from toilets;
- Concrete truck washing;
- Equipment washing; and
- Dewatered groundwater from excavation works.

The construction site will have on-site temporary sanitation facilities for construction workers, expected to be toilets, basins and ablution facilities with collection septic tanks. These facilities

will require regular emptying and removal from the project site to a sanitary water treatment plant by an authorized contractor.

Concrete washout will be generated during auxiliary building construction and some civils activities. Concrete washout is caustic and has high pH. the inappropriate disposal or other exposure to soils can result in impacts to soil quality and can potentially affect surface and groundwater quality. Concrete washout will be collected in a lined, pit and periodically removed by a licensed contractor and disposed of at an appropriate facility.

Due to the magnitude of wastewater generated, the impact is considered to be of **Negligible** magnitude.

### 11.4.2 Operation Phase

The operation phase will generate minimal amounts of waste, primarily arising from domestic wastes from the operational workforce, and limited amounts of waste from maintenance activities for PV panels, transformers and day-to-day maintenance activities of administration / control facilities.

There may be the need to replace some of the PV panels during operation, due to damage (potentially arising from storm events or other damage during operations and maintenance) or malfunction. PV panels possess inherent value and therefore material recovery, and recycling will be a priority.

Hazardous wastes will be limited, but may include:

- Used chemical containers and drums;
- Soil contaminated by potential spills and leaks of hazardous materials/liquids and used spill kits and clean up materials;
- Miscellaneous wastes such as batteries, waste cables, oily rags, etc.;
- General clean-up materials and solvents from general maintenance of on-site plant and machinery; and
- Waste fuels, paints, lubricants, solvents etc.

Due to the limited workforce required on a PV project during operation, generation of sanitary and other liquid wastewater will be very limited, generated from toilets and hand wash facilities, which will be removed by a licensed wastewater disposal contractor from septic tanks when required.

The impact of operational waste management on existing waste management facilities is considered to be of **Negligible** magnitude, due to the fact that limited waste will be generated, and the vast majority will be domestic.

## Table 11-2 Solid Waste and Wastewater Management Impact Significance, Mitigation Measures and Residual Impacts

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| **Construction** | | | | | | |
| Generation of solid waste during construction | **Moderate Negative** | Existing Waste Management Infrastructure | **High** | **Moderate** | • Collection of waste to its final disposal location will be through the licensed waste collector. The licensed waste collector will be responsible for project waste management and act as a waste contractor and transport the waste to authorized recycling/recovery and /or final disposal facilities that are licensed according to national regulations.<br>• A project specific construction stage Waste Management Plan will be prepared prior to commencement of works.<br>• Prior to start of construction works, there will be coordination with waste receiving facilities to ensure sufficient capacity is available for receiving construction wastes.<br>• The EPC contractor will promote and implement a hierarchy of controls in managing wastes which include prevention, reuse, recycling, recovery and disposal in order of most preferred to least preferred option.<br>• Domestic solid wastes to be segregated and identified from the other waste streams into separate waste containers/skips clearly to facilitate recycling.<br>• Waste containers/skips will be clearly labelled and placed in designated waste storage locations. Labels will be waterproof, securely attached, and written in English and other languages as required.<br>• Waste containers will have lids in order to mitigate wind dispersed waste.<br>• For litter (food waste, domestic waste), an adequate number of covered bins will be strategically placed throughout the site at locations where construction workers and staff consume food. These will be regularly collected and taken to the main waste storage area.<br>• Food waste will be stored within a sealed metal or plastic skip or bin to prevent pests from gaining access.<br>• Ongoing housekeeping training will be provided to all staff on the importance of the need to avoid littering. | **Minor** |
| Generation of hazardous wastes and wastewater during construction | **Negligible Negative** | Existing Waste Management Infrastructure | **High** | **Minor** | • Prior to removal from the site, a pre-demolition survey for asbestos should be conducted to survey all structures for removal to identify the presence of asbestos-containing materials.<br>• Only licensed and certified asbestos removal contractors should be engaged to handle the identification, removal, and disposal of asbestos containing materials, and the workforce should have all necessary PPE. The company should use appropriate containment and enclosure methods to prevent the spread of asbestos fibres to surrounding areas. | **Negligible** |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Technical characteristics of hazardous waste storage area will be filled in Hazardous Material Storage Inspection form [MP 14 – F4], and referred to in relevant register: [MP 14 – REG 06: Hazardous Material Storage Register]<br>• The procedure shall be followed [MP14- P2: Hazardous Materials Storage Procedure.]<br>• Hazardous waste collection will be determined on a case-by-case basis.<br>• Hazardous waste should not remain within the storge facility for more than 3 months.<br>• For liquid hazardous wastes, all liquid bins and containers will be leak-proof and sealed. In addition, secondary containment will be implemented to prevent any hazardous liquid escaping – e.g. to soil/ground. Secondary containment must be provided with a capacity of 110% of the largest storage bin/container or 25% of the total storage capacity.<br>• All Hazardous waste must be labelled and a waste manifest completed when arranging collection and safe disposal.<br>• All waste collection vehicles must be supplied with a spill kit.<br>• Develop and maintain a hazardous waste inventory to document and track hazardous wastes generated, segregated, reused and consignments.<br>• Segregate and identify hazardous waste from the other waste streams into separate signed and labelled waste containers/skips.<br>• Store hazardous waste in allocated impervious hard standing areas in sealed containers stored with impermeable bases, sufficient containment and separation capacity, sun/rain shelter, separate drainage system, good ventilation and equipped with spill kits & spill response procedures. This area will be placed away from any sources of ignition.<br>• The hazardous waste storage area will be constructed away from the drainage system.<br>• Provide training and ready information on chemical compatibility to employees in order to ensure wastes are appropriately handled and stored.<br>• Only licensed waste transporters and waste management facilities will be engaged for wastes.<br>• Sanitary wastewater tanks to be properly maintained and inspected to ensure tanks do not overflow.<br>• Site inspections will be carried out regularly by the EPC contractor to ensure that all wastewater generated is properly managed, and no leakages or spill occur. In the event of a spill or overflow, immediate action will be taken per spill containment procedures and clean up procedures. | |
| **Operation** | | | | | | |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Operational waste generation | **Negligible Negative** | Existing Waste Management Infrastructure | **High** | **Minor** | • Prior to start of operation of the plant, the O&M Company will coordinate with the local municipality and waste receiving facilities to ensure sufficient capacity is available for receiving wastes.<br>• The O&M Company will identify waste management companies who can accept and handle PV panel waste with a focus on material recovery and recycling.<br>• Domestic solid wastes to be segregated and identified from the other waste streams into separate waste containers/skips clearly to facilitate recycling.<br>• Waste containers/skips will be clearly labelled and placed in designated waste storage locations. Labels will be waterproof, securely attached, and written in English and other languages, as required.<br>• For litter (food waste, domestic waste), an adequate number of covered bins will be strategically placed throughout the site at locations where operational staff consume food. These will be regularly collected and taken to the main waste storage area.<br>• Food waste will be stored within a sealed metal or plastic skip or bin, to prevent pests from gaining access.<br>• Only licensed waste transporters and waste management facilities will be engaged, and copies of the waste management licenses will be maintained on site.<br>• Completed waste manifests will be maintained to show the chain of custody of the waste generated on-site, its transportation and treatment/disposal. All records will be maintained on-site.<br>• Sanitary wastewater will be collected by a licensed contractor and taken to a a wastewater treatment plant.<br>• Develop and maintain a hazardous waste inventory to document and track hazardous wastes generated, segregated, reused and consignments.<br>• Segregate and identify hazardous waste from the other waste streams into separate waste containers/skips signed and labelled.<br>• Store hazardous waste in allocated impervious hard standing areas in sealed containers stored with impermeable bases, sufficient containment and separation capacity, sun/rain shelter, separate drainage system, good ventilation and equipped with spill kits & spill response procedures. This area will be placed away from any sources of ignition.<br>• Waste containers will be marked with appropriate warning labels to accurately describe their contents and detailed safety precautions. Labels will be waterproof, securely attached, and written in English and other languages as required. Wherever possible, chemicals will be kept in their original container. | **Negligible** |

## 11.5 Monitoring

**Table 11-3 Waste Management Monitoring**

| Monitoring | Parameter | Frequency & Duration | Monitoring Location | Responsibility |
|---|---|---|---|---|
| **Construction** | | | | |
| Strain on existing public waste management facilities during construction | Number of grievances from waste management service providers and/ or affected communities and commercial/ industrial establishments with regards to disruption of waste management services | Monthly | Public waste management utility offices | EPC Contractor |
| | Number of waste consignments exported out of the project area without regulatory permits. | Monthly | Project offices | |
| | All waste generated and removed from the project site | Continuous throughout construction | Project offices | |
| Inspect and monitor proper handling and storing of waste materials | Check storage areas containment and control procedures as per HSSE-MS. | Daily (during site walkdowns) | Storage areas at the site | EPC Contractor |
| Inspect and monitor third party waste contractors and disposal facilities | Ensuring engaged contractors, their vehicles and waste management facilities have applicable registrations/licenses at time of procurement | At procurement and annually thereafter | Contractors, transport vehicles and waste management facilities | EPC Contractor |
| **Operation** | | | | |
| Strain on resident public waste management facilities during operation | Number of grievances from waste management service providers and/ or affected communities and commercial/ industrial establishments with regards to disruption of waste management services | Monthly | Public waste management utility offices | O&M Company |
| | All waste generated and removed from the project site | Continuous throughout construction | Project offices | |
| Inspect and monitor proper handling and | Check storage areas containment and control procedures as per HSSE-MS. | Daily (during site walkdowns) | Storage areas at the site | O&M Company |

| | | | | |
|---|---|---|---|---|
| storing of waste materials | | | | |
| Inspect and monitor third party waste contractors and disposal facilities | Ensuring engaged contractors, their vehicles and waste management facilities have applicable registrations/licenses at time of procurement | At procurement and annually thereafter | Contractors, transport vehicles and waste management facilities | O&M Company |

# 12 ARCHAEOLOGY AND CULTURAL HERITAGE

## 12.1 Applicable Requirements & Standards

### 12.1.1 National Regulations

Cultural heritage, archaeological remains, and artefacts are legally protected in the Republic of Azerbaijan by national legislation which is supported by the various international conventions and recommendations ratified and/or acceded by the Republic. These include the Convention on Protection of World Cultural and Natural Heritage (Paris, 1972), the European Convention on the Protection of the Archaeological Heritage (Valletta, 1992), and UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions.

The Ministry of Culture and Tourism of the Republic of Azerbaijan is responsible for the cultural heritage and safeguarding of intangible cultural heritage at national level. The following laws are relevant to the protection of cultural heritage in Azerbaijan:

- Ministerial Decree No. 266 on approval of the rules regarding protection, restoration and use of cultural heritage;
- Law No. 470-IG on protection of the monuments of history and culture; and
- List of Immovable Historical and Cultural Monuments of National Importance, approved by the Resolution of the Cabinet of Ministers of the Azerbaijan Republic dated 02.08.2011 No. 132.

Article 14, Archaeological Studies on the Territories of New Construction Development of the Law on 'Protection and Utilization of the Cultural and Historical Monuments' requires the promoter of a new project to apply to the adequate governmental bodies at the stage of feasibility studies and provide the investigation of the archaeological monument at its own expense. In cases where archaeological features are encountered it is prohibited to carry out the construction without the adequate scientific measures and permission from the adequate governmental bodies.

The legislative arrangement has recently been altered to ensure that the Ministry of Culture is responsible for issuing permits for the excavation of archaeological and heritage sites. Decisions on granting such permissions are approved by the Ministry of Culture following expert feedback from the Institute of Archaeology and Ethnography.

Restoration of architectural monuments may only be carried out following the issuance of a license by the Ministry of Culture.

The international and regional treaties and conventions ratified by the Republic of Azerbaijan include:

- Convention for Protection of Cultural Heritage in the Event of Military Conflicts. May 14, 1954, The Hague. Ratified by Milli Medjlis (Parliament of Azerbaijan Republic) in April 21, 1993;
- UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. November 14, 1970, Paris. Ratified by Milli Medjlis (Parliament of Azerbaijan Republic) in September 30, 1997;
- UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage. November 16, 1972, Paris. Ratified by Milli Medjlis (Parliament of Azerbaijan Republic) in December 16, 1993;
- UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects. July, 1995, Roma. Ratified by Milli Medjlis (Parliament of Azerbaijan Republic) in March 2, 2000;
- The Second Protocol of the Hague Convention on Protection of Cultural Property in the Event of Military Conflicts. March 26, 1999. Ratified by Milli Medjlis (Parliament of Azerbaijan Republic) on December 12, 2000; and
- Revised European Convention on Protection of Archaeological Heritage. January 16, 1992. Ratified by Milli Medjlis (Parliament of Azerbaijan Republic) in October 20, 1999.

### 12.1.2 Lender Requirements

**ADB**

ADB's Safeguard Policy Statement and related Safeguards, include various requirements for cultural resources, both physical (and assumed to include intangible resources) – of importance locally, provincially, nationally and internationally. Where such resources are identified the ADB safeguards highlight the importance of consulting with the communities who use such facilities, as well as the regulatory agencies entrusted with protecting such resources.

**AIIB**

AIIB's ESF outlines the requirement to conserve and avoid impacts on cultural resources. The Framework further states "*when avoidance of impacts on cultural resources is not feasible, prepare a cultural resources management plan to mitigate and monitor these impacts*."

**EBRD**

EBRD Performance Requirement 8 recognises the importance of cultural heritage, both tangible and intangible, for present and future generations. The aim is to protect cultural heritage and to guide clients in avoiding or mitigating adverse impacts on cultural heritage during their business operations. The clients are expected to be precautionary in their approach to the management and sustainable use of cultural heritage.

**IFC**

Performance Standard 8 – Cultural Heritage aims to protect the adverse impacts of project activities and support its preservation and to promote equitable sharing of benefits from the use of cultural heritage. Cultural heritage in this standard refers to:

- Tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values;
- Unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls; and
- Certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.

## 12.2 Baseline Conditions

### UNESCO World Heritage

The nearest UNESCO World Heritage Cultural site is the Gobustan Rock Art Cultural Landscape, which covers three areas of a plateau of rocky boulders and has more than 6,000 rock engravings bearing testimony to 40,000 years of rock art. This heritage site is located approximately 80 km north of the Project site and therefore will not be impacted by the development of the Project.

### Intangible Cultural Heritage

Intangible heritage is defined as the practices, representations, expressions, as well as the knowledge and skills (including instruments, objects, artefacts, cultural spaces), that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. It is sometimes called living cultural heritage and it includes oral traditions and expressions, including language performing arts, social practices, rituals and festive events, knowledge and practices concerning nature and the universe, and traditional craftsmanship (UNESCO, 2003).

Azerbaijan has the following elements of intangible cultural heritage listed by UNESCO.

**Table 12-1 Intangible Cultural Heritage in Azerbaijan**

| Element | Description | Recognised Region |
|---|---|---|
| Craftsmanship and performing art of balaban/mey | Balaban (in Azerbaijan) or Mey (in Türkiye) is a centuries-old woodwind instrument made up of three parts: a body, a wide and flat double reed and a clip. | Azerbaijan and Türkiye |
| Craftsmanship of mother of pearl inlay | Mother of pearl inlay is the practice of inserting mother of pearl pieces into wooden objects such as Koran cases, desks, chests, | Azerbaijan and Türkiye |

| Element | Description | Recognised Region |
|---|---|---|
| | chairs, mirrors, jewel cases and musical instruments. | |
| Art of illumination | Illumination is a centuries-old decorative art practised on the pages of manuscripts, calligraphic texts and miniatures. | Azerbaijan, Iran, Tajikistan, Türkiye and Uzbekistan |
| Iftar and its socio-cultural traditions | Iftar is observed by Muslims at sunset in the month of Ramadan (the ninth month in the lunar calendar), upon completion of all religious and ceremonial rites. | Azerbaijan, Iran, Türkiye and Uzbekistan |
| Culture of Çay (tea), a symbol of identity, hospitality and social interaction | Tea culture in Azerbaijan and Türkiye is an important social practice that shows hospitality, builds and maintains social ties, and is used to celebrate important moments in the lives of communities. | Azerbaijan and Türkiye |
| Pehlevanliq culture: traditional zorkhana games, sports and wrestling | Pehlevanliq culture in Azerbaijan includes games and sports, such as wrestling, and individual performances. | Azerbaijan |
| Telling tradition of Nasreddin Hodja/ Molla Nesreddin/ Molla Ependi/ Apendi/ Afendi Kozhanasyr Anecdotes | he Telling Tradition of Nasreddin Anecdotes refers to the social practices and festivals around the telling of anecdotes attributed to Nasreddin, a philosopher and wiseman recognized for his wisdom and humorous analyses and representations of society and life experiences. | Azerbaijan, Kazakhstan, Kyrgzystan, Tajikistan, Türkiye, Turkmenistan and Uzbekistan |
| Sericulture and traditional production of silk for weaving | In sericulture and the traditional production of silk for weaving, farmers care for the silkworms through their entire lifecycle, growing the mulberry trees that provide leaves upon which the worms feed and produce silkworm eggs. | Afghanistan, Azerbaijan, Iran, Turkiye, Tajikistan, Turkmenistan and Uzbekistan |
| Nar Bayrami - traditional pomegranate festivity and culture | Inscribed in 2020 on the Representative List of the Intangible Cultural Heritage of Humanity. *'Nar Bayrami is an annual festival in October/November in Azerbaijan's Goychay region that celebrates the pomegranate and its traditional uses and symbolic meaning. Pomegranate culture is a set of practices, knowledge, traditions, and skills related to the cultivation of the fruit, which is used not only in a range of culinary contexts, but is also referred to in crafts, decorative arts, myths, storytelling and other creative outlets.'* | Azerbaijan's Goychay region |
| Art of Miniature | A type of two-dimensional artwork that involves the design and creation of small paintings on books, papier-mâché, rugs, textiles, walls, ceramics, and other items using raw materials such as gold, silver, and various organic substances. | Azerbaijan, Iran, Turkey, and Uzbekistan |
| Yalli (Kochari, Tenzere), traditional group dances of Nakhchivan | Traditional group dance typically performed in a circle, chain, or line involving elements of games, pantomime (bird or other animal imitations), physical exercises, and movements. | Across Azerbaijan |

| Element | Description | Recognised Region |
|---|---|---|
| Heritage of Dede | This includes folk tales and music of Dede Qorqud/Korkyt Ata/Dede Korku. They are based on twelve heroic legends, stories, and tales, and thirteen traditional musical compositions shared and transmitted across the generations through oral expressions, performing arts, cultural codes, and musical composition. The element encompasses social, cultural, and moral values, and contains profound knowledge about the history and culture of Turkic-speaking communities. | Azerbaijan, Kazakhstan, and Türkiye |
| Dolma making | Set of knowledge and skills relating to the preparation of the traditional meal 'dolma', which takes the form of small fillings (containing meat, onion, rice, peas, and spices) wrapped in fresh or pre-cooked leaves, or stuffed in fruits and vegetables. | Across Azerbaijan |
| Art of crafting and playing with Kamantcheh/Kamancha | Kamantcheh is a bowed string musical instrument which has existed for over 1,000 years. In Iran and Azerbaijan it constitutes a major element of classical and folkloric music, and performances occupy a central place in a wide number of social and cultural gatherings. | Azerbaijan and Iran |
| Novruz | This marks the beginning of new year on 21st March when a variety of rituals, ceremonies, and other cultural events take place for a period of approximately two weeks.<br>It includes spending time with family, friends, exchanging gifts, street performances, public rituals, and traditional sports etc.<br>These practices are passed through generations by observation and participation. | Afghanistan, Azerbaijan, India, Iran (Islamic Republic of Iran), Iraq, Kazakhstan, Kyrgyzstan, Uzbekistan, Pakistan, Tajikistan, Turkmenistan, and Türkiye |
| Flatbread making and sharing culture: Lavash, Katyrma, Jupka, Yufka | This includes making and sharing flatbread which carries social functions that have enabled it to continue as a widely practiced tradition. This involves family members (at least 3 people) and also neighbours. | Azerbaijan, Iran (Islamic Republic of Iran), Kazakhstan, Kyrgyzstan, and Türkiye |
| Copper craftsmanship of Lahij | Copper craftsmanship of Lahij is the traditional practice of making and using copperware concentrated in the Lahij community in the Caucasus. It's a tradition transmitted within families. | Azerbaijan - Lahij |
| Traditional art and symbolism of Kelaghayi - making and wearing women's silk headscarves | A tradition found along the Silk Road that consists of several stages: fabric weaving, dyeing, and woodblock decoration. '*The art of Kelaghayi making is transmitted through non-formal apprenticeship only and is primarily a family occupation. Each family has its own stylistic features and patterns of decoration. The traditional practice of making and wearing headscarves is an expression of cultural identity and religious* | Azerbaijan:<br>- City of Sheki<br>- Basgal settlement |

| Element | Description | Recognised Region |
|---|---|---|
| | *traditions and a symbol of social cohesion, reinforcing the role of women and strengthening the cultural unity of Azerbaijani society.'* | |
| Chovqan, a traditional Karabakh horse-riding game in the Republic of Azerbaijan | It is a is a traditional horse-riding game played on a flat, grassy field by two competing teams of players mounted on Karabakh horses. | Across Azerbaijan |
| Craftsmanship and the performance art of the Tar, a long-necked string musical instrument | The Tar is a long-necked plucked lute, traditionally crafted and performed in communities throughout Azerbaijan. The making of the Tar and performance play a significant role in shaping the cultural identity of Azerbaijanis. | Across Azerbaijan |
| Traditional art of Azerbaijani carpet weaving | The carpet patterns are characteristic of Azerbaijan's many carpet-making regions | Across Azerbaijan |
| Art of Azerbaijani Ashiq | It combines poetry, storytelling, dance, and vocal and instrumental music into a traditional performance art that stands as a symbol of Azerbaijani culture. | Across Azerbaijan |
| Azerbaijani Mugham | A traditional musical form, characterized by a large degree of improvisation. The Mugham, though a classical and academic art, draws upon popular bard melodies, rhythms, and performance techniques and is performed in many venues throughout the country. | Across Azerbaijan |

### 12.2.1 Site Specific Cultural Heritage and Archaeology

Site visits were conducted in August 2023 and February 2024, as well as visits during other site surveys, and no direct or indirect evidence of cultural and archaeological value were detected within the Project site boundary. The Project site is heavily disturbed and mainly used for livestock grazing purposes.

In addition, consultations carried out in February 2024 with Bilasuvar Executive Committee confirmed the absence of cultural heritage artefacts at the Project site.

During the consultations, it was determined that there is no stated or recognised intangible cultural heritage within the local communities or the city.

Further, the State Service for Cultural Heritage Protection, Development and Restoration under the Ministry of Culture, conducted a site visit and inspection alongside Masdar representatives and following the inspection issued a letter on the 20th August 2024 to Masdar in which the Ministry of Culture confirm that the absence of archaeological and cultural heritage items within the site. The letter also outlines the requirements to be followed in the event of a chance find.

### 12.2.2 Transmission Line

Azerenerji's Scoping Report, including the transmission line routes, was presented to State Ecological Expertise Agency of MENR and Ministry of Culture and their recommendations and feedback were collected.

The Ministry of Culture provided a list of known sites of cultural importance. The presence of the Aghsu Medieval Open Archaeological Museum Complex in the Region of Aghsu was identified as being traversed by the alignment of transmission lines between the Navahi substation and the Mingachevir Hydro Power Plant (outside the scope of the Project and associated facility), the lines were subsequently rerouted to ensure safe distance from the site.

The Ministry of Culture did not highlight any sites of cultural importance along the route from the Project and the Navahi Substation.

Azerenerji's Scoping Report states that the ESIA will include a cultural heritage assessment to identity any other cultural heritage – both tangible and intangible – that might be affected. This shall include seeking information from the State Agency on Protection of Cultural Heritage under the Ministry of Culture as well as consulting with communities to identify sites of importance to communities, not only nationally recognised sites.

## 12.3 Potential Impacts, Mitigation, Management & Residual Impacts

Due to the fact that specific archaeological finds and cultural features of importance have not been identified in or near the footprint of works, or in the surrounding communities, a detailed assessment of impacts to archaeology and cultural heritage has been scoped out of the ESIA.

Excavation and earthwork activities during construction can result in damage and destruction of undiscovered archaeological artefacts, most likely to occur mainly during the initial stages of construction. Therefore, a Chance Find Procedure will be established into the HSSE-MS, detailed as follows:

- Any worker or staff member (from EPC Contractor, subcontractor, security personnel, or other) who encounters any archaeological or cultural resources during the construction phase or suspected remains will immediately notify the EPC Contractor E&S Manager while taking immediate action to stop all construction activities within this area.
- The EPC Contractor E&S Manager will notify the Company E&S Manager immediately.

- The Company E&S Manager and the EPC Contractor E&S Manager will inspect the site and confirm whether the findings could potentially be an archaeological and cultural heritage site and/or a suspected site.
- The discovered area (along with the 20 m radius) will be delineated and marked using flags/ stakes and/or mesh plastic fence as appropriate.
- At this point, the Company E&S Manager shall inform Masdar Clean Energy ESG Team within 24 hours.

# 13 SOCIOECONOMICS

## 13.1 Applicable Requirements & Standards

### 13.1.1 National Requirements

Key legislative and regulations addressing land acquisition and resettlement in the Republic of Azerbaijan include:

- The Constitution of the Republic of Azerbaijan (Adopted on 12 November 1995, revisions made on 18 March 2009);
- The Land Code (Adopted on 25 June 1999, last revisions made on 20 April 2012);
- The Civil Code (Adopted on 28 December 1999, last revisions made on 20 April 2012);
- The Land Acquisition Law (April 2010);
- Law on valuation activity (25 June 1998, last revisions made on 20 April 2012);
- Law on "Land Lease" (11 December 1998, № 587-IQ);
- Decree of the President on additional activities regarding to implementation of the Law on "Acquisition of Lands for State Needs" (15 February 2011);
- Decree of the President on ensuring the execution of the law No. 506-3 QD dated 7 December 2007 on ―Amendments and Additions to the Civil Code of the Azerbaijan Republic‖ (26 December 2007);
- Resolution of the Cabinet of Ministers on approving of guidelines for preparation of Resettlement Plan and Resettlement Guideline No. 45 dated 24 February 2012;
- Resolution of the Cabinet of Ministers on approving the guidelines for selection of a person or entity to prepare Resettlement Plan or Resettlement Guideline No. 55 (21 April 2011);
- Resolution of the Cabinet of Ministers No. 42 On Some Normative and Legal Acts Relating to the Land Code (15 March 2000);
- Law of Azerbaijan Republic on Municipality Area and Lands (07 December 1999, No: 771-IQ); and
- Law on Management of Municipality Lands (29 June 2001, No: 160-IIQ).

### 13.1.2 Lender Requirements

**ADB**

The ADB Environmental Safeguards include the need to assess socio-economic project impacts in ESIAs, including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues.

Specifically, '*The borrower/client will identify and assess the risks to, and potential impacts on, the safety of affected communities during the design, construction, operation, and decommissioning of the project, and will establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts*.'

ADB's involuntary resettlement safeguard also aims to avoid involuntary resettlement where possible to minimise involuntary resettlement by exploring project and design alternatives, to enhance, or at least restore the livelihoods of all displaced persons in real terms relative to pre-project levels, and to improve the standards of living of the displaced poor and other vulnerable groups.

The safeguard also requires adverse economic, social, or environmental impacts from project activities other than land acquisition such as loss of access to assets, resources, or restrictions on land use to be avoided, or at least minimized, mitigated, or compensated for through the environmental assessment process. Where such impacts are found to be adverse, the borrower or client is required to develop and implement a management plan to restore the livelihood of affected persons to pre-project level as a minimum.

**AIIB**

ESS2 addresses impacts of Project-related land acquisition, including restrictions on land use and access to assets and natural resources, which may cause physical displacement (relocation, loss of land or shelter), and/or economic displacement (loss of land or assets, or restrictions on land use, assets and natural resources leading to loss of income sources or other means of livelihood)

Section D 'Social Coverage' outlines the requirement for social assessment, including, but not limited to, vulnerable groups and discrimination, gender, gender based violence, land and natural resource access, loss of access to assets or resources or restrictions on land use.

**EBRD**

Performance Requirement 1 outlines the needs to assessing social impacts as part of ESIA. This is interpreted to include socio-economic effects to individuals, groups, or populations that may be impacted by a project.

Performance Requirement 5 on land acquisition, involuntary resettlement, and economic displacement refers to involuntary resettlement as both physical displacement (relocation or loss of shelter) and economic displacement (loss of assets or resources, and/or loss of access to assets or resources that leads to loss of income sources or means of livelihood) as a result of project-related land acquisition and/or restrictions on land use.

Where resettlement is government is led, PS5 requires '*the client [to] collaborate with the responsible government agency, to the extent permitted by the agency, [and] to achieve outcomes that are consistent with the objectives of this PR*'.

**IFC**

Several of the IFC Performance Standards have elements that relate to socioeconomics. Key requirements for the assessment of socio-economic impacts are outlined in PS1, whilst PS5 on Land Acquisition and Involuntary Resettlement has important requirements relating to projects that acquire land or will necessitate physical or economic displacement, including compensatory measures.

## 13.2 Baseline Conditions

### 13.2.1 General

The population of Azerbaijan recorded in 2023 was 10,463,600[23], as per the national statistics agency. The Project is located in the Bilasuvar district, which was established in 1930, with a population of approximately 100,000 people in 2022. Bilasuvar is known for its agricultural activities, with a significant portion of its economy based on crop production and livestock farming. The district also has a growing interest in renewable energy projects, including solar power, which aligns with the country's strategic goals for sustainable development.

### 13.2.2 Land Use

**LAND USE AND SITE CONDITIONS**

There are eight informal settlements within the project boundaries, six of which are used by the herders during their winter period on site while one is used as a permanent residence, and one is unused.

[23] https://www.stat.gov.az/

Based on the outcome of the ESIA and Resettlement Action Plan (RAP) consultations, the following type of land users have been identified on the site:

- One formal land user;
- Ten informal land users without legal lease agreements. This includes nine herders and one worker who also owns livestock.
  - Family members of these land users also support them in undertaking herding activities. It is noted that none of these family members receive a salary, and they support the grazing activities as this is their main source of household income.
- Two informal workers (one of which is also an informal land user as, instead of earning a salary, he is allowed to graze his own livestock and that of his brother. The other worker is salaried).

For further details please refer to the RAP.

Images from the site are shown in the following figures.


**Figure 13-1 General Site Conditions and Existing Structures**

#### SITE SURROUNDINGS

The surrounding areas of the Project are mainly characterised by agricultural fields. There is the Mughan Salyan canal to the north of the Project (approximately 3.2 km from the site). Immediately adjacent to the Project is the Mahmudcala nature reserve (approximately 500 m), a large lake habitat, known for its avifauna and related hunting. Ongoing construction activities (not related to the Project), including a crusher plant, were observed to the south of the Project during the August 2023 and August 2024 site visits.

Furthermore, the surrounding areas of the Project site are used for grazing purpose and leased to individuals by Bilasuvar Executive Power. There are five (5) structures are in proximity of Project boundaries. Outside-structure (OS 2) on the northern site of Project belongs to the herder whose 110 ha of land was allocated to the Project. Neighbouring structure (OS 5) is located at Salyan district land. The remaining three structures (OS 1, OS 3 and OS 4) outside the north-western boundary of Project are used by herders who graze livestock on adjacent land plots. Structures outside of the Project area is shown in Section 2 (Figure 2-5).

Consultations with herders using structures outside the project area revealed that their leased land does not overlap with the project boundaries. Additionally, these herders do not graze their livestock within the project area, as their leased land adequately meets their grazing needs.

Studies conducted as part of the ESIA and RAP revealed that the project lands are not used by other seasonal or informal land users from local communities, mainly due to the site's relative isolation.

### 13.2.3 Local Community Socioeconomic Profile

Refer to the RAP for the socioeconomic survey for the PAHs. The following subsection provides an overview of socioeconomic conditions in Bilasuvar district.

There are three settlements, Shorsulu, Dayikend, and Sarvan, located to the northeast of the Project site. Due to their distance, impacts are not expected. These settlements are approximately 8 km from the project site, while the distance to the Bilasuvar district centre is approximately 16 km.

Detailed socioeconomic survey was not conducted for the Bilasuvar Solar PV project since there are no residential areas in proximity to the project. The nearest residential area is located 8 km from the project boundaries. For this reason, secondary data on the current situation of the project district has been obtained from the Bilasuvar Executive Power. This data included information about demography, employment, economy, and the national composition of the district population, as well as information about cultural heritage. However, leaders of the nearest residential communities were consulted to provide information about the upcoming project and to understand the current situation in those residential areas. Public meetings were arranged in the nearest communities, and detailed project information, as well as the outcomes of the ESIA report was shared with them in order to keep local communities informed and to collect their feedback on the project.

In addition to the provided data, the Demographic Indicators of Azerbaijan Report 2023[24], prepared and published by the State Statistical Committee of the Republic of Azerbaijan, has been sourced to establish the socioeconomic profile of Bilasuvar District.

Based on the collected data, the following sections provide a breakdown of demographic characteristics, social infrastructure and services, and national composition by district.

**BILASUVAR DISTRICT**

Population & Population by Age Group

According to the 2023 Demographic Indicators of Azerbaijan Report, the population of Bilasuvar District is approximately 105,500 people, representing about 1.04% of Azerbaijan's total population of10,127,000. The district has a balanced gender distribution with 53,000 males

[24] The publication is available on official website of the State Statistical Committee of the Republic of Azerbaijan at https://www.stat.gov.az/ .

and 52,500 females. The urban population in Bilasuvar City is 23,600, while the rural population is 81,900. Bilasuvar District consists of 25 villages.

The ethnic composition is primarily Azerbaijani, with 105,485 individuals. There are also 23 Russians and 19 individuals of other ethnicities (including Turk, Sahur, Lezgi, Talish, etc.). The age composition of the community reveals that the largest age group is those over 60 years, making up 11.0% of the total population. This is followed by the age group of 30-34 years, which constitutes 9.2%, and the age group of 10-14 years, representing 8.9% of the population.

**Table 13-1 Population Age Range (2023) in Bilasuvar District**

| AGE RANGE (YEARS) | POPULATION | PERCENTAGE (%) |
|---|---|---|
| 0-4 | 8,389 | 8.0 |
| 5-9 | 9,024 | 8.6 |
| 10-14 | 9,354 | 8.9 |
| 15-19 | 8,082 | 7.7 |
| 20-24 | 6,771 | 6.4 |
| 25-29 | 8,633 | 8.2 |
| 30-34 | 9,704 | 9.2 |
| 35-39 | 8,908 | 8.4 |
| 40-44 | 7,385 | 7.0 |
| 45-49 | 6,119 | 5.8 |
| 50-54 | 5,909 | 5.6 |
| 55-59 | 5,814 | 5.5 |
| >60 years | 11,635 | 11.0 |

The district is predominantly engaged in agricultural activities, contributing significantly to its socioeconomic structure. Local livelihoods and occupations in Bilasuvar primarily consist of cotton cultivation, grain production, and animal husbandry. Additionally, the region is known for its agricultural diversity, including vegetable farming and dairy farming, which significantly contribute to the local economy.

There are no indigenous people recognised in Azerbaijan.

Public Services (Healthcare system, education, markets, waste management etc.)

The district is served by three hospital and eighteen medical clinics/points.

Educational facilities include 36 schools, and two college/lyceums.

The district is equipped with three police station and two firefighting stations.

Industrial activities in the district are supported by various agricultural processing facilities, including a dairy processing plant, a grain mill, and the Bilasuvar Industrial Area. There are also four cotton processing industrial facilities in the Bilasuvar district.

18 villages have access to water purification facilities.

Waste management infrastructure includes a 3-hectare landfill located south of the city. Bilasuvar District has facilities for handling solid and hazardous waste, ensuring proper collection, disposal, and treatment of waste to maintain environmental standards. Licensed facilities for hazardous waste treatment are available, ensuring that hazardous materials are disposed of safely and in compliance with regulations. The district does not have a centralized wastewater treatment plant.

Several villages have access to water purification facilities, ensuring clean water for the residents.

Commercial services in the district feature four markets and two bazaars.

Sixteen construction material stores in Bilasuvar City. These stores offer a wide range of construction materials, including iron, wood, and cement.

The district also has three hotels to accommodate visitors.

Vulnerable Groups

Vulnerable groups include single parents, who are individuals raising children alone; households who lost a breadwinner/household head, which are families that have lost their primary income earner; people with physical disabilities, referring to individuals with physical impairments; people with mental disabilities, encompassing individuals with mental health conditions; lonely elderly people (over 60 years), who are elderly individuals living alone; households led by women, which are families where a woman is the primary decision-maker and income earner; and orphans, who are children that have lost both parents.

Regarding vulnerable populations in Bilasuvar district, several key statistics provide insight into the demographics of these groups. The category with the highest number of vulnerable individuals is people with physical disabilities, totalling 5,905 individuals. This is followed by households led by women, with 2,016 such households, and households who lost a breadwinner/household head, with 1,767 households.

The following table provides a detailed breakdown of the number of vulnerable individuals in Bilasuvar District. No internally displaced persons were identified.

**Table 13-2 Number of vulnerable people in Bilasuvar City**

| VULNERABILITY | NUMBER OF PERSONS |
|---|---|
| Single parent | 27 |
| Households who lost breadwinner/household head | 1,767 |
| People with physical disabilities | 5,905 |
| People with mental disabilities | 41 |

| Vulnerability | Number of Persons |
|---|---|
| Lonely elderly age people (over 60 years) | 27 |
| Households led by women | 2,016 |
| Number of family members receiving targeted public social aid | 5,708 |
| Orphans | N/A |

The 5,708 people receiving targeted public social aid receive an average monthly targeted public social aid of 115.5 AZN per person.

Employment

Regarding employment in Bilasuvar district, several key statistics provide insight into the workforce and employment sectors:

- There are 52,881 individuals who are under the working age in Bilasuvar district.
- Among those of working age, 50,094 individuals are currently employed.
- There are 2,787 individuals who are unemployed.
- The local population is employed in various sectors, including agriculture, education, industry, and services.

## 13.3 Area of Influence and Receptors

### 13.3.1 Area of Influence

The area of influence of socioeconomic impacts depend upon the impact, with some being within a local level, some district level and some on a wider-regional level. The area of influences established are shown below.

**Table 13-3 Socioeconomic Impacts' Area of Influence**

| Impact | Area of Influence |
|---|---|
| Land Use Change | People who use the site |
| Project Employment and Economics | Primarily within the Bilasuvar District and the Shirvan-Salyan Economic Region, however, a small percentage of workers will not be from the District and will be from further afield. |
| Training and Dissemination of Skill as Part of on-the-job Training | Bilasuvar District and the Shirvan-Salyan Economic Region and in cases further afield due to influx of workers. |
| Purchase of Construction Materials and Food Products Locally | Primarily within the Bilasuvar District and the Shirvan-Salyan Economic Region |
| Disruption of Local Custom | Bilasuvar District (depends upon where the workforce is housed) |
| Supply Chain Risks | Within the country of origin, transport routes and Azerbaijan |

### 13.3.2 Receptors

**Table 13-4 Potential Socioeconomic Impacts**

| RECEPTOR | SENSITIVITY | JUSTIFICATION |
|---|---|---|
| Welfare of local population / Project-affected communities/herders | Medium | Residents within the project-affected communities, particularly those based around the power plant, are vulnerable to construction-phase influences on local infrastructure, food, water and housing markets, increase off costs for food and other services and cultural norms, due to existing livelihood challenges in certain areas (e.g., water and power shortages, unemployment, low crop yields, land-based livelihoods and low-income status). |
| Local/Regional Economy (Local Businesses and Communities) | Medium | The proposed Solar PV Project is likely to influence regional businesses. Not only local contractors and those directly involved in the construction but also local commercial operations such as food suppliers. |
| Employment Market | Medium | The development of the Project will result in the creation of employment opportunities for the local/regional community and will offer an opportunity for greater dissemination of skills especially during the construction phase of the Project. |
| Local communities and road users | High | Construction activities will result in the impact on roads which need to be used for the transportation of project materials and equipment. |
| Vulnerable groups | High | Vulnerable groups & vulnerable women (as defined by Azerbaijan law) are particularly vulnerable and can experience disproportionate impacts from the Project compared to other groups. |
| Workers working within the supply chain | Medium | Workers working within the supply chain are highly likely to be exposed to risks relating to labour & working conditions. |

## 13.4 Potential Impacts, Mitigation, Management & Residual Impacts

### 13.4.1 Construction Phase

#### 13.4.1.1 Land Use Change

Those utilising the site (refer to Section 13.2.2) will lose access to the Project land.

Stakeholder engagement with the PAPs revealed that they rely on herding activities as their main source of income and therefore economic displacement without provision of an alternative land or livelihood will impact their households' incomes. This makes them particularly vulnerable.

Physical and economic displacement impacts are assessed within the RAP.

### CUMULATIVE IMPACTS

There are cumulative impacts with regards land use change and restriction with the transmission line requiring land acquisition.

The Azerenerji's Scoping Report states that the transmission lines will trigger land acquisition for footprints of tower supports but physical displacement can be avoided. The occupied land parcels will vary from 64 $m^2$ to 100 $m^2$ depending on the tower type.

Land ownership and use along the OHTL is shown on the following table.

**Table 13-5 Land Ownership and Use along the OHTL**

| NO | REGION | VILLAGES | NUMBER OWNERS/TENANTS | TITLE TYPE | PROPERTY TYPE | DESIGNATION |
|---|---|---|---|---|---|---|
| 1 | Salyan | Xurşud village | 3 | Property | Private | cropland |
| | | Aşağı Noxudlu | 6 | Property | Private | cropland |
| | | Yuxarı Noxudlu | 9 | Property | Private | cropland |
| | | Çuxanlı village | 7 individuals | Property | Private | cropland |
| | | | 3 legal persons | Property | Private | cropland |
| | | Abadkand | 7 | Property | Private | cropland |
| | | Xalac | 9 | Property | Private | cropland |
| | | Yenikand | 7 | Property | Private | cropland |
| | | Şakarli | 7 | Property | Private | cropland |
| | | Xalac baladiyyasi | 1 | İstifada | Baladiyya | pastural |
| | | Salmanlı village | 3 | Property | private | cropland |
| 2 | Hacıqabul | Qızılburun | 7 | Property | Private | cropland |
| | | Navahi | 3 | Property | Private | cropland |
| **Total number of owners** | | | **72** | N/A | N/A | N/A |
| **Data on leased land plots** | | | | | | |
| 3 | Bilasuvar | Bilasuvar region | 4 tenants (legal person) | Lease | State | cropland/pastural |
| 4 | Salyan | Salyan region | 5 tenants (hüquqi va individuallar) | Lease | State | cropland/pastural |

| No | Region | Villages | Number owners/tenants | Title type | Property type | Designation |
|---|---|---|---|---|---|---|
| 5 | Hacıqabul | Rayon Executive Power | 3 tenants | Lease | State Land Fund | cropland |
| **Total number of tenants** | | | **12** | N/A | N/A | N/A |

Azerenerji prepared and disclosed a Resettlement Policy Framework for the AZURE Project, consistent with requirements of the World Bank's Environmental and Social Framework. The Framework will adhere to the existing legal and policy framework of the Republic of Azerbaijan, incorporating any supplementary measures necessary to achieve consistency with the World Bank's principles and standards.

### 13.4.1.2 Project Employment and Economics

The primary economic impact during construction is likely to result from limited project timeline centric employment creation during this phase. The Project is expected to create employment opportunities during the construction phase for unskilled and applicably skilled workers. Local workers will be hired in order to reduce risk of socio-cultural conflict due to influx of people to the Project area based on their skill set and Project requirements.

As well as the direct monetary uplift to the families of those employed, money paid to workers will also stimulate the local economy via the multiplier effect, whereby money earned on the Project expended locally will re-circulate within the local economy.

Some of the workforce will come from other countries and this could result in the repatriation of wages and a reduction in the benefit to the local economy of wage expenditure. However, the low-skilled staff workforce will be encouraged to be sourced locally, and the skilled workforce will be first aimed to be resourced locally, then nationally, then internationally.

### 13.4.1.3 Training and Dissemination of Skill as Part of on-the-job Training

In addition to the direct monetary impact of employment created during construction, there also exists the potential for the Project to promote the dissemination of construction and construction support skills from expatriate workers into the local labour force, therefore, this will create increase in skills sets of the population. This will open job opportunities to the unemployed and increase their probability of securing similar jobs after completion of the Project construction phase.

### 13.4.1.4 Purchase of Construction Materials & Food Products Locally

Additional secondary impact on the local economy is likely to arise from spending on local and foreign goods and services during the construction process. The nature of the Project, and

the specialised nature of PV Panels, means that these will be sourced internationally (likely from China), apart from construction materials (e.g. concrete, aggregate, etc.) which will be sourced locally.

There is also the potential for purchase of food products locally to boost the local economy where local people are able to sell vegetables and daily products to the workers. However, workers buying goods from the small community shops could potentially lead to an increase in retail price of basic commodities which would impact the local households negatively.

#### 13.4.1.5 Impacts on Vulnerable Groups

Vulnerable groups and women are particularly vulnerable and can experience disproportionate impacts from the Project compared to other groups. Vulnerable groups include single parents, who are individuals raising children alone; households who lost a breadwinner/household head, which are families that have lost their primary income earner; people with physical disabilities, referring to individuals with physical impairments; people with mental disabilities, encompassing individuals with mental health conditions; lonely elderly people (over 60 years), who are elderly individuals living alone; households led by women, which are families where a woman is the primary decision-maker and income earner; and orphans, who are children that have lost both parents.

Regarding vulnerable populations in Bilasuvar district, several key statistics provide insight into the demographics of these groups. The category with the highest number of vulnerable individuals is people with physical disabilities, totaling 5,905 individuals. This is followed by households led by women, with 2,016 such households, and households who lost a breadwinner/household head, with 1,767 households. In addition, all PAHs are considered as vulnerable.

Please refer to detailed Community Health, Safety, and Security Chapter for further impact assessment and mitigation measures on human rights, GBVH, SEA and SH Risks.

#### 13.4.1.6 Disruption of Local Custom

According to the socioeconomic profile data, the ethnic composition is primarily Azerbaijani, with 105,485 individuals. There are also 23 Russians and 19 individuals of other ethnicities (including Turk, Sahur, Lezgi, Talish, etc.). The majority are expected to be Muslim. The influx of workers and migrants to the Project area has the potential to introduce new habits or cultural practices inconsistent with the local culture. This could lead to potential conflict with the new workers & in-migrants or decline in social cohesion between the local communities.

## 13.4.2 Operation Phase

### 13.4.2.1 Project Employment and Economics

As with the construction phase, the operation phase will create employment opportunities. In contrast to the construction phase, fewer jobs will be available, the vast majority of which will be skilled. The target is for 90% of the operational workforce will be from Azerbaijan.

As well as the direct monetary uplift to the families of those employed, money paid to workers will also stimulate the local economy via the multiplier effect, whereby money earned on the Project expended locally will re-circulate within the local economy.

### 13.4.2.2 Training and Dissemination of Skill

Whilst the size of the required workforce for the operation of the Project is smaller, the type of work and the increased timescales involved offer an opportunity for greater dissemination of skills. Local recruitment and investment in the human capital of the local workforce will enhance this process and consequently increase the benefit to the local economy.

**Table 13-6 Socio-Economics Impact Significance, Mitigation & Management Measures and Residual Impacts- Construction and Operational Phases**

| Potential Impact | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impacts |
|---|---|---|---|---|---|---|
| Land Use Change | **Refer to the RAP** | | | | • The Project Company to implement the Resettlement Action Plan requirements. | - |
| Employment Opportunities and Economics | **Minor Positive** | Employment Market and Local Businesses and Communities | Medium | **Positive** | • Local employment/recruitment management plan will be prepared and implemented. This plan will include clear targets for employment under EPC and its sub-contractors.<br>• The EPC Contractor will seek to employ local workers including women. This will be done in consultation with the local administration and community leaders in the communities near the Project site i.e., (Bilasuvar district)<br>• The EPC Contractor will give priority to the local people while employing unskilled and semiskilled labor forces from the Project area.<br>• The EPC Contractors' HR Policy will be prepared to ensure consistency in line with local labour laws and international ILO and UN conventions. The EPC Contractor is to ensure that this is applied as an overarching policy for all sub-contractor company HR policy as part of their contractual arrangements.<br>• EPC Contractor to undertake local community consultation during recruitment process in order to consider equitable job opportunity distribution among the locals to avoid conflict between the local people<br>• The EPC Contractor will provide equal employment opportunities to women and preferences will be given to local women for unskilled and semi-skilled labour positions. | **Positive** |
| Training and dissemination of construction skills as part of on-the-job training | **Minor Positive** | Welfare of Local Population | High | **Positive** | • All Project workers (including labour service drivers) will receive induction training at the Project, as well as vocational specific training for on-site construction works.<br>• All workers will receive training in regard to health and safety, as well as environmental and social awareness.<br>• Toolbox talks will be conducted before work on each day to ensure workers are reminded of key topics including community health, safety, & security and social aspects.<br>• Cultural awareness training for all foreign workers (immigrant workers) and those coming from other regions in Azerbaijan (if any). | **Positive** |
| Purchase of construction materials and food resources locally | **Minor Positive** | Local/Regional Economy | High | **Positive** | • EPC Contractor will purchase goods and materials from the local/regional economy where available.<br>• The EPC Contractor will purchase some of the food products such as meat, milk from the suppliers. | **Positive** |

| Potential Impact | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impacts |
|---|---|---|---|---|---|---|
| | | | | | • The EPC Contractor will ensure that the influx in workers does not lead to an increase in retail prices of basic commodities by providing the workers with food or giving them transportation to larger towns where they can buy food and non-food items.<br>• Establish market network between the Project workers and the local people in consultation with the community leaders.<br>• Water supply to the Project site will not be sourced from the village springs/wells or from adjacent irrigation canals (unless a license is obtained to draw water from the abovementioned water sources). | |
| Disproportionate impacts on vulnerable groups | **Minor Negative** | Vulnerable groups & women | High | **Minor** | • The Environmental and Social Manager (or any other appointed responsible for the social subject, such as Community Liaison Officer (CLO)) will regularly undertake informal meetings, including with women focus groups & vulnerable groups, to ensure that ongoing stakeholder engagement is gender inclusive.<br>• The Project Company will ensure that the EPC Contractor employs a female within the social experts who will support the E&S Manager/CLO in addressing potential Gender based violence and harassment issues.<br>• Implementation of mitigation and management measures provided under Chapter 14 Community Health and Safety and Chapter 15 Labour & Working Conditions. | **Negligible** |
| Disruption of Local Custom | **Minor Negative** | Welfare of Local Communities | Medium | **Minor** | • EPC Contractor to provide adequate training to the non-local workers in the Project, especially in terms of interaction with the local community members.<br>• Allow local residents to report concerns associated with loss of cultural values through the grievance mechanism.<br>• The EPC Contractor and its sub-contractor will develop and implement a Code of Conduct. This will include an overview of culturally and religious appropriate measures and etiquette to bear in mind.<br>• The code of conduct will also guide staff interaction with local communities. It will ensure workers and non-locals' behaviour is managed suitably to minimise upset in local community through anti-social behaviours<br>• The EPC Contractor will provide adequate training (cultural sensitization training) to the non-local workers in the Project.<br>• EPC Contractor will adopt a zero-tolerance policy towards unacceptable workforce behaviors towards females or any community members i.e., sexual harassment or violence. | **Negligible** |

| Potential Impact | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impacts |
|---|---|---|---|---|---|---|
| | | | | | • The grievance mechanism will be made available to the local communities i.e., community members can make verbal or written complaints at the Project security gate or request to speak to the E&S Manager/CLOs. | |
| **Operation** | | | | | | |
| Employment Opportunities | **Minor Positive** | Employment Market | Medium | **Positive** | • The Projects recruitment policy will ensure a preference for employing workers from the local population especially women where appropriately skilled workers are available locally (or if unskilled positions are available).<br>• O&M Company's HR Policy will be prepared to ensure consistency with the Project Company Environmental & Social Management System Implementation Manual which will ensure compliance with local labour laws and international ILO and UN conventions.<br>• Workers will be encouraged to develop their careers and may be provided with opportunities to attend training courses and other career development processes. | **Positive** |
| Training and Dissemination of Skills | **Minor Positive** | Operational Workforce | Medium | **Positive** | • Training plans to be developed and implemented to facilitate career development and advancement within the local workforce. | **Positive** |

## 13.5 Monitoring

**Table 13-7 Socioeconomic Monitoring Requirements – Construction and Operation**

| MONITORING | PARAMETER | PROJECT PHASE | FREQUENCY & DURATIONS |
|---|---|---|---|
| Local Employment | Number of persons employed from the communities near the Project site | Construction and Operational | Ongoing |
| Third Party Grievances | Number of the issues concerning socio-economic factors or land use/ownership | Construction and Operational | Ongoing |

In addition, further monitoring is outlined as per the RAP.

# 14 COMMUNITY HEALTH, SAFETY, AND SECURITY

## 14.1 Applicable Requirements & Standards

### 14.1.1 National Requirements

The law of the Azerbaijan Republic on the Protection of Public Health No. 360-IQ sets the regulations for public health protection and the health care system. The law stipulates the liability and compensation requirements in the event of damage to health that results from a polluted environment.

### 14.1.2 Lender Requirements

**ADB**

Under ADB Safeguard Requirement 1: Environment, the assessment of community health and safety is required in ESIA.

Specifically, '*The borrower/client will identify and assess the risks to, and potential impacts on, the safety of affected communities during the design, construction, operation, and decommissioning of the project, and will establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts.*'

This includes reasonably foreseeable incidents, accidents, and natural impacts (due to the Project), and requires affected communities to be informed. Preparations are also required to be made to plan for such events.

**AIIB**

ESS1 – Environmental and Social Assessment and Management: Point 8.1 outlines the need to consider community health and safety in the impact assessment, further stating "*this would include, as appropriate, risks related to pandemics and other forms of transmission of communicable diseases.*"

Section D 'Social Coverage' outlines the requirement for social assessment, including, but not limited to, vulnerable groups and discrimination, gender, gender-based violence, etc.

**EBRD**

Performance Requirement 4 establishes the importance of avoiding or mitigating adverse health and safety impacts and issues associated with project activities on workers, project affected communities and consumers. The objectives of EBRD PR4 are:

- To protect and promote the safety & health of workers by ensuring safe and healthy working conditions and implementing a health and safety management system, appropriate to the relevant issues and risks associated with the Project.
- To anticipate, assess and prevent or minimise adverse impacts on the health and safety of project affected communities and consumers during the project lifecycle from both routine and non-routine circumstances.

PR4 also required clients to identify and assess project related risks and adverse impacts to the health and safety of the potentially affected communities and develop protection, prevention and mitigation measures proportionate to the impacts and risks and appropriate to the stage size and nature of the project. In addition, the client is required to cooperate with the relevant authorities and other stakeholders, as appropriate, on mitigation measures and plans. These measures are required to be consistent with the mitigation hierarchy approach and voluntary principles on security & human rights.

EBRD's PR 2 provides the requirements for security personnel the aim of which is to ensure that security personnel are trained (in the acceptable standard of practice and behaviour, use of force, applicable law etc) , equipped and monitored in order to prevent abuse of workers and local communities. In addition, it requires the establishment of an effective grievance mechanism to allow the affected community and workers to express any concerns about the security arrangements and actions of the security personnel,

Regarding human rights:

- According to EBRD's Environmental and Social Policy, EBRD is committed to the respect of human rights in the Project they finance. EBRD is also guided by the International Bill of Human Rights and the eight core conventions of the International Labour Organization.

**IFC**

IFC Performance Standard 4 establishes requirements to safeguard local communities from potential risks associated with the Project including impacts associated with introduction of communicable disease, site access and operation, material use etc. The key objectives of PS4 are:

- To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances.
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

World Bank Good Practice Note on Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing Involving Major Civil Works

The World Bank GPN is structured around three key steps that cover project preparation and implementation. These steps include:

- Identifying and assessing the risks of SEA/SH, including social and capacity assessments.
  - Undertaking social risk assessment of community-level risks.
  - Assess capacity and availability, safe and ethical services of survivors.
  - Review ability of the client to respond to SEA/SH risks.
  - Rate project for overall risk using several Bank tools including the SEA/SH Risk Assessment Tool.
  - Establish procedures to review and update risk assessment during the project implementation.
- Establishment of mitigation, reporting and monitoring measures.
  - Based on risks identified, identify the corresponding mitigation measures and implement actions suggested to mitigate project related risks of GBV in the project area.
  - Monitor effectiveness of the mitigation measures and adapt as appropriate.
- Project response actions for GBV cases.
  - Provide essential services for survivors.
  - Report case through the GM as appropriate keeping survivor information confidential and anonymous.
  - Document and close cases brought through the GM.

IFC, EBRD and CDC Group[25] Guidance on Gender Based Violence and Harassment (GBVH)

According to the guidance, addressing GBVH can build relationships and provide a Project with a social license to operate in communities. This can result from regular dialogue to understand and track project GBVH risks as well as the effective use of measures to prevent and respond to GBVH. In addition, it broadens the pool of potential workers that companies can draw upon, including women workers from nearby communities because of lower perceived risk of GBVH.

*IFC Guidance on Gender Based Violence and Harassment (GBVH) in the Construction Sector*

The assessment, prevention, monitoring and response measures in regards to GBVH should be underpinned by the following principles:

- Survivor Centred: The rights of GBVH survivors need to be consistently prioritised and used as the starting point for all decisions on efforts to assess, prevent, monitor and respond to GBVH.

[25] CDC Investment Group has formally renamed as "British International Investment (BII)" on 4th of April 2022. BII's mission is to support the building of businesses throughout Africa and South Asia, to create jobs, and to make a difference to people's lives in some of the world' poorest places.

- Safe: Survivors, witnesses and those who report and seek to address GBVH can be at risk of retaliation, including threatening and violent behaviour, often from those who do not like their position of power being challenged. Companies should prioritise the safety of those who have experienced, witnessed and reported GBVH.
- Context specific: All measures need to be rooted in a thorough understanding of the local context. Investors and companies should understand the legal and social context and identify the support mechanisms that are in place.
- Collaborative: Companies should seek inputs from a range of internal and external stakeholders to increase the likelihood of broader buy-in and make GBVH prevention more effective.
- Inclusive: Companies should recognise the heightened risks of GBVH faced by certain groups who are subject to discrimination and marginalisation. High risk groups often include people with disabilities, single parents, migrants and ethnic minorities and sexual and gender minorities. The system should also account for illiterate or non-literate people who may not be able to access written information on GBVH reporting mechanisms.
- Integrated: Processes, efforts to assess, prevent, monitor and respond to GBVH needs to be integrated as much as possible into existing processes and management systems, such as occupational health safety, security management systems, ESMS and human resources (HR) policies and procedures.
- Non-discriminatory: All survivors need to be listened to and treated equally and promote diversity in the work place.
- Well-informed: Companies should draw on relevant expertise when developing prevention and response measures. The grievance mechanism and investigation procedures should be set up to ensure they are appropriate, relevant and safe in the local context.

According to the guidance, the benefits of addressing GBVH include:

- Improves workers' physical and emotional wellbeing and strengthens occupational health and safety.
- Avoids reputational damage, financial risks and legal liabilities for companies, investors and construction contractors.
- Builds relationships and social license to operate in communities. This can result from regular dialogue to understand and track project GBVH risks as well as the effective use of measures to prevent and respond to GBVH.
- Broadens the pool of potential workers that companies can draw upon, including women workers from nearby communities because of lower perceived risk of GBVH.

United Nations Guiding Principles on Business and Human Rights

In addition to adhering to human rights requirements under the Azerbaijan laws and lenders requirements, the Project construction and operational phases will be required to adhere to the United Nations Guiding Principles on Business and Human Rights. The Guiding Principles are grounded in recognition of the role of business enterprise as specialised organs of society required to comply with all applicable laws and to respect human rights.

## 14.2 Baseline Conditions

Refer to Section 13.2 for the baseline conditions of the local communities.

#### AZERBAIJAN HUMAN DEVELOPMENT INDICATORS

Azerbaijan has been included in the high development group in The Human Development Report, an editorially independent publication of the United Nations Development Programme.

Azerbaijan's Human Development Index value for 2022 is 0.76 — which put the country in the High human development category — positioning it at 86 out of 204 countries and territories[26].

The life expectancy at birth is 73.49 years, Azerbaijan has 10.56 expected years of schooling and the gross national income per capital is $15,000.

#### GENERAL BASELINE OF HEALTHCARE IN AZERBAIJAN

Azerbaijan has a developing healthcare system that has undergone significant reforms in recent years. The country has been working to improve the quality and accessibility of healthcare services, particularly in rural areas. Primary healthcare is provided through a network of polyclinics and health posts, while more specialized services are available in regional hospitals and centralized medical centers in larger cities. Despite these improvements, rural areas often face challenges such as limited access to advanced medical services and shortages of healthcare professionals.

#### COMMUNITY HEALTH AND SAFETY IN BILASUVAR

Bilasuvar district, the closest district to the Bilasuvar Solar PV area, is served by three hospitals and eighteen medical clinics/points, ensuring accessible healthcare for its residents. Additionally, the district is equipped with three police stations and two firefighting stations, enhancing the overall safety and emergency response capabilities .There are three villages, Sarvan, Shorsulu, and Dayikend, located to the south of the project area. These communities are equipped with first aid points. Sarvan village is equipped with a maternity hospital. Residents of these three villages utilize the hospital and public services from Salyan District.

The most common types of illnesses or health complaints among villagers are diabetes and cardiovascular diseases.

#### GENDER

Gender norms have been evolving for the past years as more women work outside the home, although Azerbaijanis continue to attribute primary responsibility for domestic matters to

[26] https://data.undp.org/

women[27]. Women spend a large share of their time and energy for household responsibilities and this is not altered if a woman engages in income-generating activities.

As outlined in CDC, IFC and EBRD Addressing Gender-Based Violence and Harassment Emerging Good Practice for the Private Sector (2020), in many countries, the most commonly available data on GBVH relate to intimate partner violence. The guidance states that "*Intimate partner violence, like all forms of GBVH, is rooted in gender inequality, meaning that when levels of intimate partner violence are high, other forms of GBVH are likely to be high too.*"

Data is collected as part of the demographic health survey. Intimate partner violence is measured by asking women who have ever been married a series of questions about behaviours they have experienced over the past 12 months and during their lifetime.

As part of the 2006 demographic health survey, 12.6% in Azerbaijan reported that they had experienced intimate partner violence. In comparison, this is higher than Armenia (8% in 2015/16), but lower than Kyrgyz Republic (25% in 2012) and Tajikistan (25.3% in 2017). It is important to highlight that figures on the prevalence of intimate partner violence – or any form of GBVH – are likely to be lower than actual levels.

As part of the ESIA, disclosure will be conducted separately with male and female residents of the closest communities.

#### HUMAN RIGHTS

In recent months, the Office of the United Nations High Commissioner for Human Rights has issued concerns relating to concerns about prosecution of human rights defenders and journalists in Azerbaijan[28].

#### ASBESTOS CONTAINING MATERIALS

There is the potential for asbestos containing materials to be present in the structures used at the Project site.

[27] Azerbaijan Country Gender Assessment, ADB, 2019

[28] https://www.ohchr.org/en/press-releases/2024/08/azerbaijan-expert-concerned-about-prosecution-human-rights-defenders-and

## 14.3 Potential Impacts

### 14.3.1 Construction Phase

#### 14.3.1.1 Worker Influx, Community Health and Crime

The construction phase of the Project will require a dedicated workforce of temporarily staff, contractors, as well as the use of specialist and sub-contractors. This will therefore lead to an increase in the population on-site during construction.

The risk in terms of the workers influx, community and crime are classified in following subjects; social risks, traffic and transportation risks and local economy. Detailed assessment of these impacts is provided in following sub-sections.

**SOCIAL RISKS**

Risk of Social Conflict

The potential risk of conflict may arise between the local communities and the construction workforce which may be related to religious, cultural, ethnic, nationality differences or competition over existing resources and infrastructure. Conflicts may also arise between different groups within the workforce due to the different nationalities and difference in culture, political views, religion etc. This could also spill over and exacerbate pre-existing conflicts within the community.

Considering the size of the Project peak construction workforce (approximately 750 – 1,500 workers), it is expected that the risk of social conflict will be negligible.

Risks of Retaliation

Retaliation can involve any form of threats, harassment, violence, or punitive actions directed at individuals, groups, or organizations—such as workers, contractors, community members, activists, human rights defenders, or civil society organizations—who have raised complaints or expressed concerns about the Project. Women may be at heightened risk, as they are more vulnerable to harassment, defamation, and physical or sexual violence.

Examples of retaliation include, but are not limited to, verbal intimidation, damage to property, travel bans, physical surveillance or violence, and disciplinary action or dismissal. Communities may face retaliation during public consultations or during their interaction with the public authorities.

A sense of risk of retaliation impedes the development of strong, constructive relationships with employees, local communities, investors, and the broader public, while also risking damage to the company and Project's reputation.

Security

The Project will employ its own security staff who will provide 24/7 security control across the Project site and dedicated security staff at gatehouses.

Risks may arise between the local community and the security of the Project site, and there is potential for retaliation and use of force against the local community. The security will be Azerbaijan nationals and security arrangements should be guided by UN Code of Conduct for Law Enforcement officials, UN Basic Principles on the Use of Force and the Voluntary Principles on Security and Human Rights.

The EPC Contractor will prepare a "Security & Human Rights Management Plan" consistent with its Security Risk Assessment.

Impact on Local Accommodation Facilities/Housing

Accommodation will be required for the Project workforce, at the time of writing the plan for the accommodation has not been finalised.

It is assumed that there will also be opportunistic workers and traders moving to the Project area and the need for accommodation may exhaust any available rental property, contributing to the risk of illegal lodging arrangements.

Asbestos

There is a possibility that the structures at site have materials containing asbestos, demolition of which could potentially expose the those dismantling the structures to this hazardous substance. Exposure to asbestos, including chrysotile asbestos, occurs through inhalation of fibres in the air in the working environment.

Refer to Chapter 11 for further discussion on this potential impact.

Increased Burden on and Competition for Public Service Provision & Access

An influx of non-locals will potentially result in additional demand and pressure on the public infrastructures such as existing roads, water supply, waste management, heating, transportation, electricity, religious facilities, and recreational and health facilities. The increased usage of public infrastructure & services may be perceivable during the peak period of construction works when nearly >1,000 direct workers are on site, however, are not expected to impact upon local communities' ability to access services.

Increased Risk of Communicable Diseases & Burden on Local Health Services

The interaction of workers from other regions of Azerbaijan and abroad may result in the transfer of communicable diseases and/or illnesses and spread of sexually transmitted diseases

such as HIV/AIDs. This may potentially result in an additional burden on local health services especially where workers with certain illnesses prefer to access local medical facilities anonymously.

Nevertheless, the EPC Contractor will be required to have a site-based health clinic and make arrangement with other regional hospitals so that the services to the local communities are not undermined.

GBVH, SEA & SH

The influx of workers from outside of the Project region will increase the likelihood of GBVH, SEA and SH. The construction workers are likely to be predominantly young males coming from other regions of Azerbaijan and outside the country. These workers will be away from their families and removed from their normal social spheres. This could potentially result in peer pressure and involvement in unlawful behaviour such as harassment of local women, young girls and boys, or women within the Project workforce. Such behaviour can lead to increase in exploitative sexual relationships and unwanted aggressive advances and harassment. This could also lead to disintegration of relationships in local households impacted by GBVH/SEA/SH. Due to the location of the Project site with local communities, the associated community risks should be closely managed and monitored based on the mitigation measures in this report.

During the construction phase, workers will also be vulnerable to various forms of harassment, exploitation and abuse, aggravated by a traditionally male working environment. GBVH/SEA/SH may be committed by co-workers or construction supervisors and can be attributed to gender stereotypes. In addition, income earning opportunities for women through direct employment during the construction phase or through indirect employment may have the potential to increase household tensions and expose women to harassment and violence in their homes or communities. This is because some men may feel threatened when the women in their lives are more economically empowered and independent.

Some of the male workers who will be transporting Project machinery and equipment and goods will also be involved in long distance travel which in some cases will be between different countries. There is a risk that they can also be involved in GBVH/SEA/SH on the routes they use and at truck stops associated with the Project even if it is outside the Project boundary.

Increase Incidence of Illicit Behaviour

The influx of workers coupled with access to disposable income may result in increased incidence of vices such as drug abuse, alcoholism, prostitution, gambling, etc. all of which presents additional social challenges for the local communities.

**TRAFFIC AND TRANSPORTATION RISKS**

Delivery of Project equipment, PV Panels, machinery and other supplies, as well as the Project workforce will lead to an increase in traffic, a potential rise in accidents, as well as additional burden on the transportation infrastructure.

At the time of writing, the M-3 highway to the south of the Project, which connects Salyan to Bilasuvar, is being expanded from two lanes to four lanes, this is planned to be completed prior to COP29 in November.

Transportation of Project Components, Construction Materials and Equipment

The major components for the construction of the Project will be the panels, which will be delivered by ship to Baku port and transported by road

If routes are not carefully planned and managed, the trailers hauling the heavy components may potentially damage or cause structural faults on existing highways, tunnels, bridges, utilities and other road infrastructure such as signages.

The EPC Contractor will be required to apply for the relevant permits to transport Project components, equipment and machinery across borders and on local roads.

Increased Vehicular Flow and Traffic Congestion

Transportation of materials, equipment, project staff transportation and general Heavy Goods Vehicle HGV movements will result in road traffic, this would be particularly noticeable on smaller, local roads, however, it is noted that the roads closest to the Project site, are busy highways which can accommodate HGVs.

Impacts will be required to be managed in line with a Traffic and Transportation Management Plan.

## 14.3.2 Operation Phase

### 14.3.2.1 Public/Community Safety

The Project will carry various risks that could result in impacts to public safety. Such foreseeable situations may include:

- Fire, explosions, other unplanned events; and
- Security and safety concerns of trespassers.

**OHTL**

Electromagnetic Field

With regards to the operation of the transmission line, there is often concern about the potential health effects associated with exposure to Electromagnetic fields (EMF).

There is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmission lines, and Azerbaijan does not have any guidelines on exposure to EMF.

Azereneji's Scoping Report states the following actions will be undertaken with regards to EMF:

*Community Engagement and Education*

- *Scientific information dissemination, including public meetings, consultations and distribution of information materials;*
- *EMF monitoring and disclosure of the results; and*
- *Engagement with health authorities.*

*Risk Mitigation Measures*

- *Design and Siting: The transmission lines will be designed and sited to minimize EMF exposure to populated areas. This includes maintaining appropriate distances from residential areas, schools, and other sensitive locations.*
- *Adherence to Standards: The project will comply with all relevant EMF exposure guidelines and standards set by international and national regulatory bodies. These standards are designed to protect public health and ensure safe levels of EMF exposure.*
- *Community Feedback Mechanism: A feedback mechanism will be established for community members to voice their concerns and receive timely responses. This will include a dedicated helpline and an online portal for submitting inquiries and feedback.*

In addition, high-voltage equipment, such as transformers and transmission lines, pose a risk of electrocution if they are tampered with or if safety measures fail and are also a fire risk if there is malfunction or damage to equipment. Azereneji's Scoping Report states the line will be built in accordance with internationally recognised design and safety standards.

#### FIRE, EXPLOSIONS, SPILLS OF WASTEWATER OR SLUDGE

The operation of the Plant is associated with various risks that could potentially result in impacts to public safety in the absence of required control measures. Such impacts are unlikely to occur and may relate to fire, explosions, spills of back up fuels and unwarranted/ accidental releases of wastewater.

Given the predominantly passive character of the PV plant facility and the expansive geographical scope of the location, it is improbable that such effects would extend beyond the Project site. In case such events go beyond the Project's boundaries it may require the

involvement of outside agencies to help manage and abate such impacts (e.g., Civil Defence, Police)

Risks to the public safety will be appropriately addressed and prepared for in the operational phase 'Emergency Preparedness and Response Plan' and training.

#### PUBLIC/COMMUNITY SECURITY

The Project will include site-based security at the project main entrance and on patrol around the site. The site-based security will likely not be armed, but this will be based on a security risk assessment.

As is consistent with the construction phase, the O&M Contractor will undertake a security risk assessment to determine the appropriate level of security required at the facility. Security arrangements should be guided by UN Code of Conduct for Law Enforcement officials, UN Basic Principles on the Use of Force and the Voluntary Principles on Security and Human Rights.

In addition to this, security personnel will receive internal training in regard to grievances, reporting such grievances and engaging in dialogue with any members of the local community.

Risks of Retaliation

Risks of retaliation, as outlined in the construction phase impact assessment, are also present in the operational phase of the Project.

#### GBVH, SEA AND SH

Even though there will be reduced workforce during the operational phase of the Project, the risk of GBVH/SEA/SH will remain especially towards women and children. There will still be a limited level of interaction between the operational phase team and the host communities. As a result, measures will be put in place to ensure that exploitative sexual relationships and unwanted aggressive advances and harassment are prevented and addressed.

## 14.4 Mitigation and Management Measures

**Table 14-1 Community Health, Safety and Security Mitigation & Management Measures – Construction Phase**

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| **Workers Influx, Community Health and Crime** | **All Impacts**<br>• Development and implementation of an Influx Management Plan which will be aligned with the Local Recruitment Plan, Security Management Plan, Gender Management Plan, Worker Code of Conduct, Local Content Plan and relevant Accommodation Management Plans. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • Local communities and other stakeholders will be provided information on how to access the GRM in accordance with the SEP.<br>**Health Risks**<br>• Development and implementation of a Community Health, Safety and Security Management Plan.<br>• The potential for exposure to communicable diseases as a result from project activities will be avoided or minimized.<br>**Social Risks**<br>• All workers will be provided with the Worker Code of Conduct in a language understandable to them.<br>• Where practical, prioritisation of the recruitment of local workforce for both skilled and unskilled positions.<br>• Workers will be provided with mandatory cultural sensitisation training programmes regarding engagement with local communities.<br>• The EPC Contractor will provide recreational facilities within accommodation areas to minimise the need for workers to use local community facilities;<br>• The EPC Contractor will provide induction training to the workforce with regards to the rules within the accommodation facility and also to introduce the neighbourhood (including the location of closest health centre/clinic etc.) to the workforce.<br>• The EPC Contractor will informed all workers about the Project policies on GBVH/SEA/SH, and in case any incident happens, workers will be informed which communication channel should be followed and how to report the incident.<br>• The EPC Contractor will hire workers through registered recruitment agencies in order to discourage spontaneous influx of workers.<br>• The worker accommodation camp will include waste and wastewater disposal system (including sufficient septic tanks);<br>• Water supply to the Project will be from a registered authorised supplier and will not source from local water supply systems.<br>• EPC Contractor will undertake campaigns and awareness training on sexually transmitted illnesses to workers and local communities, including access to testing facilities, prevention etc. (in a culturally appropriate manner).<br>• EPC Contractor will adopt a zero-tolerance policy towards unacceptable workforce behaviour towards females or any community member.<br>• EPC Contractor will provide regular substance abuse prevention and management programs.<br>• During construction, staff will have access to medical professionals and suitable medical facilities, which will aim to prevent the spread of diseases internally and externally. Site personnel will only be cleared for work after with a medical fitness certificate from an authorized medical center.<br>• Regular and sporadic site checks with regards to substance abuse will be conducted at accommodation camps whilst respecting workers' freedom of movement rights.<br>**Traffic and Transportation**<br><u>Impacts on the Public Road:</u><br>• A Traffic & Transportation study will be conducted before the transportation Project related material, equipment and machinery, including panels. This study will provide the current situation of the roads |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | to be used and an assessment of transportation routes beginning from the supplier to project area. It will include the minimum requirements for the vehicles and the drivers. All required process for permits and traffic rules based on the travelling country.<br><u>Increased vehicle flow on highway:</u><br>• The Traffic & Transportation study will assess the requirements for upgrades to be made to highway & local road infrastructure to enable safe transportation of HGVs.<br>• A Traffic & Transportation Management Plan will be developed by the EPC Contractor. The plan will be prepared in accordance with IFC General EHS Guideline, outline how Project equipment and materials will be delivered to the site and outline how construction traffic will be managed to limit impacts upon communities, farmers, project personnel, and other road users.<br>• The plan will include information on the designated access routes, speed limits, waiting, parking areas and map out accident and traffic hotspots for access vehicles etc.<br><u>Safety of Residents of Nearby Communities and Road Users:</u><br>• GPS monitoring will be embedded in Project vehicles.<br>• Speed limits will be strictly enforced by the Security and HSE teams.<br>• Consumption of alcohol and drugs will be strictly prohibited.<br>• Minimise the need for vehicle reversals by implementing one-way systems where feasible.<br>• Design road construction and surface quality to accommodate the vehicles, machinery, and equipment in use.<br>• Provide appropriate lighting for roads and pedestrian walkways to ensure good visibility.<br>• Install physical barriers between walkways and traffic routes to segregate pedestrians from vehicles as much as possible.<br>• Display suitable warning signs to inform pedestrians of any risks.<br>• Assign responsible persons to manage pedestrians when vehicles need to cross walkways.<br>• Locate offices, welfare facilities, and areas of frequent pedestrian activity away from primary site traffic routes.<br>• Provide appropriate protection and signaling for overhead cables near traffic routes. Consult with the EPC Contractor E&S Manager or electrical engineer if necessary before operating equipment in the vicinity of overhead power lines.<br>• Ensure protection is provided to permanent or temporary structures, such as scaffolds, that could be damaged by vehicle impacts.<br>• Properly barricade open trenches and excavated pits with warning signs in the project's designated languages. Install barriers at appropriate intervals using suitable materials.<br>• Use banksmen and flaggers onsite as required for traffic activities.<br>• Install directional signage in consultation with the Local Road Traffic Authority to direct construction traffic and warn other motorists.<br>• Establish traffic management controls in consultation with relevant stakeholders.<br>• Ensure compliance with regulatory and legislative requirements for traffic management controls.<br>• All vehicles will be inspected monthly.<br>**Local Economy** |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • The Project Company and EPC Contractor will ensure an appropriate mix of locally and non-locally procured goods to allow local project benefits while reducing the risk of crowding out and price hikes for local consumers.<br>• The Project will manage expectations with regards to purchasing goods and services from local businesses. The Project commitments on local content for provision of good and service will help to ensure the opportunities and benefits are feasible.<br>• Special consideration will be provided for female headed households in employment and delivery of other services to the Project.<br>• The EPC Contractor will provide project workforce (expatriate & migrants) with awareness training on including income/finance management. |
| **Risks of Retaliation** | • Measures in line with the IFC and IDB Invest Good Practice Note for The Private Sector: Addressing the Risks of Retaliation Against Project Stakeholders will be incorporated into the Project grievance mechanism, into E&S training and into the HSSE-MS to allow safe avenues and reporting channels for stakeholders, including local communities and the Project workforce. These include:<br>  • Making a commitment to zero tolerance of forms of retaliation<br>  • Identifying, assessing and monitoring reprisal risk factors such as Restricted civil society activity in the country, challenges to freedom of press etc.<br>  • Raising awareness and building staff capacity on reprisal risk, this is particularly important since staff have direct and ongoing engagement with project stakeholders<br>  • Communicating and engaging with stakeholders on zero-tolerance commitment<br>  • Adopting an open, transparent, and inclusive approach with stakeholders<br>  • Addressing risks to participants during consultation processes<br>  • Enhancing consultations with project stakeholders where reprisal risks are significant<br>  • Accounting for retaliation risks in the project grievance mechanism<br>  • Having protocols for incident response and proactive resolution in place<br>  • Protecting the confidentiality of complainant identity and information<br>• Ensure meetings with communities and state authorities are conducted separately. No private or official security forces shall be present in community or NGO meetings. For any potential safety concerns raised by the community or NGO members, the Project Company will assess these concerns in advance to devise alternative engagement avenues in order to minimise these risks.<br>• Ensure there is an anonymous grievance reporting channel for those who would like to remain in anonymity. This channel should have password protection protocols in place accessed by only designated personnel.<br>• Project Company to always keep confidentiality of the information provided by community members and not to share anything without their written consent provided. EU GDPR guidelines to be followed. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • Right to privacy shall be respected and all personal data, confidential feedback should be managed in line with the Project's Human Rights Policy, international requirements of the Lenders. |
| **Public/Community Safety** | • The EPC Contractor will prepare and implement a Community Health & Safety Management Plan which will include measures to avoid or limit risks to, and impacts on health, safety and security of the community during the construction phase of the Project.<br>• The employees (including the drivers) during the construction phase will undergo a Code of Conduct training to ensure smooth coordination with the neighbouring community.<br>• Risks to public safety will be appropriately addressed and prepared for in the construction phase 'Emergency Preparedness and Response Plan' and training. The plan will include the appropriate procedure to respond to any such incidents, as well as site specific contact details and details of external agencies who may be required.<br>• Project induction training will include a section on code of conduct when engaging with local community members. This will include an overview of culturally appropriate measures and etiquette to bear in mind.<br>• Vulnerable groups particularly children will be specifically informed about the dangers in active construction areas so that they understand the risks of trespassing to the project site, Project construction areas and/or fenced off areas.<br>• Project construction area will be cordoned off during the construction phase with a perimeter fence.<br>• The Project will be fenced during early/ enabling works stage.<br>• Smoking will be prohibited at chemical, fuel storage and flammable material storage areas.<br>• Appropriate mechanisms for emergency control (e.g. well-equipped firefighting equipment) will be placed at suitable positions around the site. |
| **Public/Community Security** | • The Project will employ its own security staff who will provide 24/7 security control across the Project site and dedicated security staff at gatehouses.<br>• The EPC Contractor will prepare a "Security & Human Rights Management Plan" consistent with its Security Risk Assessment.<br>• Security arrangements should be guided by UN Code of Conduct for Law Enforcement officials, UN Basic Principles on the Use of Force and the Voluntary Principles on Security and Human Rights.<br>• Security guards will not be equipped with any lethal weapons or objects.<br>• Security guards will be equipped with a utility belt which will include a short baton (for protection), radio, torch, water and minimal first aid and utility pouch.<br>• All security guards will be provided with a standard uniform (including a name identification tag) as well as suitable safety footwear to undertake their responsibilities.<br>• All security guards will be provided with a properly shaded rest area that is able to provide shelter from sun, wind, and rain. Such facilities will be adequately cooled or heated depending on environmental conditions and will be equipped at a minimum with the following: (i) tables, (ii) chairs, (iii) devices for boiling water; (iv) devices for heating food. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • All vehicles entering the site will require pre-approved clearance and will need to be registered. Project security will record all instances of incoming vehicles.<br>• CCTV will be installed at key locations around the site and at gatehouses.<br>• Appropriate lighting will be provided at gatehouses for security personnel to prevent unauthorised access and during the construction activities during night shifts (if any).<br>• Project personnel will only be provided access to the construction site with valid ID cards and permits to work in line with HSE requirements.<br>• People trying to gain unauthorised access to the site without appropriate permits and PPE will not be permitted or will be removed from site if identified and an investigation carried out on how they were able to access the site and corrective action taken.<br>• EPC Contractor will record all security incidents on the Project.<br>• The security personnel will be regularly trained on human rights and GBVH/SEA/SH code of conduct including how to handle grievances related to GBVH/SEA/SH from the community.<br>• Trespassing on neighbouring properties (by workers) will be prohibited and the appropriate disciplinary action will be taken in the event of transgression. |
| **Impacts on vulnerable communities/ groups** | • Prioritisation of vulnerable groups in construction phase job opportunities.<br>• Consultations and project information will be provided in areas that are easily accessible to vulnerable groups.<br>• Timing of consultation meetings will consider the time these groups are available.<br>• The Project Company and EPC Contractor will provide alternative means of communication and access to information for those without access to digital platforms.<br>• Information will be provided and disclosed in local language i.e., Azeri.<br>• EPC Contractor will adopt a zero-tolerance policy towards unacceptable workforce behaviour towards any community members including vulnerable groups.<br>• The Project Company and EPC Contractor will disclose their zero-tolerance policy on retaliation and GBVH against affected people and will ensure these are implemented carefully with a specific focus on vulnerable groups. |
| **Vulnerable Groups – GBVH, SEA & SH** | • Project Company will develop a GBVH reporting procedure and train its Project staff, EPC Contractor and the sub-contractors.<br>• Project Company and EPC Contractor will assign and train focal point staff to deal with GBVH related incidents.<br>• Training and awareness campaigns will be undertaken to raise awareness of both project personnel and community members including women on GBVH issues. Information will also be provided on how to report and deal with any GBVH/SEA/SH related cases and the services that will be made available to offer support to any of the victims.<br>• The Project Company and the EPC Contractor will conduct a GBVH/SEA/SH risk assessment in consultation with relevant stakeholders including women leaders and those working with young adolescent girls and boys. This will also include the identification of potential interventions and risk mitigation measures. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • The EPC Contractor will develop and implement a Project specific Gender Management Plan detailing the list of unacceptable behaviour among workers, provisions for reporting, sanctions for perpetrators and available resources & support systems for the victims in accordance with lenders and Azerbaijan requirements.<br>• Awareness training will be mandatory for all Project workers regarding the GBVH/SE/SH risks and the workers responsibilities and the legal consequences of being a perpetrator.<br>• Approach towards GBVH/SEA/SH prevention, mitigation and response will be survivor centered and ensure confidentiality, dignity and respect to them.<br>• The Project staff will be trained on how to preserve the safety of the women, girls, boys when interviewing them and collecting information about their experiences on GBVH/SEA/SH.<br>• The project will provide essential services for survivors such as access to counselling services, support groups, legal support etc. at no cost to them.<br>• All determined cases of GBVH/SEA/SH will be referred to relevant legal entities in the Project area for further investigation and prosecution.<br>• The Project grievance mechanism will be made available to project workers and community members and will ensure that survivors' information is confidential and kept anonymous.<br>• All cases relating to GBVH/SEA/SH will be documented and closed with a satisfied solution.<br>• The EPC Contractor will prepare and implement a Gender Management Plan which will put necessary protocols and mechanisms to address the risks of GBVH/SEA/SH and how to address any allegations that may arise in accordance with the World Bank Good Practice Note on Addressing SEA/SH in Investment Project Financing involving Major Civil Works (February 2020). |
| **Grievance Mechanism** | • The project will implement an appropriate system to allow external parties to raise grievances in regard to the Project.<br>• The Grievance Mechanism will be clearly defined, transparent and accessible to identified stakeholders.<br>• EPC Contractor will appoint a community liaison officer preferably from the local community who will maintain communication with the local leaders and community members.<br>• A second line of confidential reporting shall be made available for sensitive topics including GBVH, retaliation, harassment separate from the project complaint mechanism. |
| **Human Rights Policy** | In addition to adhering to the national human rights requirements, a project-specific human rights policy will be developed. The policy will be in line with the UN Guiding Principles on Business and Human Rights. The statement policy will underscore the definition and prohibition of various forms of forced labour, child labour, GBVH, and human trafficking. Practices constituting forced labour (e.g., deceptive recruitment, confiscation of personal belongings, withholding of accrued pay and illegitimate overtime requirements) will be strictly proscribed. The Human Rights policy will:<br>• Be aligned with the requirements of Masdar Corporate Human Rights Policy and its associated policies and documents;<br>• Be approved at the most senior level of the Project Company / EPC Contractor. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • Informed by relevant internal and external expertise.<br>• Stipulate the human rights expectations of personnel, sub-contractors and other suppliers directly linked to the construction of the Project.<br>• Be publicly available and communicated internally and to the relevant stakeholders.<br>• Be reflected in the other policies and procedures to embed it throughout their construction phase activities. |

**Table 14-2 Community Health, Safety and Security Mitigation & Management Measures – Operational Phase**

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| **Public/Community Safety** | • All risks to public safety will be appropriately addressed and prepared for in the operational phase 'Emergency Preparedness and Response Plan' and training.<br>• The plan will include the appropriate procedure to respond to any such incidents, as well as site specific contact details and details of external agencies who may be required.<br>• The employees during the operational phase will undergo a Code of Conduct training to ensure smooth coordination with the neighboring community.<br>• Appropriate mechanisms for emergency control (e.g. firefighting equipment) will be placed at suitable positions around the site.<br>• Sexual harassment or violence in and out of the Project site will not be tolerated and the O&M Company will work with local community leaders and government officials to ensure that any complaints are addressed in accordance with the law.<br>• O&M Company will provide advice training/inductions on exposure to disease including preventative measures. |
| **Risks of Retaliation** | • Refer to the mitigation measures as outlined in the construction phase impact assessment for this impact. |
| **Public/Community Security** | • The Project will employ its own security staff who will provide 24/7 security control across the Project site and dedicated security staff at gatehouses.<br>• The O&M Company will prepare a "Security and Human Rights Management Plan" consistent with its Security Risk Assessment.<br>• Security arrangements will be guided by UN Code of Conduct for Law Enforcement officials, UN Basic Principles on the Use of Force and the Voluntary Principles on Security and Human Rights.<br>• Security guards will not be equipped with any lethal weapons or objects.<br>• Security guards will be equipped with a utility belt which will include a short baton (for protection), radio, torch, water and minimal first aid and utility pouch.<br>• All security guards will be provided with a standard uniform (including a name identification tag) as well as suitable safety footwear to undertake their responsibilities.<br>• All security guards will be provided with a properly shaded rest area that is able to provide shelter from sun, wind, and rain. Such facilities will be adequately cooled or heated depending on environmental conditions and will be equipped at a minimum with the following: (i) |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | tables, (ii) chairs, (iii) devices for boiling water; (iv) devices for heating food.<br>• All vehicles entering the site will require pre-approved clearance and will need to be registered. Project security will record all instances of incoming vehicles.<br>• CCTV will be installed at key locations around the site and at gatehouses.<br>• Appropriate lighting will be provided at gatehouses for security personnel to prevent unauthorised access and during the construction activities during night shifts (if any).<br>• Project personnel will only be provided access to the construction site with valid ID cards and permits to work in line with HSE requirements.<br>• People trying to gain unauthorised access to the site without appropriate permits and PPE will not be permitted or will be removed from site if identified and an investigation carried out on how they were able to access the site and corrective action taken.<br>• The O&M Company will record all security incidents on the Project.<br>• The security personnel will be regularly trained on human rights and GBVH/SEA/SH code of conduct including how to handle grievances related to GBVH/SEA/SH from the community.<br>• Trespassing on neighbouring properties (by workers) will be prohibited and the appropriate disciplinary action will be taken in the event of transgression. |
| **GBVH, SEA and SH** | • The Project Company and the O&M Company will conduct a GBVH/SEA/SH risk assessment in consultation with relevant stakeholders including women leaders and those working with young adolescent girls and boys. This will also include the identification of potential interventions and risk mitigation measures.<br>• The O&M Company will develop and implement a Project specific Gender Management Plan. This Plan will detail the list of unacceptable behaviour among workers, provisions for reporting, sanctions for perpetrators and available resources & support systems for the victims in accordance with Lender requirements.<br>• Awareness training will be mandatory for all Project workers regarding the GBVH/SEA/SH risks and the workers responsibilities and the legal consequences of being a perpetrator.<br>• Training will be provided to GBVH focal point on the risks of GBVH/SEA/SH and information provided on how to deal with any GBVH/SEA/SH related cases.<br>• The O&M Company will communicate the Gender Management Plan with community members and training will provide to the community members on the risks of GBVH/SEA/SH. Information will be provided on how to report and deal with any GBVH/SEA/SH related cases and the services that will be made available to offer support to any of the victims.<br>• Approach towards GBVH/SEA/SH prevention, mitigation and response will be survivor centered and ensure confidentiality, dignity and respect to them.<br>• The Project staff will be trained on how to preserve the safety of the people when interviewing them and collecting information about their experiences on GBVH/SEA/SH. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • The Project will provide essential services for survivors such as access to counselling services, support groups, legal support etc. at no cost to them.<br>• All determined cases of GBVH/SEA/SH will be referred to relevant legal entities in the Project area for further investigation and prosecution.<br>• The project grievance mechanism will be made available to project workers and community members and will ensure that survivors' information is confidential and kept anonymous.<br>• All cases relating to GBVH/SEA/SH will be documented and closed.<br>• The O&M Company will prepare and implement a GBVH/SEA & SH Prevention and Response Action Plan which will put necessary protocols and mechanisms to address the risks of SEA/SH and how to address any allegations that may arise in accordance with the World Bank Good Practice Note on Addressing SEA/SH in Investment Project Financing involving Major Civil Works[29]. |
| **Grievance Mechanism** | • The O&M Company will implement an appropriate system to allow external parties to raise grievances in regard to the Project.<br>• The Grievance Mechanism will be clearly defined, transparent and accessible to identified stakeholders.<br>• The grievance mechanism will be confidential and provide referral and support system for any workers reporting cases of GBVH. |
| **Human Rights Policy** | • In addition to adhering to the national human rights requirements, the O&M Company will develop a human rights policy. The policy will be in line with the UN Guiding Principles on Business and Human Rights[30] and it will:<br>• Be approved at the most senior level of the O&M Company.<br>• Informed by relevant internal and external expertise.<br>• Stipulate the O&M Company's human rights expectations of personnel, and suppliers directly linked to the operational phase of the project.<br>• Be publicly available and communicated internally and to the relevant stakeholders.<br>• Be reflected in the other policies and procedures to embed it throughout the operational phase activities. |

## 14.5 Monitoring

**Table 14-3 Community Health, Safety and Security Monitoring Measures**

| INDICATOR | SOURCE OF INFORMATION | FREQUENCY<br>CONSTRUCTION /OPERATION |
|---|---|---|
| Security incidences at the project site | Security/HSE personnel | Ongoing |

[29] Good practice Note on Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works (Second Edition, The World Bank)
[30] UNHR Guiding Principles on Business and Human Rights, 2021

| INDICATOR | SOURCE OF INFORMATION | FREQUENCY CONSTRUCTION /OPERATION |
|---|---|---|
| SEA/SH grievances, including time taken to handle grievance | Number of grievances handled and how many cases are referred to legal entities for redress. | Ongoing |
| Number of influx related grievances received | Grievance Management System | Quarterly / bi-yearly |
| Number of grievances closed out, average time for grievance processing and close out and trends, grievance topics | Grievance Management System | Quarterly / bi-yearly |
| Record of any conflict between community members since project inception and influx (related to the Project or project parties). Including any cases relating to employment, sexual harassment. | Complaints filed by community members or Project workers and number of worker sensitization and awareness campaigns undertaken. | Ongoing |
| Record of any communicable diseases on site that could pose a risk to the local communities | Project site clinic and HSE personnel | Ongoing |

# 15 LABOUR AND WORKING CONDITIONS

## 15.1 Applicable Requirements & Standards

### 15.1.1 National Requirements

**LABOUR AND WORKING CONDITIONS**

Pursuant to Article 35 of the Constitution of the Republic of Azerbaijan, labour is the basis of individual and public welfare. Every person has the right to freely choose an activity, profession, occupation, and place of work on the basis of their skills and abilities.

The Labour Code of the Republic of Azerbaijan (1999), as amended on 29-10-2021 is the main legislation in the Country that governs employment relationships between workers (employees) and employers. It also governs other legal relations between employees and employers and established minimum requirements in regards to labour rights of persons and the implementation of these rights.

The Labour Code authorises the following:

- 'Employment, social and economic rights of employees and employers in the sphere of labour relations on the basis of the appropriate legal norms and a minimum level of proper guarantees relating to said rights'.
- 'Employment, social and economic rights of employees and employers in the sphere of labour relations on the basis of the appropriate legal norms and a minimum level of proper guarantees relating to said rights'.
- 'Principles and procedures ensuring the right to employment, rest and work under safe and healthy conditions and to other basic human rights and freedoms as stipulated in Section Two of the Constitution of the Republic of Azerbaijan'.

The labour code also specifies:

- Rights to work, rest, work in safe and healthy conditions, and other basic rights and human freedom.
- Termination of employment relationships and the protection of the rights of participants of these relations according to the international treaties signed by the Azerbaijan Republic which is the International Labour Organization Conventions and other international precepts of law.

**HUMAN RIGHTS**

The rights of people are guaranteed by the Constitution of Azerbaijan under Chapter III 'Basic Rights and Liberties of a Person and Citizen' which lists the main principles of these rights. The constitution states that *"The state guarantees equality of rights and liberties of everyone, irrespective of race, nationality, religion, language, sex, origin, financial position, occupation,*

*political convictions, membership in political parties, trade unions and other public organizations. Rights and liberties of a person, citizen cannot be restricted due to race, nationality, religion, language, sex, origin, conviction, political and social belonging*."

Azerbaijan ratified the Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR) on 15 April 2002. Human right treaties ratified by Azerbaijan include (Treaty Body Database, 2020):

- Convention against Torture and Other Cruel Inhuman or Degrading Treatment or Punishment (ratified 16 August 1996);
- Optional Protocol of the Convention against Torture (ratified 28 January 2009);
- International Covenant on Civil and Political Rights (ratified 13 August 1992);
- Second Optional Protocol to the International Covenant on Civil and Political Rights aiming to the abolition of the death penalty (ratified 22 January 1999);
- Convention for the Protection of All Persons from Enforced Disappearance (signed 6 February 2007);
- Convention on the Elimination of All Forms of Discrimination against Women (ratified 10 July 1995);
- International Convention on the Elimination of All Forms of Racial Discrimination (ratified 16 August 1996);
- International Covenant on Economic, Social and Cultural Rights (ratified 13 August 1992);
- International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (ratified 11 January 1999);
- Convention on the Rights of the Child (ratified 13 August 1992);
- Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict (ratified 3 July 2002);
- Optional Protocol to the Convention on the Rights of the Child on the sale of children child prostitution and child pornography (ratified 3 July 2002); and
- Convention on the Rights of Persons with Disabilities (ratified 28 January 2009).

### 15.1.2 Lender Requirements

**ADB**

The Environmental Safeguard requirements necessitate the Borrower/client to, '*provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.*'

The ADB Social Protection Strategy requires client to promote efficient labour markets, diminish peoples exposure to risks and comply with core labour standards which includes: (a) freedom of association and the effective recognition of the right to collective bargaining, (b) the abolition of all forms of forced or compulsory labour, (c) the elimination of discrimination in respect of employment and occupation and (d) the elimination of child labour.

**AIIB**

ESS1 – Environmental and Social Assessment and Management: Point 8.1 outlines the need to consider worker health and safety in the impact assessment. Section F covers Labour and Working Conditions, including labour management relationships, child and forced labour,

**EBRD**

Labour and Working Conditions:

PR2 is applicable to Labour and Working Conditions and has the following key objectives:

- Respect and protect the fundamental principles and rights of workers;
- Promote the decent work agenda, including fair treatment, non-discrimination and equal opportunities of workers;
- Establish, maintain and improve a sound worker-management relationship;
- Promote compliance with any collective agreements to which the client is a party, national labour and employment laws;
- Protect and promote the safety and health of workers, especially by promoting safe and healthy working conditions; and
- Prevent the use of forced labour and child labour (as defined by the ILO) as it relates to project activities.

Concerning dedicated accommodation, compliance is required with:

- IFC & EBRD Workers Accommodation: Processes and Standards (2009).

Human Rights

According to EBRD's Environmental and Social Policy (2019), EBRD is committed to the respect of human rights in the Project they finance. EBRD is also guided by the International Bill of Human Rights and the eight core conventions of the International Labour Organization.

PR 1 states "*…it may be appropriate for the client to complement its environmental and social assessment with further studies focusing on specific risks and impacts such as human rights.*"

EBRD also requires the application of PR 5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement to be consistent *with the universal respect for, and observance of human rights and freedoms specifically the right to private property, adequate housing and to the continuous improvement of living conditions.*

*Directive 2003/88 / EC of the European Parliament and of the Council of 4 November 2003 concerning certain aspects of the organization of working time*

This Directive lays down minimum safety and health requirements for the organisation of working time. It applies to minimum periods of daily rest, weekly rest and annual leave, to breaks and maximum weekly working time and certain aspects of night work, shift work and pattern of work.

United Nations Guiding Principles on Business and Human Rights

In line with EP IV requirements, the United Nations Human Rights Guiding Principles (HRGP) apply to the Project. HRGP Section II on "The corporate responsibility to respect human rights" recognises that it is the responsibility of businesses and corporations to respect human rights. It is a global standard of expected conduct for all business enterprises wherever they operate. It exists independently of a states' ability and/or willingness to fulfil their human rights obligations and does not diminish those obligations. The Foundational principles to take into consideration are:

- Principle-11: Business enterprises should avoid infringing on the human rights of others and should address adverse human rights impacts with which they are involved.
- Principle-12: The responsibility of business enterprises to respect human rights refers to internationally recognized human rights – understood, at a minimum, as those expressed in the International Bill of Human Rights and the principles concerning fundamental rights set out in the International Labour Organization's Declaration on Fundamental Principles and Rights at Work
- Principle-13: The responsibility to respect human rights requires that business enterprises avoid causing or contributing to adverse human rights impacts through their activities, and address such impacts when they occur;
- Principle-14: The responsibility of business enterprises to respect human rights applies to all enterprises regardless of their size, sector, operational context, ownership and structure. Nevertheless, the scale and complexity of the means through which enterprises meet that responsibility may vary according to these factors and with the severity of the enterprise's adverse human rights impacts
- Principle-15: Business enterprises should have policies and processes appropriate to their size and circumstances in place, including:

The following Operational principles should also be taken into consideration.

- Principle-16: Policy commitment
- Principle-17 to 21: Human rights due diligence
- Principle-22: Remediation

**IFC**

IFC Performance Standard 2 relates to Labour and Working Conditions, in accordance with the Standard there is a requirement to align with the following conventions:

- ILO Convention 29 on Forced Labor;
- ILO Convention 87 on Freedom of Association and Protection of the Right to Organize;
- ILO Convention 98 on the Right to Organise and Collective Bargaining;
- ILO Convention 100 on Equal Remuneration;
- ILO Convention 105 on the Abolition of Forced Labor;
- ILO Convention 111 on Discrimination (Employment and Occupation);
- ILO Convention 138 on Minimum Age (of Employment);
- (Minimum age specified as 15 years)
- ILO Convention 182 on the Worst Forms of Child Labor;
- UN Convention on the Rights of the Child, Article 32.1; and
- UN Convention on the Protection of the Rights of all Migrant Workers and Members of their Families.

In regard to human rights:

- In line with EP IV requirements, the United Nations Human Rights Guiding Principles (HRGP) apply to the Project. HRGP II on "The corporate responsibility to respect human rights" recognises that it is the responsibility of businesses and corporations to respect human rights. It is a global standard of expected conduct for all business enterprises wherever they operate. It exists independently of a States' ability and/or willingness to fulfil their human rights obligations and does not diminish those obligations.

The IFC Guidance on GBVH in the Construction Sector is also relevant to Labour and Working Conditions.

## 15.2 Baseline Conditions

Any construction project will introduce health and safety risks associated with the use of plant machinery and construction processes. Risks can be severe depending on the type of activities required, materials used, and site conditions, for this Project typology the risks are relatively low, but still present.

For projects in isolated locations or where the local population or skill sets require an influx of people from other regions or countries consideration will need to be given associated with accommodation, welfare, sanitary provision, health care, hygiene, food, and potable water etc. The Project workforce will be accommodated in an accommodation camp, which will

align with national and Lender guidance (i.e., IFC EBRD Workers' accommodation: processes and standards, 2009).

## 15.3 Area of Influence

As different aspects carry differing spatial extents, the AOI varies considerably. The AoI is the area within which project activities, including workers' accommodation may affect workers and staff. The scope of influence for labour and working conditions impacts cover the footprint of the project activity areas, workers' accommodation area and working environment, as well as the supply chain.

## 15.4 Potential Impacts

### 15.4.1 Construction Phase

The nature of construction work means that construction workers (especially semi-skilled workers, who may have a lack of awareness of construction-related risks, or it may be their first experience in the region) can be exposed to certain working conditions that could potentially impact their workers' rights. Risks that construction workers may be exposed to include:

- Occupational health & safety risks;
- Forced labour;
- Child labour;
- Risks of GBVH, wage discrimination based on gender, employment benefits & guarantees etc.
- Lack of worker representation and restrictions on trade unions;
- Compulsory overtime and excessive working hours in the Project;
- Provision of inadequate accommodation facilities/places; and
- Lack of access to workers' grievance mechanism.

An assessment of these risks is as provided in the following sub-sections.

#### 15.4.1.1 Occupational Health & Safety Risks

Construction activities will include the transport and delivery of equipment and materials, use of heavy machinery, excavation works on the site (primarily for ancillary and control buildings), handling of chemicals (noted to be minimal on this Project), works undertaken at height (also noted to be minimal on this Project), etc., which all can introduce significant risk to the occupational health and safety for the associated work force. In particular, risks are more likely to be apparent for those who are not familiar with the type of works undertaken and/or the

associated hazards. In addition, high-voltage equipment, such as transformers and transmission lines, pose a risk of electrocution if they are tampered with or if safety measures fail and are also a fire risk if there is malfunction or damage to equipment. Azereneji's Scoping Report states the line will be built in accordance with internationally recognised design and safety standards.

Risks will need to be covered in the Occupational Health and Safety Plan.

Besides, there is a potential "language barrier" risk in the projects employs migrant workers. This risk can arise from:

- Potential for limited knowledge or understanding of local and international health and safety standards/requirements;
- Lack of translation on Project-specific H&S materials;
- Inadequate communication and language barriers during training and work; and
- Desire by migrant workers to work hard and not create problems and/or conflicts may lead to construction companies managing health and safety without being questioned or without issues being raised.

Depending on the construction techniques used and the level of control the EPC Contractor and affiliated subcontractor apply, the types of risks attributable to a construction site may differ tremendously. Therefore, the EPC Contractor and associated subcontractors will establish that health and safety hazards are fully considered as part of their chosen construction methods and appropriately mitigated. Additionally, this would require implementing on-site procedures to ensure that risks are adequately addressed and that workers are trained to perform their duties safely. Occupational health and safety have not been further assessed in this ESIA since it is a risk rather than a potential effect, and it is not within the scope of this ESIA. An Occupational Health and Safety Plan will be prepared by the EPC Contractor.

Effective risk assessment, establishing and implementing the occupational health and safety plan, requirements such as 'Permit to Work', and developing and implementing emergency preparedness and response plan for reasonably foreseeable site-based emergencies will all be used to manage/mitigate the health and safety risks to the site workforce.

#### 15.4.1.2 Forced Labour

According to Article 35 of the Constitution of Azerbaijan, everyone has the right to freely choose to work on the basis of the type of activity, profession, occupation and place of employment. Article 9 of the Azerbaijan Labour Code states that workers have the right to sign employment contract freely choosing type of labour activity and place of employment according to qualification, specialty and profession. It also states that workers have the right to work in safe and healthy conditions and to request for change of conditions of the

employment contract or its termination. Article 13 states that foreigner and stateless persons have all the labour rights on an equal basis with citizens of Azerbaijan.

Labour exploitation on construction sites unfortunately has become a reality in some parts of the world. Inequalities in income, education and opportunities has led to opportunistic immoral practices with labourers and site staff suffering as a consequence of the exploitation. Forced labour may potentially occur within the workforce where people are forced to work, or where their recruitment/intermediary agencies put them under financial debt by requiring payment of recruitment fee etc. upon their start of work. In addition, foreign workers could potentially have their passport confiscated which would prevent them from leaving their jobs and impede their freedom of movement.

In order to mitigate this potential impact, the Project Company will ensure that the EPC Contractor is contractually obligated to recruit workers through registered recruitment agencies, and to undertake audits and inspections on the suppliers.

#### 15.4.1.3 Child Labour

The Project's construction phase will introduce a multiplicity of work openings, some of which will require minimum skill and wages. Jobs of this nature, particularly those offered on an informal basis are likely to attract and qualify unemployed and out-of-school minors (i.e., individuals below the age of 18 years). According to PR2, young people below the age of 18 years should not be employed for hazardous work. This is in line with Azerbaijan (Article 250 of Labour Code) and ILO requirements

There is a potential for child labour to be present within supply chain companies to be used by the EPC Contractor and their subcontractors. In order to assess this risk, Masdar and the EPC Contractor will evaluate potential supply chain risks by reviewing the way in which supplier are screened, audited and monitored.

#### 15.4.1.4 Supply Chain Risks

The engagement of suppliers will present potential risks relating to labour and working conditions such as:

- Child labour, forced labour, gender- based violence and sexual abuse, exploitation and harassment
- Lack of written contracts for workers;
- Labour rights violations including poor working conditions and poor terms of agreement for female employees, overtime work without pay etc;
- Health & safety issues for workers and local communities;
- Risks associated with the use of migrant labour and ethnic minorities;

- Risks to freedom of movement e.g. being able to leave worker accommodation; and
- Impact on the environment relating to pollution of water supplies, soil and air.

Supply chain processes and potential risks are assessed outside of this ESIA process by Masdar. Masdar conducts in-depth due diligence on every entity that it works with and ensures that suppliers and contractors adhere to TAQA's Code of Ethics and Business Code of Conduct. In addition to including the necessary contractual protections/covenants in the EPC contract and supply agreements, Masdar also has a supply chain management system that includes the relevant policies (e.g., a sourcing policy, a supplier code of conduct), responsibilities, practices, monitoring procedures and resources for developing, implementing, achieving, reviewing and maintaining compliance.

A Subcontractor and Supplier Management Plan is to be prepared with the objective that ensuring that subcontractors and suppliers comply with relevant HSSE requirements.

### 15.4.1.5 Potential Gender Risks Associated with the Project

#### GENDER BASED VIOLENCE & HARASSMENT

During the construction phase, workers will be vulnerable to various forms of harassment, exploitation and abuse, aggravated by a traditionally male working environment. GBVH/SEA/SH may be committed by co-workers or construction supervisors and can be attributed to gender stereotypes about female construction workers. In addition, income earning opportunities for women through direct employment during the construction phase or through indirect employment (workers' employment) may have the potential to increase household tensions and expose women to harassment and violence in their homes or communities. This is because some men may feel threatened when the women in their lives are more economically empowered and independent.

Some of the male workers who will be transporting Project machinery, equipment and goods will also be involved in long distance travel which in some cases will be between different countries. There is a risk that they can also be involved in GBVH/SEA/SH on the routes they use and at track stops associated with the Project even if it is outside the Project boundary.

#### GBVH/SEA/SH IN ACCOMMODATION FACILITIES

There is a GBVH/SEA/SH risk for those living within the designated accommodation areas and using common areas such as the cafeterias, parks, recreation grounds etc.

In order to address such risks, the EPC Contractor will be required to provide safeguards such as options for locating women accommodation facilities in a separate compound from the men, provision of locks on doors, separate sanitation facilities, adequate lighting etc. In

addition, since majority of the population in Azerbaijan is Muslim, the EPC Contractor will provide separate religious and social facilities for men and women.

#### WAGE DISCRIMINATION BASED ON GENDER

In 2006, the Azeri Parliament passed a law on the 'Guarantee of Gender Equality (men and women). According to the Law, women and men are granted equal rights and responsibilities in respect of recruitment, promotion and wage remuneration (Articles 7–9). Further, in an effort to promote wage parity between men and women, the government of Azerbaijan ratified ILO's Convention No. 100 (Equal Renumeration for Men and Women Workers for Work of Equal Value). However, the issue remains that women tend to be concentrated in low-status sectors which leads to low-wage jobs. In addition, the construction industry is predominantly male, and women may only be offered low-paying jobs such as cooks, cleaners etc.

As such, the EPC Contractor will be required to provide equal access to recruitment opportunities for men and women based on their qualifications, and also provide equal salaries. In addition, a policy of equal pay will be included in the EPC Contractor's HR Policy or as a stand-alone.

#### DISCRIMINATION BASED ON EMPLOYMENT BENEFITS & GUARANTEES

Traditional norms in Azerbaijan associate women roles to caregivers, especially in rural areas. Women who intend to pursue a career are still expected to balance between their job obligations and family life which ultimately affect their career paths. In addition, employers may potentially prefer to employ men over women because most of the employment family benefits and guarantees are associated to women. For instance, according to Article 125 of the Labour Code women employees are entitled to paid maternity leave for a period of 126 days. This includes 70 days given before the expected birth of the child and 56 days after the birth. In case of abnormal or multiple births, women will be granted 70 days leave after childbirth. Depending on the industry the women work, the total number of maternity leave day and the leave days before childbirth and after childbirth varies. Although men may be eligible for partially paid social leave as a single parent or when directly caring for a child, childcare (especially in rural areas) is still seen as a woman's job.

As such, women of childbearing age may face potential discrimination during the recruitment process because the EPC Contractor may want to avoid providing the benefits and guarantees relating to maternity or childcare. To mitigate this, the EPC Contractor will be required to include the benefits and guarantees for both men and women in the HR policy with a clear commitment to non-discrimination during the recruitment process.

#### 15.4.1.6 Lack of Worker Representation and Restrictions on Trade Unions

Workers (both local & migrant workers) shall be allowed to be involved in labour unions, public associations, organisations or labour collective in accordance with Article 9(p) and Article 25 of the Labour Code. The EPC Contactor and associated subcontractors will not prevent workers from forming associations or joining trade unions depending on their preferences.

In addition, collective of bargaining and freedom of association is allowed in Azerbaijan under Law No. 792 of 24 February 1994 on Trade Unions. The law allows organisation of unions and their fundamental rights including the right to conclude collective agreements and the right to hold mass events.

In order to ensure that the right to form and/or join trade unions or elect representatives is guaranteed, the Project Company and the EPC Contractor will include a clause in their Human Resources Policies and Procedures that allow workers to form, or join a union and/or elect worker representatives without discrimination or risk of retaliation. It will also be permissible for workers to raise collective grievances via the Project's grievance mechanism.

#### 15.4.1.7 Freedom of Movement

Workers (both local & migrant workers) will not be restricted to the accommodation camps and will be allowed to move freely within the community and travel to outside the project area, region and country. However, in order to avoid cultural or religious conflicts with the local communities due to alternative ideals, behaviour and cultural practices that some of the workers might have, adequate training (cultural sensitisation training) will be provided to the non-local workers prior to interactions with the local community.

#### 15.4.1.8 Compulsory Overtime and Excessive Working Hours

Article 9, 89 & 90 of the Labour Code states that workers have the right to work in the working hours established by law which is no more than 8 hours a day and 40 hours per week with a working week set at five working days and two days off. In certain industries, the employer may impose a six-day working week; in such situations, the daily working time limits may not exceed 7 hours (if the weekly total is 40 hours), 6 hours (if the weekly total is 36 hours), or 4 hours (if the weekly total is 24 hours) a day.

In addition, according to Article 99 overtime work may only be allowed with the consent of the employee. The amount of salary/wages/remuneration paid cannot be below the minimum amount established by law.

The Project Company and EPC Contractor will ensure that all workers, regardless of rank, gender or religious affiliation etc. are paid a fair wage and equal remuneration for work of

equal value without discrimination. In addition, remuneration must be enough for workers to be able to live a decent life.

Job security for construction workers will only be for the period when construction is undertaken, and workers will be employed on contractual basis and as such no retrenchment is expected to occur. The Project Company and the EPC Contractor will ensure that all workers are informed on the nature of their contracts, duration so that they understand the start and end period.

#### 15.4.1.9 Provision of Inadequate Accommodation Facilities

The EPC Contractor will provide accommodation facilities to the Project workforce and it is noted that there will be requirements for workers to be accommodated in alignment with the benchmarks outlined in the IFC & EBRD Workers Accommodation: Processes & Standards (2009).

Due to the remote location of the Project site, there is a risk that accommodation facilities may be inadequate vs. the aforementioned guidelines. Key risk areas are likely to be during the commencement of construction where accommodation camps may not be fully established and all amenities may not be in place at the camp(s). This has the potential to include a lack of relevant facilities, welfare provisions on-site such as clean drinking water, hygienic and ample toilet facilities, hand basins (with soaps/hand wash), temporary rest areas, food and other amenities necessary to the workers. In the event that there are female workers, there are also risks that accommodation areas may not be suitably equipped to cater for separate sex living and welfare provisions, which will need to be ensured.

In order to avoid such a scenario and to ensure the wellbeing of all staff associated with the Project, the EPC Contractor and associated sub-contractors will be required to plan for necessary provisions relative to the requirements of the workforce. This includes carefully safeguarding risks through policy and internal processes (including monitoring and audit), the provision of appropriate labour accommodation plans and mechanism for inspections and corrective actions.

#### 15.4.1.10 Lack of Access to Workers' Grievance Mechanism

Workers contracted by the EPC Contractor and sub-contractors may not be able to freely express their opinions or seek remedy. This may be because they do not know that a grievance mechanism is available to them, how it works, or they are afraid of retribution.

The workforce will be informed about the Workers' Grievance Mechanism during their site induction training, in employee handbooks and on posters across the site and in accommodation places. The implementation of the workforce Grievance Mechanism will be in accordance with the Project-specific SEP.

In order for the workers' grievance mechanism to be successfully implemented, it will be necessary to ensure that competent and trained staff are in place who can fully implement provisions, whilst ensuring compliance with the procedures and maintaining full integrity and privacy to the grievant.

## 15.4.2 Operation Phase

### 15.4.2.1 Occupational Health and Safety

The risk associated with the operational phase of the project is anticipated to be significantly lower than during the construction phase due to reduced site activity and reduced requirements for heavy plant and machinery.

There will be occupational health and safety risks attributable to the operational phase associated with maintenance and inspection requirements, these activities inspection will also require the use of site vehicles and equipment/materials that may pose risks to human health and safety.

With regards to the operation of the Project, the O&M Company will develop a Project-specific Occupational Health and Safety Plan and Procedure to manage potential risks.

A structured Grievance Redressal Mechanism will be implemented at the plant level in multiple languages anonymously (online and hardcopy) so that workers have access to express their concerns. The human resources department will be responsible for implementing the GRM for the facility.

The severity and likelihood of risks during the operational phase will be dependent on the frequency and requirements for planned and unplanned maintenance. The operation and maintenance team will ensure that a robust plan is in place to appropriately manage these risks.

### 15.4.2.2 Labour Risks to Workers

#### FORCED LABOUR AND CHILD LABOUR

As the vast majority of staff will be direct employees of the Project Company or O&M Company the potential risks associated with worker exploitation are expected to be limited due to consistent processes in place as part of the respective HR management systems, assuming they are appropriately designed and have adequate resources.

However, where there are agency/contract staff the risks of exploitation (particularly forced and child labour) may be more prevalent.

#### PROVISION OF INADEQUATE ACCOMMODATION FACILITIES/FACILITIES

No long-term accommodation requirements are anticipated for the operational phase of the Project. However, as with construction, operational activities will need to plan for and enforce just and fair treatment of operation and maintenance staff (including any engaged sub-contractors) in accordance with lender requirements and relevant Azerbaijan national requirements. Allowance will also need to be made for site staff welfare facilities including sanitation, rest, recreational and medical facilities.

#### 15.4.2.3 Potential Gender Risks

Even though there will be reduced workforce during the operational phase of the Project, the risk of gender issues relating to GBHV/SEA/SH, wage discrimination and access to employment benefits etc will remain. However, as with construction, operational activities will need to plan for and enforce just and fair treatment of operation and maintenance staff (including any engaged sub-contractors) in accordance with lender requirements and relevant Azerbaijan national requirements. Gender needs will be considered for welfare facilities including sanitation, rest, recreational and medical facilities. All the mitigation and management for gender risks during the construction phase will also be applicable for the operational phase of the project. In addition, the O&M Company will also be required to have a HR policy with clear provisions for non-discrimination, code-of conduct and a GBVH policy.

## 15.5 Mitigation and Management Measures

**Table 15-1 Labour and Working Conditions Mitigation & Management Measures – Construction**

| Potential Impact | Mitigation and Management Measures |
|---|---|
| **All Impacts** | • The Project Company and EPC Contractor will ensure that the following plans/policies are prepared and implemented.<br>- Occupational Health and Safety Plan (Construction Phase)<br>- Emergency Preparedness and Response Plan<br>- Labour Management Plan<br>- Human Resource Policies & Procedures<br>- Workers' Accommodation/Housing Plan<br>- Worker's Grievance Mechanism Procedure<br>- Material Handling and Storage Procedure<br>- Security Management Plan<br>- Human Rights Policy<br>- Gender/GBVH Policy<br>- Worker Code of Conduct<br>- SEA & SH Prevention Policy & Procedure<br>- GBVH/SEA & SH Prevention and Response Action Plan<br>• The workforce must have the right to work in the country and be registered. Foreign workforce must have valid work permits and be registered in the formal system. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| **Occupational Health and Safety** | • Workers will be provided with a safe and healthy work environment, taking into account inherent risks and specific classes of hazards associated with the project.<br>• PPE will be provided to all workers and ensure the workers are using proper and timely manner.<br>• The EPC Contractor will implement and maintain an OHS management system taking into account specific risks associated with the project.<br>• The EPC Contractor will provide the occupational health and safety training to all workers including refresher training.<br>• The EPC Contractor will be responsible for ensuring that all affiliated sub-contractors comply with the OHS management system. The OHS management system will be in-line with recognised international good practice and as a minimum, this plan will include:<br>- Means of identifying and minimising, so far as reasonably practicable, the causes of potential H&S hazards to workers.<br>- Provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances.<br>- Provision of appropriate equipment to minimise risks, and requiring and enforcing its use.<br>- Training of workers, and provision of appropriate incentives for them to use and comply with H&S procedures and protective equipment.<br>- Documentation and reporting of occupational accidents, diseases and incidents.<br>- Emergency prevention, preparedness and response arrangements<br>• The EPC Contractor will conduct regular (planned and unplanned) inspections of their sub-contractors to ensure project activities are in line with occupational health and safety requirements. |
| **Forced Labour** | • The Project Company and EPC Contractor will develop a Project-specific Human Rights/ Forced Labour policy or policy statement (that may be incorporated into an overarching HR/E&S Policy). The Policy will underscore the definition and prohibition of various forms of forced labour and human trafficking. Practices constituting forced labour (e.g. deceptive recruitment, confiscation of personal belongings, withholding of accrued pay and illegitimate overtime requirements) will be strictly proscribed.<br>• The EPC Contractor will implement a zero-tolerance policy for forced labour incidents.<br>• The EPC Contractor will not employ forced labour, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.<br>• The EPC Contractor will ensure that its Human Resources Department follows the Recruitment Plan and related procedures for the employment of project workers on fair, voluntary and mutually agreed employment terms.<br>• The EPC Contractor will only engage recruitment agencies that have demonstrable processes in place to avoid child or forced labour. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | • The EPC Contractor will undertake periodic labour management inspections and audits of its sub-contractors. Where direct observations, audited records or third-party reports raise reasonable doubt as to the presence of forced labour within the EPC Contractor's sub-contracted workforce, the EPC Contractor will perform a dedicated audit to identify non-compliance. if any non-compliance is found, immediate remedial action will be taken, and a close-out report will be submitted to the EPC Contractor. |
| **Child Labour** | • The Project Company and EPC Contractor will incorporate a Child Labour statement into an overarching HR/E&S Policy. The statement will underscore the definition and prohibition of child labour and hazardous child labour, taking into account both national regulations and binding international standards (e.g., standards of the IFC, ILO and UNHCHR). The Policy will be followed by all employees (including the EPC Contractor's sub-contractors) and staff regardless of whether they are working on a full-time, part-time or temporarily basis.<br>• The Project Company and EPC Contractor will implement a zero-tolerance policy for child labour.<br>• The EPC Contractor will comply with all relevant national laws, lenders requirements and ILO provisions related to the employment of minors.<br>• The EPC Contractor will devise a management procedure to ensure that all workers are above the minimum legal age of employment at the time of hiring. This will include the verification of official personal registration documents i.e., national ID, passport etc.<br>• The EPC Contractor will ensure that recruitment of direct sub-contractors and suppliers will follow official procedures, which will include related due diligence and subsequent contract agreements. Any directly engaged sub-contractors and suppliers will abide by its child labour policy statements and related procedures should be ensured by EPC Contractor. Contract agreements will include clauses on hazardous child labour proscription requirements and binding implications for non-compliance (e.g., penalties, corrective actions, contract termination etc.).<br>• The EPC Contractor should audit and examine its subcontractors' labour management practices on a regular basis. All the records will be kept, and inspection results will be shared during the environmental and social monitoring meetings with the Project Company.<br>• Labour management audits for direct sub-contractors will include induction and refresher trainings on regulatory and compliance requirements for child labour.<br>• The Project Company and EPC Contractor will monitor the primary supply chain companies on an ongoing basis in order to identify any significant changes in its supply chain and if new risks or incidents of child and/or forced labour are identified, the Project Company and EPC Contractor will take appropriate steps to remedy them. |
| **Lack of Worker Representation & Restrictions on Trade Unions** | • Human Resource Policies will include the ability of workers to join a Trade Union; as well as ensure collective bargaining rights of workers.<br>• Trade unions will be permitted to function freely subject only to limitations that are in line with the Azerbaijan Labour Code and the International Human Right standards. |
| **Compulsory Overtime, Excessive Hours & Job Security** | • The EPC Contractor will document and communicate to all workers their working conditions and terms of employment including their entitlement to wages, hours of work, overtime arrangements and |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | overtime compensation, and any benefits (such as leave for illness, maternity/paternity, or holiday).<br>• The workers will be informed and understand the nature of their contracts, duration, wages, benefits, leave days and other conditions of work offered will, overall, be comparable to those offered by equivalent employers in the relevant region of that country/region and sector concerned.<br>• The wages paid to all the workers (skilled and unskilled) will be enough to guarantee a living wage for all the workers (i.e. adequate food, clothing and housing).<br>• Workers will be provided equal remuneration for work of equal value.<br>• Workers will receive their pay on time and in full for ordinary and overtime hours, as well as paid leave.<br>• Wages will be paid regularly based on the agreed pay-day and adequate notice provided where exceptional circumstances necessitate change in the regular pay day.<br>• Where required, workers will be provided with the option of flexible work schedule in order to manage personal obligations while adequately fulfilling their employment duties. |
| **Provision of Inadequate Accommodation Facilities/Places** | • Worker accommodation areas will be managed in accordance with the EBRD and IFC Workers' Accommodation: Processes and Standards.<br>• A Worker Accommodation Plan will be developed and implemented by EPC Contractor.<br>• During the time workers spend in the workers' accommodation, project workers should encourage to enjoy their fundamental human rights and freedom of association in particular. Workers' accommodation arrangements should not restrict workers' rights and freedoms.<br>• Housing standards should include special attention to following (but limited):<br>- minimum space allocated per person or per family (floor area; cubic volume; or size and number of rooms)<br>- supply of safe water in the workers' dwelling in such quantities as to provide for all personal and household uses<br>- adequate sewage and garbage disposal systems appropriate protection against heat, cold, damp, noise, fire, and disease-carrying animals, and, in particular, insects<br>- adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting<br>- a minimum degree of privacy both between individual persons within the household and for the members of the household against undue disturbance by external factors<br>• Where accommodations are provided for single workers or workers separated from their families, additional housing standards should be considered:<br>- a separate bed for each worker<br>- separate gender accommodation<br>- adequate sanitary conveniences<br>- common dining rooms, canteens, rest and recreation rooms and health facilities, where not otherwise available in the community.<br>• The EPC Contractor will audit their and the sub-contractors' welfare conditions (including standards of apartments/accommodation, |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | recruitment practices, gender risks related practices, sanitary and hygienic conditions, canteen area etc.) of the Project to ensure that project requirement are in place. |
| **Gender Risk - Gender Based Violence and Harassment** | • The workers will be provided with information regarding worker code of conduct in local languages as part of their employment contract which will include provisions for reporting, investigations, termination and disciplinary action against those who perpetrate gender violence and harassment.<br>• Project Company will develop a "GBVH policy" (or it can be part of the overarching E&S Policy) and disclose it to the EPC Contractor and its employees.<br>• The EPC Contractor will develop and implement a Project specific GBVH Policy, or agree to align with the Project Company policy.<br>• The EPC Contractor will conduct mandatory regular training and awareness raising for the workforce about gender-based violence and harassment towards local community members and their colleagues especially women and the availability of a grievance mechanism to report any GBVH/SEA/SH cases.<br>• Training will be provided to GBVH focal point on the risks of GBVH/SEA/SH and information provided on how to deal with any GBVH/SEA/SH related cases.<br>• The workers will be made aware of the laws and regulations that make sexual harassment and gender-based violence a punishable offence which is prosecuted.<br>• Ensure inclusion of a balanced representation of women on the health, safety and environmental team who will be easily relatable and approachable to female workers.<br>• The Project personnel in charge of receiving GBVH/SEA/SH grievances will be provided with appropriate training on how to handle complaints. It is recommended that the personnel including training staff are trained in coordination with any GBVH organisations working in the Project area where available.<br>• Female workers will be included in the grievance redress committee to help female workers and host community female members raise their grievances.<br>• The EPC Contractor will work to identify a suitable labour pool locally in order to minimize the need for bringing large number of workers from other regions or countries. This could also help the EPC Contractor in cutting cost associated with provision of accommodation facilities if the majority of the workers are sourced locally.<br>• Provision of opportunities for the workers to regularly return to their families who may be located far from the Project site.<br>• The EPC Contractor will provide opportunities for workers to have access to entertainment opportunities away from the host communities.<br>• The EPC Contractor will allow submission and investigation of anonymous sexual harassment complaints by workers and host community members and protect the confidentiality of the complainants.<br>• The EPC Contractor will work in close coordination with the local authorities in investigating any complaints relating to gender violence and harassment in the host communities where it relates to Project workers. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| **Gender Risk - GBVH/SEA/SH in Accommodation Facilities** | • The EPC will provide safe, secure and separate accommodation facilities/housing and sanitary facilities for the male and female workers (lockable sanitary facilities will be mandatory for women).<br>• The EPC Contractor will provide separate social facilities for the men and women.<br>• Worker accommodation areas will be managed in accordance with the EBRD and IFC Workers' Accommodation: Processes and Standards[31]. |
| **Gender Risk - Wage discrimination based on Gender** | • The EPC Contractor to provide access to recruitment opportunities for women based on their qualifications.<br>• The EPC Contractor will implement an equal wage policy for women employees, and this policy will regularly be monitored.<br>• Women will be provided equal remuneration as their male counterparts for work of equal value. |
| **Gender Risk- Discrimination based on employment benefits & Guarantees** | • The EPC Contractor will include the benefits and guarantees for both men and women in the HR policy with a clear commitment to non-discrimination during the recruitment process.<br>• EPC Contractor to improve employment opportunities by developing guidelines to ensure that discrimination against women on the basis of their marital or reproductive status is avoided.<br>• The EPC Contractor will implement a zero-tolerance process for discrimination against women. |
| **Grievance Mechanism** | • All project workers will have access to a grievance mechanism in accordance with the Project SEP in order to make any complaints regarding noise during the construction phase.<br>• The Project Company and EPC Contractor will develop and implement a project-specific Workers' Grievance Management Procedure.<br>• In accordance with the Project SEP, all grievances will be recorded in a form of register.<br>• All grievances will be investigated and close-out in a timely manner.<br>• Female workers will be included in the grievance redress committee to help female workers and host community female members raise their grievances.<br>• A second line of confidential reporting shall be made available for sensitive topics including GBVH, retaliation, harassment separate from the project complaint mechanism. |
| **Human Rights Policy** | In addition to adhering to the national human rights requirements, EPC Contractor will develop a human rights policy. The policy will be in line with the UN Guiding Principles on Business and Human Rights and will:<br>• Be approved at the most senior level of the company.<br>• Informed by relevant internal and external expertise.<br>• Stipulate the EPC's human rights expectations of personnel, local communities, sub-contractors and other suppliers directly linked to the construction of the project.<br>• Be publicly available and communicated internally and to the relevant stakeholders.<br>• Be reflected in the other policies and procedures to embed it throughout their construction phase activities. |

[31] Workers' accommodation: process and standard (A guidance note by IFC and EBRD)

**Table 15-2 Workers' Condition & Occupational Health and Safety Mitigation & Management Measures – Operational Phase**

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| **All Impacts** | The Project Company & O&M Company will ensure that the following plans/procedures/policies are in prepared and implemented:<br>- Occupational Health and Safety (Operational Phase including Maintenance Works)<br>- Emergency Preparedness and Response Plan<br>- Stakeholder Engagement Plan (including implementation of the Grievance Mechanism) (*Note: Being prepared in parallel to ESIA stage for the Project, to be implemented by the Project Company, EPC Contractor and O&M Company)*<br>- Operational Labour Code of Conduct<br>- Grievance Mechanism Procedure<br>- Human Resources Policies & Procedures (including recruitment matters)<br>- Inspection, Audit Plan and Procedure (including health & safety & security, labour inspections, forced labour, child labour, recruitments process, gender risks related practices,<br>- Waste Management Procedure<br>- Hazardous Material Handling Plan<br>- Security Plan<br>- Human Rights Policy<br>- Gender/GBVH Policy<br>- SEA & SH Prevention Policy & Procedure |
| **Occupational Health and Safety** | • Workers will be provided with a safe and healthy work environment, taking into account inherent risks and specific classes of hazards associated with the project.<br>• The O&M Company will implement and maintain an OHS management system specific to the operational phase taking into account specific risks associated with the project, legal requirements and duty of care.<br>• Personnel Protective Equipment (PPE) and chemical-resistant clothing (to avoid exposure of skin or eyes to corrosive and/or polluted solids, liquids, gases or vapours) will be provided to all workers and ensure the workers are using proper and timely manner.<br>• The O&M Company will ensure that adequately rated equipment such as hoisting/lifting equipment, tool bags and power tools are given to O&M personnel.<br>• The O&M Company will be responsible for ensuring that all affiliated sub-contractors comply with the OHS management system. The OHS management system will be in-line with recognised international best practice and as a minimum, this plan will include:<br>- Means of identifying and minimising, so far as reasonably practicable, the causes of potential H&S hazards to workers.<br>- Provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances.<br>- Provision of appropriate equipment to minimise risks, and requiring and enforcing its use. |

| POTENTIAL IMPACT | MITIGATION AND MANAGEMENT MEASURES |
|---|---|
| | - Training of workers, and provision of appropriate incentives for them to use and comply with H&S procedures and protective equipment.<br>- Documentation and reporting of occupational accidents, diseases and incidents.<br>- Emergency prevention, preparedness and response measures |
| **Forced Labour** | • The O&M Company will not employ forced labour, which consists of any work or service not voluntarily performed that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.<br>• The O&M Company will not make employment decisions on the basis of personal characteristics, such as gender, race, nationality, ethnic origin, religion or belief, disability, age or sexual orientation, unrelated to inherent job requirements.<br>• Employment relationship will be on the principle of equal opportunity and fair treatment and will not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment including provisions for maternity/paternity leave, accommodation, access to training, promotion, termination of employment or retirement, and discipline. |
| **Child Labour** | • The O&M Company will develop a "Child Labour Policy" (or policy statement) (that may be incorporated into an overarching HR/E&S Policy. The Policy will underscore the definition and prohibition of child labour and hazardous child labour, taking into account both national regulations and binding international standards (e.g., standards of the IFC, ILO and UNHCHR).<br>• The O&M Company will implement a zero-tolerance policy for child labour incidents.<br>• The O&M Company will comply with all relevant national laws, lenders requirements and ILO provisions related to the employment of minors.<br>• The Project Company will conduct periodic labour audits of the O&M Company. |
| **Wages, working hours, right to rest, benefits, and retrenchment** | • Wages, benefits, leave days and other conditions of work offered will, overall, be comparable to those offered by equivalent employers in the relevant region of that country/region and sector concerned. The wages to all the workers including to any unskilled workers will be enough to constitute for a living wage. |
| **Gender Risk- Gender Based Violence and Harassment** | • The operational workers will be provided with information regarding worker code of conduct in local languages as part of their employment contract which will include provisions for reporting GBVH (either in person or anonymously), investigation procedure, termination and disciplinary action against those who perpetrate gender violence and harassment.<br>• The O&M Company will develop and implement a Project specific GBVH Policy detailing the list of unacceptable behaviour among workers, provisions for reporting, sanctions for perpetrators and available resources & support systems for the victims in accordance with lenders and national requirements.<br>• The O&M Company will conduct mandatory regular training and awareness raising for the workforce about gender-based violence |

| Potential Impact | Mitigation and Management Measures |
|---|---|
| | and harassment towards local community members and colleagues.<br>• The workers will be made aware of the laws and regulations that make sexual harassment and gender-based violence a punishable offence which is prosecuted.<br>• The O&M Company will allow submission and investigation of anonymous sexual harassment complaints by workers and host community members and protect the confidentiality of the complainants.<br>• The O&M Company will work in close coordination with the local authorities in investigating any complaints relating to gender violence and harassment in the host communities where it relates to Project workers.<br>• The O&M's HR policy will include GBVH statement applicable to all employees and sub-contractors. |
| **Grievance Mechanism** | • The O&M Company will develop and implement a project-specific Operator Workers' Grievance Management Procedure.<br>• Operator workers will be provided with access to the grievance mechanism in line with the project specific SEP.<br>• In accordance with the Project SEP, all grievances will be recorded in a form of register.<br>• All grievances will be investigated and close-out in a timely manner.<br>• A second line of confidential reporting shall be made available for sensitive topics including GBVH, retaliation, harassment separate from the project complaint mechanism. |
| **Human Rights Policy** | In addition to adhering to the national human rights requirements, the Project Company / the O&M Company will develop a human rights policy. The policy will be in line with the UN Guiding Principles on Business and Human Rights and will be:<br>• Be approved at the most senior level of the company.<br>• Informed by relevant internal and external expertise.<br>• Stipulate the O&M's human rights expectations of personnel, local communities and other suppliers directly linked to the operational phase of the Project.<br>• Be publicly available and communicated internally and to the relevant stakeholders.<br>• Be reflected in the other policies and procedures to embed it throughout the operational phase activities. |

## 15.6 Monitoring

**Table 15-3 Labour and Working Conditions Key Monitoring indicators**

| Monitoring | Parameter | Frequency & Durations | Monitoring Locations |
|---|---|---|---|
| **Construction & Operations** | | | |
| Worker Contracts & HR | Records of contracts, payments, receipt of benefits, leave | On-going | For all Project workers (direct staff) and oversight of sub-contractor staff |

| MONITORING | PARAMETER | FREQUENCY & DURATIONS | MONITORING LOCATIONS |
|---|---|---|---|
| | entitlements, retrenchment etc. | | dedicated to the project |
| Women employed in the Project | Number of women employed in the project including their rank and renumeration compared to men occupying the same positions. | On-going | For all female Project personnel including those employed by the sub-contractors. |
| Worker Welfare | Sanitation Facilities, Office Spaces, Welfare and Rest Areas | On-going | At all such facilities on-site |
| Labour and Living Conditions | Inspection/internal audit of worker accommodation facilities vs. IFC & EBRD standards | Monthly | All accommodation facilities provided to direct and full time sub-contracted labour. |

# 16 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Volume 3 of this ESIA package is a Framework for E&S Management which is intended to guide the Project parties in establishing structures for the management of E&S risks, impacts, opportunities and compliance. The framework outlines the institutional arrangements and management programmes that will be used to structure the respective construction and operation phase HSSE-Management System (MS). Masdar has developed a template HSSE MS in line with GIIP and IFI requirements.

The environmental and social mitigation measures and monitoring requirements set out in the tables for each baseline topic in this ESIA will provide the basis for the ESMPs which will be developed in accordance with the E&S management framework in Volume 3 and the HSSE-MS. In addition, a Biodiversity Management Plan is to be developed prior to any works commencing on the ground.

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