

# Bilasuvar 445 MW<sub>ac</sub> Solar PV Azerbaijan

## Environmental and Social Impact Assessment – **Volume 1: Non-Technical Summary**



October 2024

## DOCUMENT INFORMATION

|                      |  |
|----------------------|--|
| PROJECT NAME         | Bilasuvvar 445 MW <sub>ac</sub> Solar PV                                   |
| 5Cs PROJECT NUMBER   | 2305/007   |
| DOCUMENT TITLE       | Environmental & Social Impact Assessment – Volume 1: Non-Technical Summary |
| CLIENT               | Abu Dhabi Future Energy Company PJSC – Masdar<br>SOCAR Green LLC           |
| 5Cs PROJECT MANAGER  | Barney Chesher   |
| 5Cs PROJECT DIRECTOR | Ken Wade   |

## DOCUMENT CONTROL

| VERSION | VERSION DATE | DESCRIPTION                       | AUTHOR        | REVIEWER | APPROVER |
|---------|--------------|-----------------------------------|---------------|----------|----------|
| 1.0     | 29/07/2024   | Initial draft for Client comment  | BC, BK,<br>UR | BC<br>BK | MKB      |
| 2.0     | 01/08/2024   | Revised following Client comments | BC, BK,<br>UR | BC<br>BK | MKB      |
| 3.0     | 09/09/2024   | Revised following Lender comments | BC, BK,<br>UR | BC<br>BK | MKB      |
| 4.0     | 10/10/2024   | Revised following updates         | BC, BK,<br>UR | BC<br>BK | MKB      |



|   |                      |   |
|---|----------------------|---|
| 1 | Financial Capital    | Regardless of location, mode of delivery or function, all organisations are dependent on <i>The 5 Capitals of Sustainable Development</i> to enable long term delivery of its products or services. |
| 2 | Social Capital       |   |
| 3 | Natural Capital      |   |
| 4 | Manufactured Capital | Sustainability is at the heart of everything that 5 Capitals achieves. Wherever we work, we strive to provide our clients with the means to maintain and enhance these stocks of capital assets.    |
| 5 | Human Capital        |   |

## DISCLAIMER

5 Capitals cannot accept responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from the party which commissioned it.

This document is issued for the party which commissioned it and for specific purposes connected with the above-identified project only. It should not be relied upon by any other party or used for any other purpose

# CONTENTS

|       |   |    |
|-------|---|----|
| 1     | WHAT IS THE PROJECT?  | 1  |
| 1.1   | Project Overview  | 1  |
| 1.2   | Key Project Information   | 2  |
| 1.3   | Project Description   | 2  |
| 1.4   | Grid Connection   | 6  |
| 1.4.1 | Overview, Responsibility and Status of Assessment                               | 6  |
| 1.4.2 | Key Risks   | 7  |
| 1.5   | Project Milestones  | 7  |
| 2     | WHERE IS THE PROJECT LOCATED?   | 8  |
| 3     | WHAT IS THE CURRENT SITUATION?  | 11 |
| 3.1   | Social  | 14 |
| 3.2   | Ecology   | 14 |
| 3.3   | Other Environmental Aspects (Air, Noise, Soils, Water)                          | 16 |
| 4     | WHAT ARE THE KEY BENEFITS?  | 17 |
| 5     | WHAT ARE THE NEGATIVE IMPACTS OR UNCERTAINTIES AND HOW ARE THESE TO BE MANAGED? | 19 |
| 6     | ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING                              | 23 |
| 7     | STAKEHOLDER ENGAGEMENT  | 24 |

## APPENDIX A – PROJECT CONTACT INFORMATION

# 1 WHAT IS THE PROJECT?

## 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<sub>ac</sub> pipeline of solar photovoltaic (PV) and onshore wind projects in the Republic of Azerbaijan starting with 2 GW<sub>ac</sub> 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 26<sup>th</sup> 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.

### 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 Project, including the Environmental and Social Impact Assessment (ESIA) package.

This document constitutes the Non-Technical Summary (Volume 1) of the Project's ESIA.

## 1.2 Key Project Information

**Table 1-1 Key Project Information**

|                              |  |
|------------------------------|--|
| <b>PROJECT TITLE</b>         | Bilasuvar 445 MW <sub>ac</sub> Solar PV Project  |
| <b>PROJECT DEVELOPER</b>     | Masdar and SOCAR Green LLC   |
| <b>EPC CONTRACTOR</b>        | North West Electric Power Design Institute, part of China Energy Group   |
| <b>O&amp;M COMPANY</b>       | Masdar Specialised Technical Services (MSTS)   |
| <b>MASDAR REPRESENTATIVE</b> | Murad Sadikhov<br>Abu Dhabi Future Energy Company PJSC – Masdar<br>Baku, Azerbaijan  |
| <b>SOCAR REPRESENTATIVES</b> | Elmir Musayev and Alish Lemberanskiy<br>SOCAR Green LLC<br>Baku, Azerbaijan  |
| <b>ESIA CONSULTANT</b>       | 5 Capitals Environmental and Management Consulting (5 Capitals)<br>PO Box 119899, Dubai, UAE<br>Tel: +971 (0) 4 343 5955, Fax: +971 (0) 4 343 9366<br><a href="http://www.5capitals.com">www.5capitals.com</a> |

## 1.3 Project Description

### OVERVIEW

The project is a 445 MW<sub>ac</sub> 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 1-2 Project Details**

| <b>PARAMETER</b> | <b>DETAILS</b>             |
|------------------|----------------------------|
| DC Capacity      | Approximately 580 MWp      |
| Module Type      | N-type Bifacial Module     |
| Inverter Type    | String or Modular Inverter |

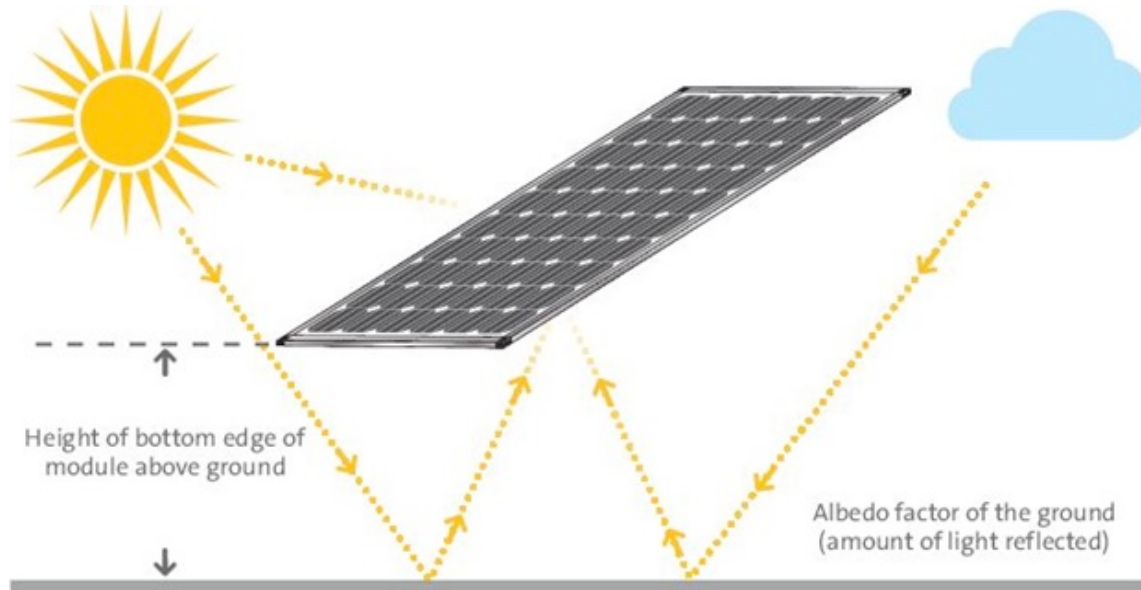
| PARAMETER   | DETAILS   |
|---|---|
| Mounting Structure Type                           | Single Axis, E-W tracking.<br>Tracking range -55° to +55° or better |
| Maximum AC Export Capacity at Point of Connection | 445 MW  |
| Ground Coverage Ratio                             | 20% – 30%   |
| Interconnection 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.

The following figures depict bi-facial PV technology and the indicative project layout respectively.



**Figure 1-1 Bifacial Technology**

#### 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.

#### 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.

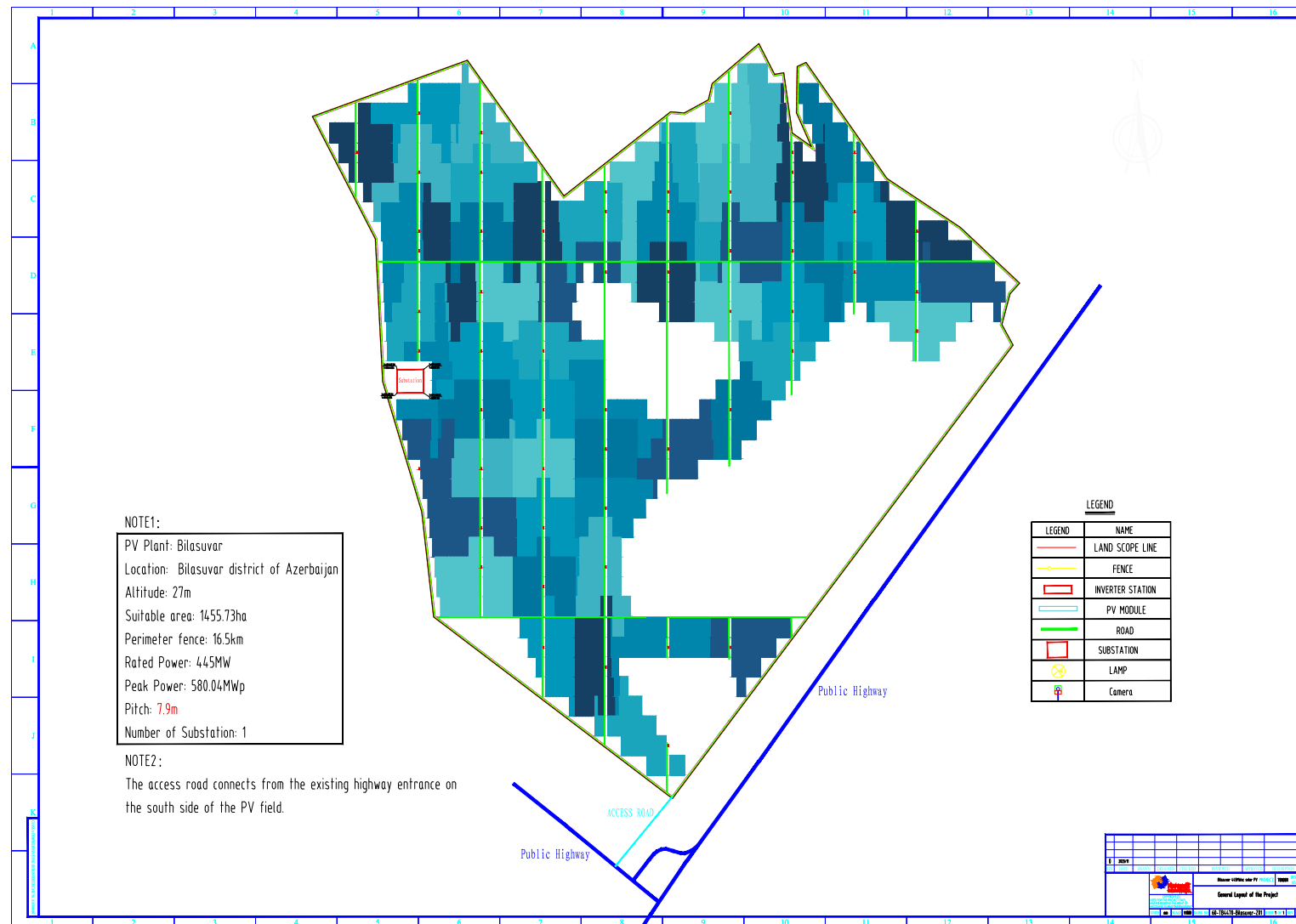


Figure 1-2 Indicative Project Layout



## 1.4 Grid Connection

### 1.4.1 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. The line is considered as an associated facility to the Project. 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<sup>1</sup> and Environmental and Social Commitment Plan<sup>2</sup> 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 ESIA's 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 carried out in parallel, while priority will be given to the early completion of the 330 kV transmission lines.

---

<sup>1</sup> <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099082824173027860/p50520815b0cda0961a0bb17294c1dff0e0>

<sup>2</sup> <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099082824173040751/p5052081e30efe091b02b159a8759b9abc>

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 9<sup>th</sup> 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 is planned to be issued to the MENR in September 2024.

### 1.4.2 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.
- 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 9<sup>th</sup> 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 impacts (EMF) and electrocution/fire risk.

These impacts are discussed in the relevant chapters of ESIA Volume 2.

## 1.5 Project Milestones

**Table 1-3 Project Milestones**

| MILESTONE                            | SCHEDULED DATE    |
|--------------------------------------|-------------------|
| PPA Signature                        | June 2024         |
| Site Handover                        | 1st November 2024 |
| Mobilisation                         | Quarter 1, 2025   |
| Main Construction Works Commencement | Quarter 2, 2025   |
| Commercial Operation Date            | January 2027      |

## 2 WHERE IS THE PROJECT LOCATED?

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.

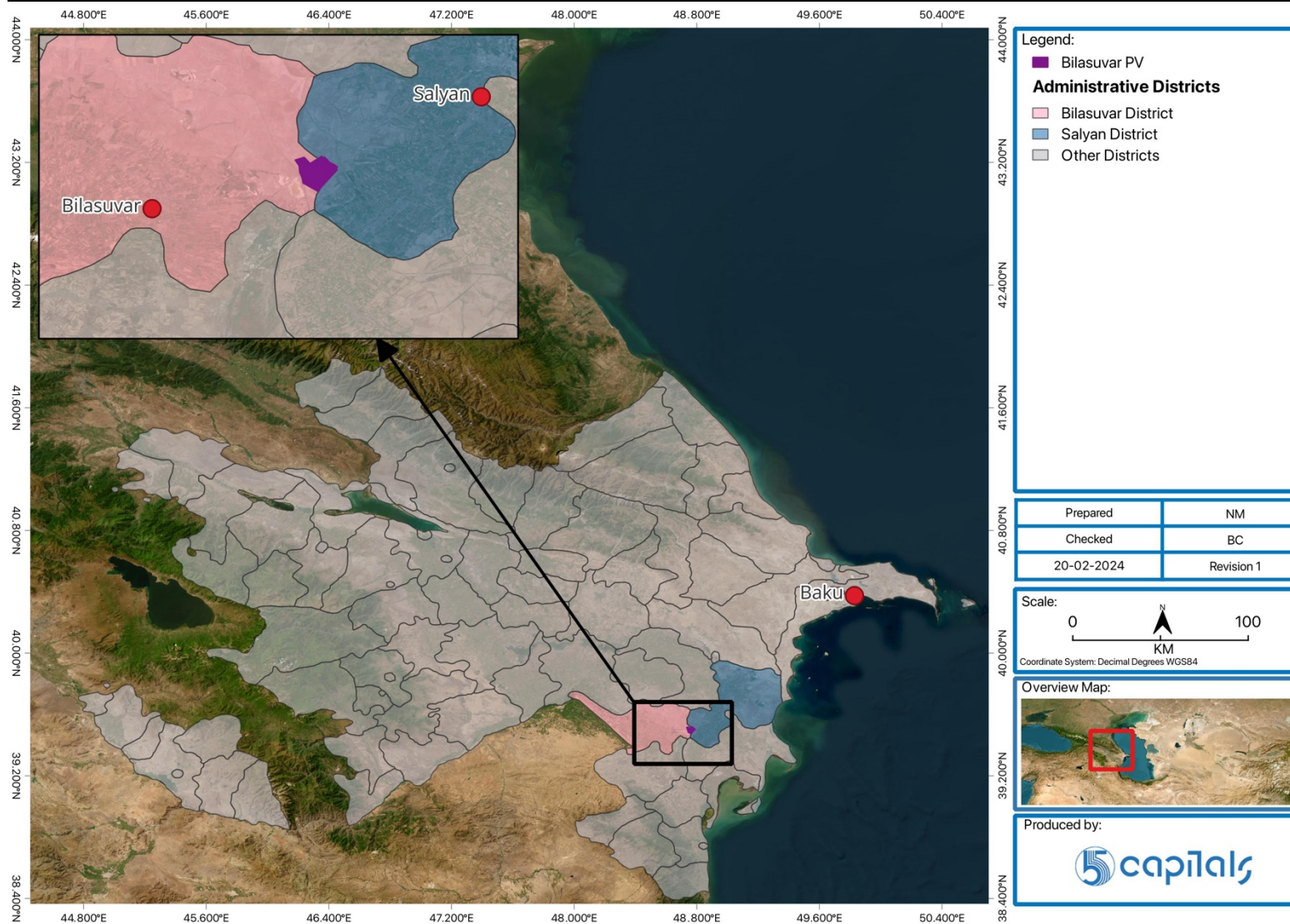


Figure 2-1 National Project Context



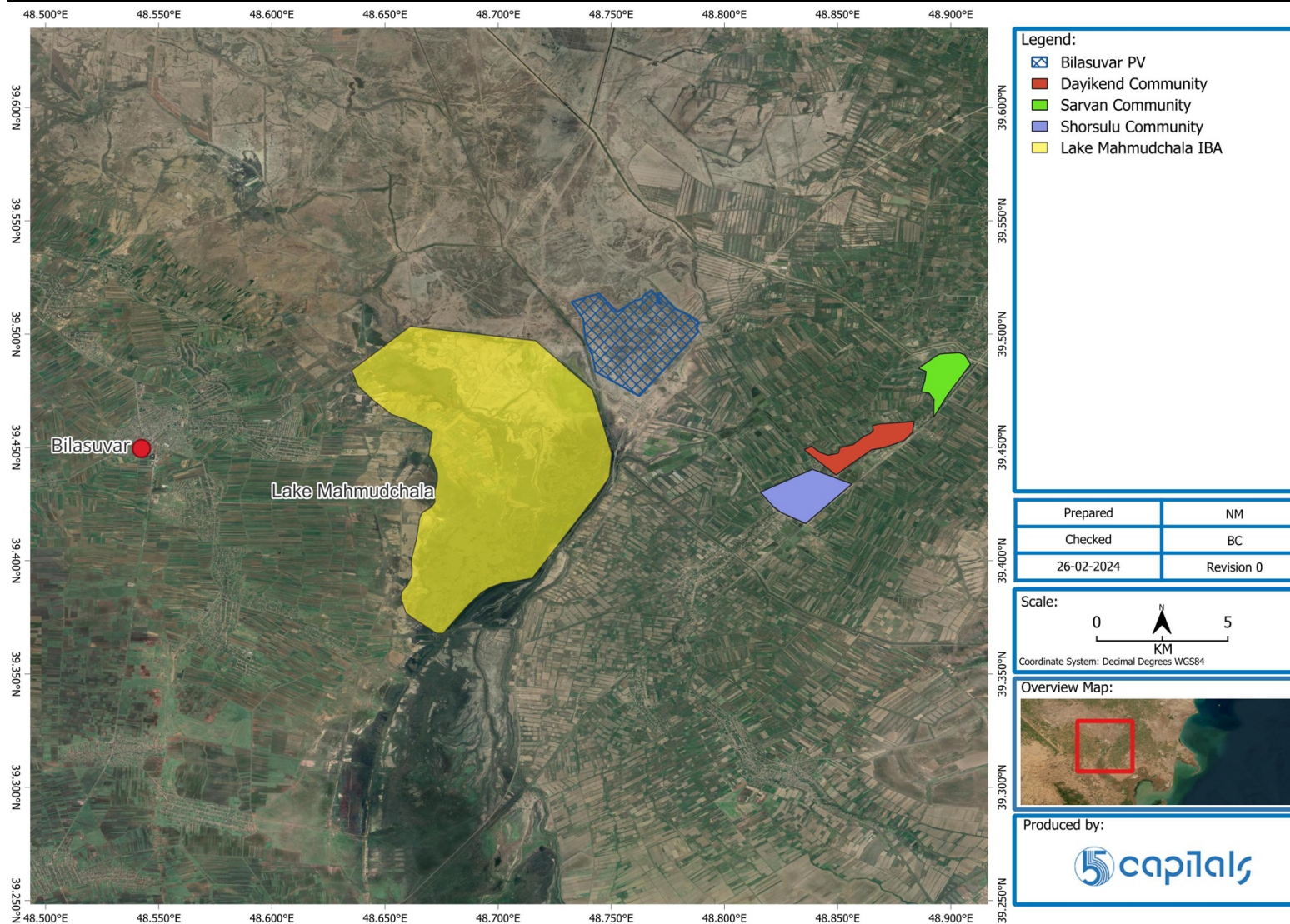


Figure 2-2 Local Project Context

### 3 WHAT IS THE CURRENT SITUATION?

#### 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.

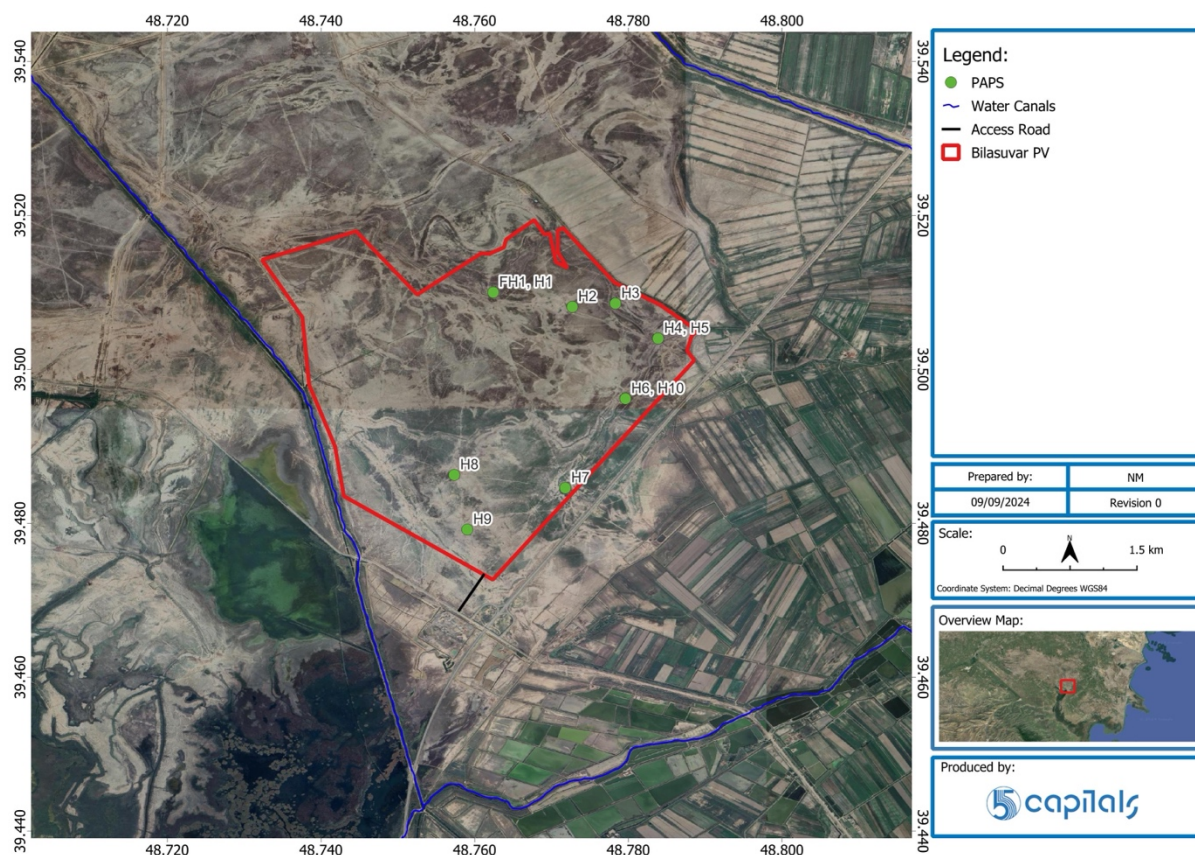
There are eight informal settlements within the project boundaries, six of which are used by the herders during their winter period on site while one is used as a permanent residence, and one is unused.

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).

The location of structures within the site is shown in the following figure.





**Figure 3-1 Structure Locations**

For further details please refer to the Resettlement Action Plan (RAP).

Images from the site are shown in the following figures.





**Figure 3-2 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. 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.

The surrounding areas of Project site are used for grazing and leased to individuals by Bilasuvar Executive Power. There are five structures in proximity of Project boundaries.

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.



### 3.1 Social

There are three settlements, Shorsulu, Dayikend, and Sarvan, located to the northeast of the Project site. Due to their distance, impacts are not expected. 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.

#### PROJECT AFFECTED PERSONS

Based on the outcome of the initial draft RAP surveys and consultations, the land users at the proposed project site can be classified as follows:

- Formal land users: FH1 is the only formal land user using the site.
- Informal land users: There are 10 herders who are either grazing or using the structures on site without legal lease agreements. This includes 9 herders and 1 worker (H10/W1) who also owns livestock.
- Informal workers: There are 2 informal workers.
  - W1/H10 is employed by H6 but instead of earning a salary, he is allowed to graze his own livestock and that of his brother H1 (on H6 land).
  - W2 is employed by H7 and does not own any livestock. He is paid a salary.
- Members of the affected herders and workers households which includes women, children, the young, elderly, etc. These have been identified as 62 PAPs.
  - Out of the 62, 11 directly support in undertaking herding activities at the project site.

Based on the above, the total number of affected persons in the project is 74. Out of these, 30 are female and 44 are male.

#### OHTL

Land ownership and use along the transmission line route has been identified and provided in the Scoping Report for the transmission lines<sup>3</sup>. The identified ownership and land use are provided within the ESIA Volume 2 and the LRP.

### 3.2 Ecology

#### PROJECT SITE

The Project area comes within roughly 1 km of an internationally recognized KBA, specifically the Lake Mahmudchala Important Bird Area. This IBA is triggered for 14 species of waterbirds,

<sup>3</sup> <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099082524135528588/p5052081afda380fc192451697539b09005>

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.

During site visits, 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 busy, major road 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. 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 and August 2024 site visits.

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 Volume 2 of the ESIA.

Initial screening of Natural Habitat was conducted by examination of Google Earth imagery. Based on review of the imagery across the Project site, the impression was that there is little or no natural habitat on the site. Observations from site visits, in-field discussions and ecology surveys conclude that the Project area is covered entirely by Modified Habitat.

The only species of elevated conservation status identified during baseline surveys are the Marbled Polecat (IUCN VU, Azerbaijan DD) and the Asian Snake-eyed Skink (IUCN LC, Azerbaijan EN).

## **OHTL**

The transmission line route passes close to the following protected areas, Shirvan State Nature Reserve / Shirvan National Park and Lake Mahmudchala Important Bird Area. In addition, the route is located in an important flyway for migratory avifauna.

### 3.3 Other Environmental Aspects (Air, Noise, Soils, Water)

The site does not have significant sources of air and noise emissions, with the primary source being use of vehicles on nearby highways. Soil and water samples were collected and analysed and did not indicate anything significant to note.

## 4 WHAT ARE THE KEY BENEFITS?

### GENERATION OF RENEWABLE ENERGY

The Project will reduce the country's reliance on fossil fuel sources for power generation. This initiative aligns with Azerbaijan's 2025 vision to integrate renewable energy into its electricity generation mix. By utilising solar resources, the PV project will contribute to a more sustainable energy framework in Azerbaijan. This transition supports national energy security by diversifying energy sources and reducing the environmental impact associated with fossil fuel consumption.

One of the main environmental benefits of this PV project is the reduction in greenhouse gas emissions. Fossil fuel-based power plants are major contributors to carbon dioxide and other harmful emissions, which contribute to climate change and air pollution. Generating electricity through solar panels will significantly decrease these emissions, promoting cleaner air and a healthier environment. This is particularly relevant as Azerbaijan is hosting COP29 in November 2024, demonstrating the country's commitment to global climate goals and its efforts to address climate change.

Socially, the PV project will provide several benefits. The development and operation of solar power facilities create job opportunities, from construction to operations and maintenance, boosting local economies and providing livelihoods for many individuals. Access to reliable and sustainable energy can also improve the quality of life for communities, particularly in remote areas where electricity access may be limited or unreliable. With stable and clean energy, there are improved prospects for education, healthcare, and overall socio-economic development.

### 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.

The operation phase will also create employment opportunities, in contrast to the construction phase, fewer jobs will be available, the vast majority of which will be skilled.

## 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.

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.

## 5 WHAT ARE THE NEGATIVE IMPACTS OR UNCERTAINTIES AND HOW ARE THESE TO BE MANAGED?

### LAND USE CHANGE

Those utilising the site will lose access to the Project land. Based on the information provided by the herders and workers, it can be concluded that they all have primary homes outside of the project site apart from one who permanently lives within the project site with his wife. As currently assessed, only this herder is considered physically displaced while the other herders and workers will only be economically displaced.

Permanent land-take within the PV power plant site will result in the loss of land assets which were held and occupied for the purposes of grazing and livestock rearing business, prior to the onset of project-driven land acquisition. Overall, economically displaced herders stand to lose 55% to 100% of their grazing lands. Out of 12 total affected households within project site; only one has formal lease agreement.

Details of land acquisition, census and socioeconomic information, valuation surveys, physical and economic displacement impacts, associated entitlements and budgets are provided in 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<sup>2</sup> to 100 m<sup>2</sup> depending on the tower type.

Land ownership and use along the OHTL is provided in Volume 2 of the ESIA.

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.

### ECOLOGY

The Project area comes within roughly 1 km of an internationally recognized KBA, the Lake Mahmudchala Important Bird Area. Considering the separation of the site and KBA, by a major

road, and the 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.

No natural habitat will be lost as a result of the Project.

The only species of elevated conservation status identified during baseline surveys are the Marbled Polecat (IUCN VU, Azerbaijan DD), a mammal and specialised predator of small rodents in desert and steppe habitats of Eurasia, and the Asian Snake-eyed Skink (IUCN LC, Azerbaijan EN).

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. Key mitigation includes a pre-construction check for the Marbled Polecat, Common Tortoise and Asian Snake-eyed Skink. Further mitigation is to be outlined as part of a Biodiversity Management Plan.

With regards to operational phase, and potential collisions with PV panels, the ESIA Volume 2 highlights that this is unlikely, however, an operational phase chance finds monitoring procedure will be included within the HSSE-MS.

#### 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 to 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.

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

## WASTE

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.

To mitigate this:

- A project-specific construction stage Waste Management Plan will be prepared prior to commencement of works.
- Prior to start of construction works, there will be coordination with waste receiving facilities to ensure sufficient capacity is available for receiving construction wastes.
- 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.

## FLOOD RISK

Flood risk modelling has been conducted and an assessment of construction and operation flood risk impacts is included within the standalone Climate Change Risk Assessment.

With regards to mitigation:

- The indicative project design 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.

## OTHER ENVIRONMENTAL AND SOCIAL IMPACTS

Other environmental and social impacts are typical for a Project of this magnitude, and the vast majority are temporary impacts during the construction phase (e.g., construction phase



noise and dust generation), these impacts are readily mitigated to acceptable levels by good international practice mitigation measures as outlined within Volume 2 of the ESIA, which will be included in the HSSE-MS.

## 6 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING

Both the construction and operational phases will need to incorporate mitigation and monitoring requirements established within Volume 2 of the ESIA as well as requirements set out by the Ministry of Ecology and Natural Resources and the Lenders.

Volume 3 of the ESIA provides a framework for the development of the HSSE-MS for the construction and operational phases of the Project. The framework has been developed to ensure that all Environmental & Social impacts identified for both construction and operational phases are appropriately identified and controlled through the development of a robust construction and operational phase HSSE-MS.

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

The primary documents/systems guiding the environmental and social management of the construction and operational phases will be the HSSE-MS respective to construction and operational risks, impacts and compliance requirements.

### **INDEPENDENT AUDITING AND MONITORING**

The Project will be subject to periodic independent monitoring in accordance with the requirements of the Lenders. The scope of the independent audits will include the implementation of the Project HSSE-MS and will evaluate on-site activities and documented controls and monitoring efforts, with respect to the Project's compliance obligations.

## 7 STAKEHOLDER ENGAGEMENT

Stakeholder engagement was undertaken for the Project during both the Scoping (February 2024) and ESIA (June, July and August 2024) phase. Stakeholder groups include ministries, local government authorities, land users, nearby land users as well as civil society organisations.

In addition, as part of the ESIA process, a public consultation meeting was undertaken with local community members to provide project information, introduce the grievance mechanism established for the project, and to hear any feedback or concerns. The meeting was held on the 11<sup>th</sup> July, 2024, with 25 attendees.

### **ESIA DISCLOSURE**

In line with the consultation and disclosure requirements of the lenders, project information was disclosed to stakeholders and affected communities during on-site ESIA disclosure meetings held on September 21, 23-27, 2024.

The engagement process ensured equitable participation from all relevant parties. Separate meetings were organized for men and women to allow focused discussions, and vulnerable groups were engaged through door-to-door meetings. All meetings were conducted in the local language for full comprehension.

Stakeholders involved in the ESIA disclosure meetings included:

- Bilasuvar Executive Power, along with relevant municipality chairs, territorial executive representatives, and the Department of Socio-Economic Analysis and Forecasting.
- Khirmandali Village Local Government Authorities and communities.
- Aliabad Village Local Government Authorities and communities.
- Herders located near the project area.
- Project-Affected Persons (PAPs).

Hard copies of non-technical summary documents were placed in Bilasuvar Executive Power Office and the offices of Khirmandali and Aliabad villages. Additionally, Salyan Executive Power approved the distribution of non-technical summary documents to Shorsulu, Salyan, and Dayikend villages.

Project leaflets were distributed to LGAs, communities, and PAPs during the ESIA disclosure meetings.

For a detailed overview of stakeholder engagement and details of the grievance mechanism, refer to the Project-specific SEP.

## APPENDIX A – PROJECT CONTACT INFORMATION

| NAME           | ROLE                                  | CONTACT DETAILS   |
|----------------|---------------------------------------|---|
| Murad Sadikhov | Country Manager, Masdar<br>Azerbaijan | <a href="mailto:msadikhov@masdar.ae">msadikhov@masdar.ae</a><br>+994 50 9885837 |