



Non-Technical Summary of the Environmental & Social Assessment Report

**120 MWp Solar Photovoltaic (PV) plant and 225 kV overhead
transmission line 12 km long in Mezzouna, Sidi Bouzid Tunisia**

Greenfield: Sidi Bouzid 2

REPORT: **Non-Technical Summary of Environmental & Social Assessment Report 120 MWp Solar Photovoltaic (PV) plant and 225 kV overhead transmission line 12 km long in Mezzouna, Sidi Bouzid - Tunisia**

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This report is confidential to the client and we accept no liability whatsoever to third parties who become aware of this report, in whole or in part.

This report has been prepared in accordance with EAM's Integrated Management System.



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ACRONYMS & ABBREVIATIONS

AC	Alternating Current
ANGed	National Waste Management Agency
ANME	National Agency for Energy Conservation
ANPE	National Environmental Protection Agency
ATEX	ATmosphères EXplosibles / Explosive Atmospheres
APII	Agency for the Promotion of Industry and Innovation
CCTV	Closed-Circuit TeleVision
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CRDA	Regional Commissariat for Agricultural Development
CSP	Code of Personal Status
DC	Direct Current
DGF	Directorate General of Forestry
E&S	Environmental & Social
EAM	Environmental Assessment & Management
EBRD	European Bank for Reconstruction
ECUP	Expropriation for reasons of public utility
EEC	European Economic Community
EIB	European Investment Bank
EPC	Engineering, Procurement, and Construction
ESAP	Environmental and Social Action Plan
ESAS	Environmental and Social Advisory Services Limited
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
ESR	Environmental and Social Requirement
EU	European Union
GBVH	Gender-Based Violence and Harassment.
GHI	Global Solar Irradiance
HV	High Voltage
IBA	Important Bird Area
ILO	International Labour Organisation
INM	National Institute of Meteorology
INS	National Institute of Statistics
IUCN	International Union for Conservation of Nature
kV	Kilovolt
KWh	kilowatt-hour
LALRP	Land Acquisition and Livelihood Restoration Plan
LARF	Land Acquisition and Resettlement Framework
LC	Least Concern
MIME	Ministry of Industry Energy and Mining
MW	Megawatt
MWp	Megawatt Peak
ODCO	Western Center Development Office

OHTL	Overhead Transmission Line
PCFM	Post-Construction Fatality Monitoring
PPA	Power Purchase Agreement
PV	Photovoltaic
REGNES	National Register of Wild Species
RoW	Right of Way
RR	Regional Route
SONEDE	National Water Supply and Distribution Company
STEG	Tunisian Electricity and Gas Company
VU	Vulnerable

1 INTRODUCTION

As part of its energy transition strategy, Tunisia has set itself the target of achieving a share of renewable energies in the electricity mix of 35% by 2030 and 50% by 2035. This will result in the installation of a total functional renewable capacity of 4,850 MW by 2030 and 8,350 MW by 2035 using photovoltaic and wind. Scatec (hereafter referred to as "the Developer"), was awarded in December 2024, a 120 Mega Watt Peak (MWp) Photo Voltaic (PV) Solar power plant in the governorate of Sidi Bouzid referred to as "the Project" or 'PV Plant Sidi Bouzid 2'. Scatec was selected after an international competitive call of tenders launched by the Government of Tunisia under the reference AO-01-2022, represented by the Ministry of Industry, Energy and Mining (MIME). On 24 March 2025, Scatec signed a concession agreement with the Ministry of Industry, Mines and Energy and a 25-year Power Purchase Agreement (PPA) with the Tunisian Company of Electricity and Gas (STEG).

This document is the Non-Technical Summary (NTS) of the Environmental and Social Assessment Report (ESAR) for the 120 MWp Solar Photovoltaic (PV) plant and 225 kV overhead transmission line 12 km long. It has been prepared in accordance with the Environmental and Social Policy (ESP - 2024) of the European Bank for Reconstruction and Development (EBRD) and the Environmental and Social Standard¹ of the European Investment Bank (EIB).

1.1 Project categorisation

The Project is classified as **Category B** considering EBRD's Environmental and Social Policy (ESP, 2024) and as **Medium Risk** according to the EIB's E&S Policy categorisation considering that the preparation of an **ESIA report is not required**.

1.2 Aim of the ESAR report

An Environmental and Social Assessment Report (ESAR) has been prepared in accordance with the Environmental and Social Policy (ESP - 2024) of the European Bank for Reconstruction and Development (EBRD) and the Environmental and Social Standard of the European Investment Bank (EIB). For this purpose, Environmental Assessment and Management (EAM) has been contracted by EBRD as an Environmental and Social (E&S) Advisor, to support the preparation of the ESAR. EAM undertook this assignment in collaboration with Environmental and Social Advisory Services Limited (ESAS) based in London. This assignment was carried out through a review of project documentation, remote meetings, one site visit for the environmental assessment (biodiversity, archaeology, landscape and environment) conducted on June 1st, 2025, and a second site visit for stakeholder engagement conducted on June 20 and 21st, 2025.

The objective of the E&S Assessment is to identify and assess the potentially significant existing and future adverse environmental and social impacts associated with the Developer's proposed Project, assess compliance with applicable laws in Tunisia, the EBRD ESP (2024) and Environmental and Social Requirements (ESRs) and EIB E&S Standards and EIB E&S Policy (concluding that an ESIA is not needed under EIB Standard 1), determine the measures needed to prevent or minimise and mitigate the adverse impacts, and identify potential environmental and social opportunities, including those that would improve the environmental and social sustainability of the Project and/or the associated current operations. The assessment process has been designed to ensure that it is commensurate with, and proportional to, the potential impacts and issues of the Project. In parallel with the E&S Assessment, an Environmental and Social Action Plan (ESAP), a Stakeholder Engagement Plan (SEP) and a Land Acquisition and Resettlement Framework (LARF) have been prepared.

2 PROJECT DESCRIPTION

2.1 Project location

The project site is located in the Sidi Bouzid Governorate, within the delegation of Mezzouna and the Khobna sector. The nearest community is Khobna, situated approximately 4 km southeast of the site, with a population of around 3,000

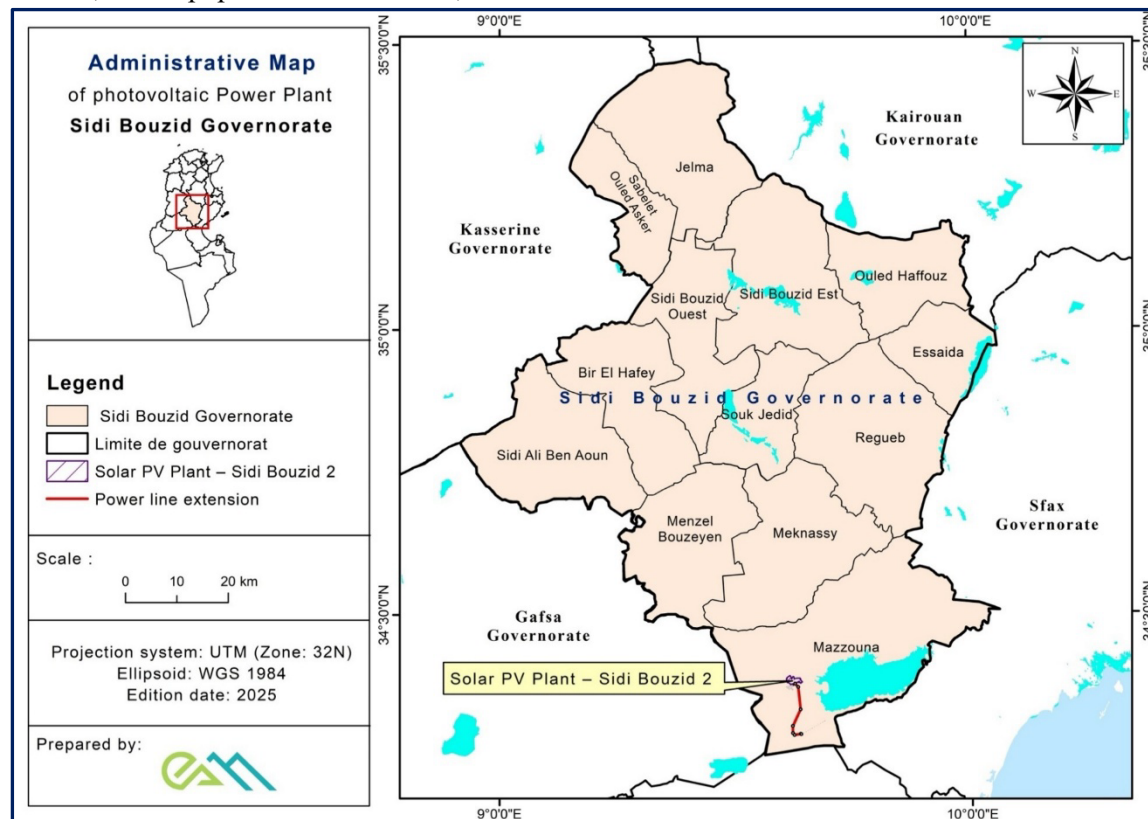


Figure 2.1. Project location map

The construction and operation of the solar PV plant will be carried out on uncultivated and uninhabited land. The land is under private ownership and covers an area of 305 hectares (13 land titles) as shown in Figure 2.1, of which only 180 hectares will be used for the project. The land is being leased to the landowners under a *willing lease, willing lessor* arrangement and no expropriation is required.

The site is generally flat, accessible from the nearby national road of RR124, with an altitude between 60 to 80 m. The land was historically used for agriculture and there is recent evidence of land use for grazing activities, which is interpreted as being from informal land use as the landowner does not graze livestock on their land. Inside the site perimeter, there are several ruins of old buildings in very poor condition and a traditional “Majel” type rainwater reservoir, all of which are owned by the landowner and have not been identified as having archaeological significance.

The 12 km OHTL will be installed by the Developer to connect the solar arrays to the National Grid through Mezzouna 1 Substation, under construction by STEG illustrated in Yellow in Figure 2.2. The OHTL will have 7 summits (these designate a change in the direction of the OHTL) and crosses mostly state-owned land over approximately 7 km, the remainder crossing over around 19 privately owned land plots. Approximately 4% of the land intersected by the OHTL is used for agricultural activities (land used for fruit growing (almond and olive trees)) with the rest being land used for grazing livestock.

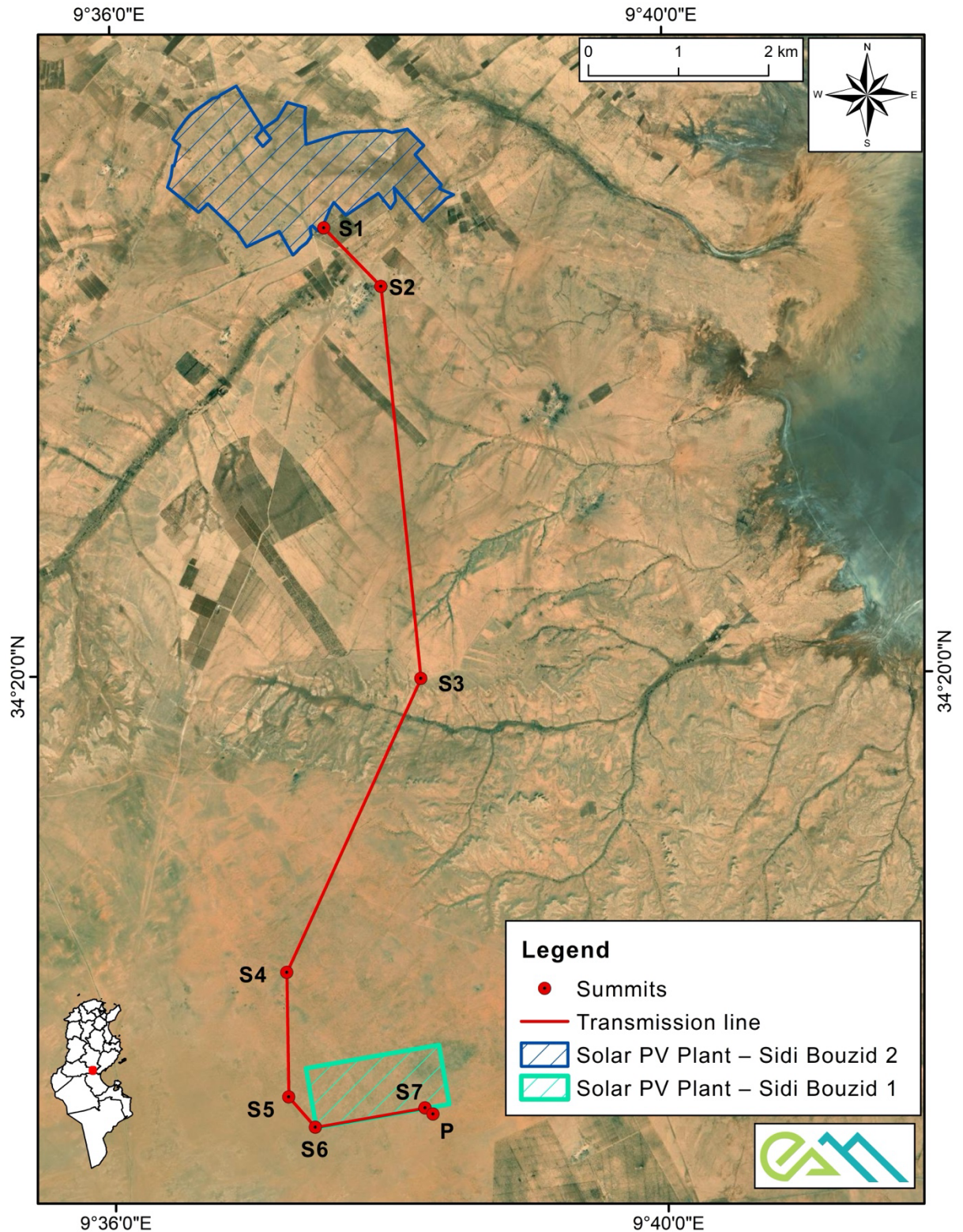


Figure 2.2. Spatial map of the OHTL

2.2 Description of the Project components

PV solar cells convert solar energy (radiation from the sun) into electricity using semiconductors (photovoltaic material that exhibit the photovoltaic effect); following the exposure of the PV panel to light, voltage is created in the material as photons from sunlight excite electrons in those materials into a higher state of energy, allowing them to act as charge carrier for an electric current. Solar cells produce Direct Current (DC) electricity from sun light, which can be used for grid

connected power generation. However, electricity at the grid is usually in a different form (known as Alternating Current (AC)) and thus inverters are used to convert the DC current to AC current. In addition, cells produce electricity at a certain voltage which must be matched to the grid it connects to. Therefore, transformers are used to convert the output from the panels to a higher voltage that matches the grid.

The table below provides a summary of the key project components for the 120 MWp Project, along with a detailed description of each of those components to follow. It is important to note that following information is based on preliminary data and design details provided by the Developer.

Table 2.1 - Summary of Key Project Components

Component	Description
Project Generation Capacity	120 MWp -100 MWac
Project area	305 Ha (180 Ha for the PV plant)
Tables	Number of strings: 7209 Number of PV modules per string: 26
Transmission Line	225 kV HV Transformer Rating : 140 MVA HV Transformer Voltage: 33kV/225kV PV Plant Internal MV Voltage: 33 kV

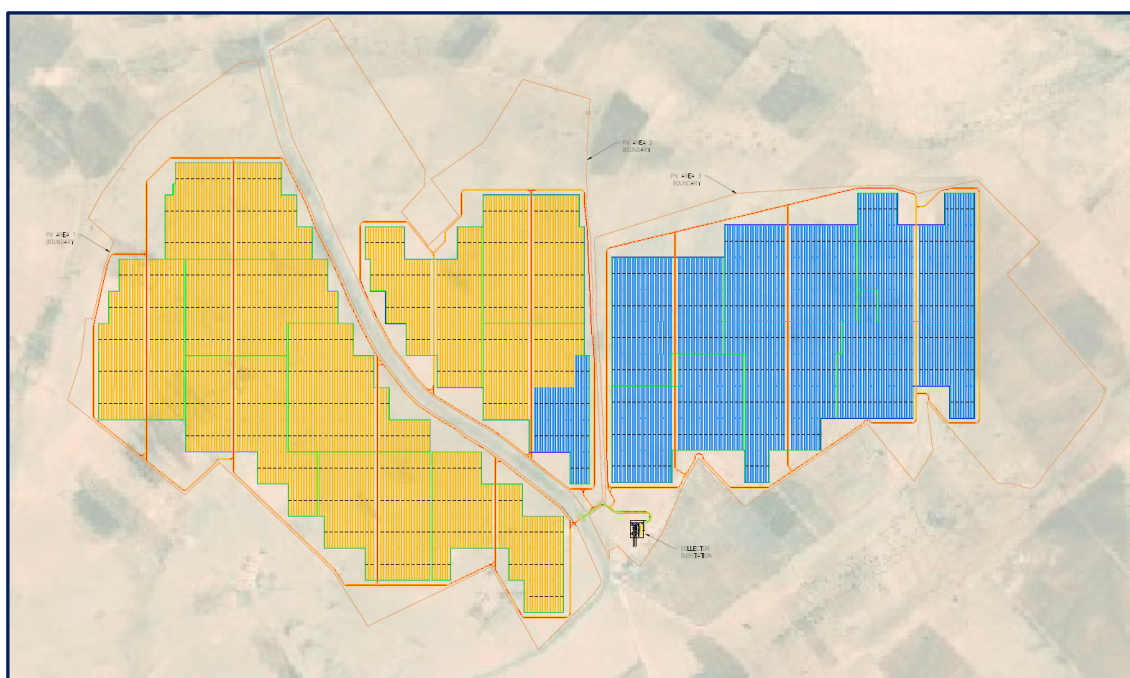


Figure 2.3. Layout plan for the solar PV plant

2.3 Dimensions of the 225 kV OHTL

The developer started the preliminary technical design of the transmission line and concluded on 31 pylons identified along the 12 km with an expected distance between pylons of 290 and 500 m depending on the specific route and topography. The exact location and number of pylons will be determined by the EPC Contractor. The footprint of the pylons is between 120 and 400 m² each as this depends upon the final type and design of pylon used. The location and spacing of the pylons will be decided by the EPC Contractor and so the actual land plots impacted by the OHTL pylons will not be known during the E&S Assessment.

Construction of the OHTL will comply with STEG's design criteria for minimum spacing:

(i) Minimum above-ground heights

Table 2.2 - Minimum above-ground heights

Description	Minimal height
Ordinary terrain from ground	8 m
Plantation (almond and olive trees)	9 m
High traffic road	10 m
Railroads	11 m

(ii) Minimum distances from houses / dwellings

For 225 kV high voltage lines, the horizontal distance measured from the line axis to the dwellings shall be at least equal to the following values:

Table 2.3 - Minimum distances from houses/dwellings

Description	Minimal distance
Immediate vicinity of Conductors	30 m
Immediate vicinity of the Towers	Height of the tower

It is important to note that the alignment of the transmission line was carefully selected to avoid any dwellings. The nearest residential structure is located over 105 meters from the line.

(iii) Minimum distances to roads

- A minimum distance of 40 m between the towers and the axes of agricultural roads.
- A minimum distance of 50 m between the towers and the axes of the classified roads.
- A minimum distance of 65 m between the towers and the axes of the highway.
- A minimum distance of 200 m between towers and road intersections.

For safety reasons during the unrolling works, the constructor must locate the anchoring towers at a distance ($d \geq 150$ m) from classified roads

(iv) Right of Way

Electricity transmission and distribution projects require a RoW to protect the system from windfall, contact with trees, branches, utilities, buildings, and other potential hazards that may result in damage to the system, or power failures, and to maintain public safety.

During the planning phase of the OHTL, it is anticipated a Right of Way (RoW) ranging from 50 m (25 m on each side). This wider margin provides flexibility for potential modifications to the line during construction phase. However, once the route is finalized and construction begins, the minimum distance to be respected from the immediate vicinity of conductors is 30 m on each side.

2.4 Project phases

The Project will be developed in a three-phase sequence:

Planning & Construction Phase (15 months)

Construction activities are scheduled to begin in November 2025, with a construction phase lasting 13 months, followed by 2 months for grid connection and testing. The peak workforce during construction is expected to be 400 and comprise skilled roles (engineers, technicians, consultants, surveyors, etc.) and low-skilled roles (labors, security personnel, and others).

The workforce will be accommodated in a worker camp, or hotel facility in the region. The type and location of the facility used will be made by the construction contractor.

Operation Phase (25 years)

This includes activities to be undertaken by the Project Operator. Activities expected to take place mainly include the normal daily operation of the PV Plant and the routine maintenance activities of the PV Project (e.g. PV module cleaning, inverter servicing, checks on structural integrity, storage and disposal of broken PV panels, etc.). Commercial operation of the Project is expected to commence in 2027 and continue for a period of 25 years according to the Power Purchase Agreement (PPA), after which the project will be handed over to STEG or dismantled.

Decommissioning Phase

After the 25-year of operations, STEG has the right to take over the project; otherwise, the developer is required to dismantle the PV plant.

3 PROJECT ALTERNATIVES

Several factors were considered by the Developer to ensure that an optimal location was chosen for the development of this solar photovoltaic project, including:

- Good solar irradiance: Sidi Bouzid enjoys extremely favourable sunshine conditions, with average GHI (Global Solar Irradiance) ranging from 85.3 kWh/m² in December to 247.6 kWh/m² in July, with an annual average of 1,932.8 kWh/m² per year (2015-2024),
- Proximity to the road network: access to the project site will be from the regional road RR-124 linking Mezzouna, Gazgazia and El Guettar, followed by an 8 km unclassified road (tarmac track off the RR124). Therefore, no new access roads will be built for the PV site.
- Proximity to the electricity network: The Developer selected this location due to its proximity to the 60 MW Sidi Bouzid 1 solar PV plant, which is currently under construction. The site is located approximately 12 km away following the route of the proposed OHTL, or around 10 km in a straight line from the PV Plant.
- Distance to Key Sensitive Receptors: The Project site in general is located at a reasonable distance from any key potential sensitive receptors which includes community settlements (the nearest local community Khobna is located at 4 km) and environmental sensitive areas (IBAs).
- Natural Landscape of the Site: PV solar developments generally require a flat terrain for the installation of the various Project components to include the PV arrays. The Project area in general can be characterized as being dominantly of fairly flat surfaces and therefore site preparation and earthwork activities are not expected to be substantial.
- Vast open lands: The site is located in an area remote from Mezzouna, some 25 km away (governorate of Sidi Bouzid) and Menzel Habib, 17 km away (governorate of Gabès). The nearest local community is Khobna, around 4 km. The Mezzouna sector is characterized by vast open lands making it suitable large-scale power generation capacity.

A change in the PV site location was made for technical feasibility reasons and to optimise the placement of the solar panels.

For the OHTL, a change in the preliminary OHTL corridor was made following a technical review of the alignment by STEG, and also to reduce the number of land parcels intersected.

In addition, the Developer explored alternative routes for the OHTL to assess the potential for reducing environmental impacts. The proposed alignment remains the most suitable option, as the alternatives considered could either increase the risk of bird collisions due to their orientation or create additional barriers to bird movement. Therefore, neither of the two alternatives would provide a meaningful reduction in cumulative impacts. Site surveys will be carried out to monitor bird movements along the transmission line, and appropriate mitigation measures will be identified and implemented as necessary.

The "no project" alternative assumes that the Sidi Bouzid n°2 plant will not be developed. In this scenario, the area selected for the project would remain unchanged in terms of physical layout and land use. The site would retain its current characteristics as privately owned, undeveloped land used informally, mainly for extensive livestock grazing.

4 PROJECT E&S AUTHORISATION PROCESS

On the basis of Decree no. 2005-1991 of 11 July 2005 on environmental impact assessment (EIA), which defines the categories of units subject to environmental impact assessment and the categories of units subject to specifications, only electricity generation units with a capacity of at least 300 MW are subject to EIA. Consequently, the project to build the Mezzouna solar power plant which has a capacity of 120 MW (less than 300 MW) does not require an EIA. In addition, PV Projects under construction for 60 MW for Scatec and planned 198 MW in Khobna are located about 10 km (as the crow flies). Therefore, these two projects are not considered adjacent and will not be developed by the same developer.

5 KEY ENVIRONMENTAL AND SOCIAL BASELINE FINDINGS

5.1 *Climate*

The average annual temperatures recorded in the study area over the last decade (2015-2024) are around 20.2°C. However, an absolute minimum of around -2.4°C is recorded in January and an absolute maximum of around 47.6°C in July. The average monthly rainfall recorded in the project area over the last decade ranges from a minimum of 1.1 mm in July to a maximum of 37 mm in March. The maximum monthly rainfall (2015-2024) is recorded in March with 133.6 mm, followed by September with 105 mm and April with 64.3 mm. The average annual rainfall recorded in the study area over the last decade is 202 mm.

5.2 *Climate change risk and sources of natural hazards*

The site lies within the Sebkhet Ennaoual watershed, crossed by dry wadis like Oued El Gasala and Oued al Fayid, with flooding only occurring during storm-triggered runoff—historical records show no flooding at the site. Sandstorms, like the one on May 11, 2016, have caused visibility issues and fatalities, posing short-term risks to construction. In April 2025, rainfall between 8 and 40 mm and hail caused severe crop damage in nearby towns; hailstones over 1.25 cm could compromise PV panels. Seismic intensity ranges from IV to V on the MSK scale, considered moderate. Lightning activity is relatively low, with 4–8 strikes/km²/year, and the wildfire risk remains very low due to sparse xerophytic vegetation and minimal fuel load.

5.3 *Air quality and noise*

The PV site and the OHTL are in a sparsely populated area, characterized by low population density and the total absence of industrial activities likely to generate either air emissions or noise pollution.

5.4 *Natural regions, geology, topology, geomorphology and soils*

The solar PV plant and the 12 km overhead transmission line (OHTL) are located within Tunisia's southern low plains—an area of diverse basins and jebels with variable topography and soil conditions. The solar site is flat, tabular plain with elevations between 60 and 80 meters, oriented E-W with gentle slope. Wind-driven nebkas (sand mounds around vegetation) are present due to active aeolian erosion. The OHTL traverses uniformly flat terrain typical of low plains, disrupted locally by nebkas and intermittent wadis, indicating minor hydrological influence.

The site of the solar PV plant and the OHTL are subject to active wind erosion. This dynamic is clearly visible in the presence of nebkas, small accumulations of sand formed around vegetation bushes.

5.5 *Surface water and hydrogeology*

The solar PV plant lies within the Sebkhet Ennaoual watershed and is crossed by Oued Kashashikh—a tributary of Oued El Gasala—characterized by sporadic, non-permanent flow. Similarly, the OHTL crosses Oued El Gasala and Oued Ghedada, both temporary wadis that activate only during intense or prolonged rainfall events. These watercourses reflect the lower arid bioclimatic zone, where mild winters and low precipitation result in unpredictable, short-lived runoff with no fixed seasonality. No specific flow data are available, underscoring their irregular hydrological behavior.

The hydrogeology of the project area includes two major aquifers. The phreatic aquifer of Sebkhet Ennaoual has an estimated annual resource of 2 million cubic meters, with around 0.76 million cubic meters extracted yearly through 191 wells. Its salinity levels, measured as Total Dissolved Solids (TDS), range between 3 and 7 grams per liter (DGRE 2015). The second system, the deep

Miocene aquifer, offers slightly higher water availability with an estimated 2.5 million cubic meters per year, though only 0.65 million cubic meters are currently being extracted via 51 wells. The TDS levels in this aquifer are lower, ranging from 2 to 5.09 grams per liter (DGRE 2015).

5.6 Biodiversity

Habitats and flora, fauna and avifauna are based on the site visits conducted by EAM experts and on their reports, which are provided in [Appendix 5](#) (biodiversity – flora and fauna) and [Appendix 6](#) (avifauna) on the ESAR report.

Habitats and Flora

Both the PV solar plant site and the OHTL corridor are located in arid pre-Saharan steppe zones characterized by degraded vegetation, low plant cover (5–15%), and limited floristic diversity. The presence of *Acacia tortilis*, around 15 individuals (mature and juvenile) were recorded within the PV site. While globally listed as Least Concern (IUCN, 2025), the species is classified as Vulnerable in Tunisia's REGNES and is legally protected. The *Stipa tenacissima* globally listed as Vulnerable (IUCN, 2025) but has no national protection status in Tunisia (REGNES, ME, 2025).

Fauna

A total of 38 invertebrate species were recorded, encompassing 10 taxonomic orders. Most recorded species are xerophilic and well adapted to arid steppe conditions, such as *Pimelia grandis*, *Akis reflexa*, and *Sphincterochila candidissima*.

All recorded species are classified as Least Concern (LC) or Not Evaluated (NE); no threatened species were identified according to the IUCN Red List. Most species are xerophilic and highly adapted to arid steppe environments.

No specific bat habitats have been identified within the PV plant and the OHTL. Bats have been recorded in the Jbel Bouhedma (watercourse and rocky slopes of Jbel Bouhedma so more than 10 km) - Dalhoumi *et al.*, 2016.

Avifauna

Two field surveys were conducted on 15 March and 1 June 2025, covering the entire project area (PV solar plant and transmission line) as well as the nearby Sebkhet Ennoual.

A total of 33 bird species from 15 families were recorded across both ornithological surveys (March and June 2025).

The bird community is dominated by steppe-dwelling passerines (e.g., *Alaudidae*, *Muscicapidae*, *Laniidae*) that are partially or fully synanthropic and highly adaptable to habitat changes.

No critical habitats identified:

- No evidence of major migratory pathways, congregatory species, or endemics.
- The site has a low hosting capacity and does not support >1% of any biogeographic bird population nor >20,000 individuals during key seasons.

Only one species is listed on the IUCN Global Red List: *Lanius senator* (NT).

Five species are listed on the Tunisian National Red List (Hamdi et al., 2021)

Regular sightings of large raptors (*Buteo rufinus*, *Aquila chrysaetos*) and high micromammal abundance confirm the area's importance as a foraging and nesting habitat; new pylons may enhance nesting opportunities.

5.7 Protected Areas

Geospatial and biodiversity data confirm the presence of two key conservation sites within 10 km of the solar PV project:

- Bouhedma National Park & IBA (~3.4 km away)

Hosts important bird species such as the Subalpine Warbler, Pharaoh Eagle-owl, Barbary Partridge, and Moussier's Redstart.

- Sebkhet Ennaoual IBA & RAMSAR Site (~2.5 km away)

Supports similar avifauna, including the Red-necked Nightjar, Houbara Bustard, and Greater Hoopoe-lark, as well as large numbers of waterbirds in its steppe wetland habitat.

Ecological Connectivity:

Passerines and waterbirds have limited movement due to small home ranges and habitat dependence, making regular travel between the PV plant and the conservation areas unlikely. In contrast, raptors are highly mobile and may actively move between the project site and surrounding protected zones, traveling up to 20 km in search of prey.

The Project footprint is located outside Sebkhet Ennaoual and Bouhedma National Park protected boundaries. Given the distance to the sensitive areas and the lack of ecological connectivity, the Project is not expected to have a significant impact on the conservation objectives of these sites.

5.8 *Species of Conservation Interest*

Based on the field surveys and the assessment of biodiversity in the project area (including both the PV power plant and the OHTL corridor), it can be concluded that the Project area does not qualify as Critical Habitat, as defined by EBRD ESR6 and EIB Standard 4 – Biodiversity and Ecosystems. While several species of conservation interest are present (notably *Stipa tenacissima*, *Acacia tortilis*, *Lanius senator*), no globally or nationally Endangered (EN) or Critically Endangered (CR) species were recorded, and no significant congregations, endemic or restricted-range species, or migratory bottlenecks were identified. Therefore, no species trigger Criteria 1, 2, or 3 for Critical Habitat.

Key biodiversity risks associated with the project include:

- **Destruction of protected and vulnerable plant species** (notably *Acacia tortilis* and *Stipa tenacissima*) during earthworks or vegetation clearance.
- **Disturbance of nesting birds** and loss of steppe habitats for ground-nesting or shrub-dependent avifauna.
- **Crushing reptiles and other small fauna** during construction activities, particularly during the active and reproductive seasons;
- **Poaching or harassment** of wildlife by workers (especially snakes and raptors);
- **Barrier effect** of continuous fencing, restricting fauna movement (especially reptiles).

5.9 *Socio-economics*

5.9.1 Socio-economic status of the population

Between 2014 and 2024, Mezzouna's population increased by 12%, rising from 24,766 to 27,748 inhabitants across 4,757 households occupying 5,352 dwellings (INS, RGPH 2014; INS 2024). Despite this growth, the delegation faces high unemployment—18.62% overall, and particularly among higher education graduates (27.4%) and young women (39.17%), exceeding national rates (INS, RGPH 2014).

Employment is mainly concentrated in:

- Construction and public works: 39%
- Education, health, and administration: 22%
- Agriculture: 21% (INS, 2014)

Agriculture remains key, with the region producing 5,000 tons of olive oil out of 160,800 tons for Sidi Bouzid during the 2021–2022 season (Ministry of Agriculture, 2022). Livestock, especially sheep, reached about 30,000 productive animals in 2022 (Ministry of Agriculture, Livestock Report 2022).

Industrial activity is minimal, represented by a single textile factory employing 85 people (APII, 2021). Tourism infrastructure is underdeveloped, with only one residence accommodating 20 guests, located 70 km from the site in Sidi Bouzid (Ministry of Tourism, 2021).

Electrification is nearly complete, with 99.1% of households connected to the STEG grid (ODCO, 2022). However, seasonal water scarcity and a lack of irrigation infrastructure—as detailed in the Environmental and Social Management Plan (ESMP) of Mezzouna (Ministry of the Interior, 2021)—limit agricultural productivity. Ongoing modernization efforts face delays due to regional disparities, limited private sector investment, and persistent poverty above national levels (World Bank CCDR, 2023).

5.9.2 Land (past and current use, land tenure, permanent or temporary acquisition including any legacy land acquisition issues)

The solar PV plant comprises uncultivated and uninhabited land. The land is under private ownership and covers an area of 305 hectares (13 land titles) of which only 180 hectares will be used for the project. The land is being leased to the landowners under a *willing lease, willing lessor* arrangement and no expropriation is required or possible as SCATEC is a private company and does not have the legal right to commence expropriation proceedings.

Landowners confirmed in consultations (EAM, June and August 2025) o All of the landowners stated that they do not use their land. Historically back in the 1960s-70s some of the land was used for agriculture and grazing although this is no longer the case due to drought and poor soil quality as it is rich in gypsum. Only one landowner reported having previously cultivated field crops for household consumption during the rainy season of 2024. A single herder has been identified that uses the site informally for the grazing of cattle. The PV plant area will be divided into three non-contiguous sections. Two main access roads will remain unfenced and fully accessible, ensuring continued access for nearby households. However, minor agricultural tracks will be closed off once the perimeter fencing is installed which will not impact adjacent land users.

The OHTL will have 7 summits (these designate a change in the direction of the OHTL) and crosses mostly state-owned land over approximately 7 km, the remainder crossing over around 19 privately owned land plots. The alignment was carefully designed to avoid residential dwellings; only three homes are located near the route, the closest being over 105 meters from the line. Land use along the OHTL route includes open land (95.5%), olives and almond trees (2.3%), and vegetation planting (1.7%).

A Land Acquisition and Resettlement Framework (LARF) has been prepared. Involuntary access restrictions may affect informal land users (mainly grazing activities) within the Solar PV site, due to the installation of perimeter fencing. Additional impacts to informal land users may occur where land along the OHTL route or in areas temporarily required for project infrastructure, such as access roads, worker camps, and storage sites, etc. is also being used.

The land to be used for the OHTL pylons will be secured through negotiation with the private landowners and, if this is not successful, then alternative land plots will be identified with the aim of seeking a willing landowner. Ultimately, if an alternative land plot is not available then SCATEC could, in principle, pass details of the land plots to STEG who could then use a

Presidential Decree and force the landowner to accept a pylon on their land. On this basis, the safeguards from EBRD/EIB associated with involuntary resettlement apply to the OHTL component of the Project.

A detailed review of applicable national legislation has been undertaken and the key differences with EBRD/EIB policy safeguards, and the steps taken to address these differences, has been defined. Potential project impacts are expected to arise from the following:

- Involuntary access restrictions imposed to informal land users grazing livestock either within the Solar PV Park or land to be occupied by the OHTL pylons, access roads, site office, camp, etc. which may be private or state-owned. Irrespective of the land ownership category, the land from these features may be used informally.
- Impacts to land and land users through the construction and operation of pylons.
- Where involuntary height restrictions are imposed to land users below the OHTL wires due to national minimum distances required between the wires and tall vegetation, where this vegetation must be either removed (if it exists now) and must not also be grown tall in the future. This may reduce the type of trees and production of agricultural/forestry products in the future, leading to a loss of income.
- Unexpected damage to trees and vegetation that occurs during the OHTL stringing process.

Overview of estimated involuntary resettlement impacts

- The Table below estimates the number of Project Affected Households (PAHs) based upon the information currently available. Assuming that each PAH includes 5 people in the household, then the total number of Project Affected Persons (PAPs) is currently estimated at 23 PAHs x 5 = 115. The total number of PAPs will be clarified in the LALRP as the number of people in each PAH will be determined during the future census and socio-economic survey.

Source of impact	Estimated displacement impacts
The installation of perimeter fences along the outer boundary of the Solar PV Site leading to a loss of access to the land inside.	Economic displacement arising from a loss of access to grazing land, currently used by a single herder who is supported by 2 workers. Project Affected Households = 3
The location of a pylon within a privately owned land plot leading to a loss of access to land.	Economic displacement arising from the future loss of access to land where the pylon is to be located, and damage to any trees, crops, or other assets impacted currently on the land (where present). Project Affected Households = 19
A loss of access to land where OHTL pylons are installed on state-owned land which are being used informally for grazing or other purposes.	Based upon the information available there is a single herder who uses state-owned land to the south of the OHTL for grazing. Project Affected Households = 1
Restrictions in the height of vegetation that is permitted along the route of the OHTL below the wires to maintain safety distances. Tall vegetation must be removed (if present) either now or in the future during operation of the OHTL.	Economic displacement arising from the loss of vegetation. Project Affected Persons = None identified at this time. The outcome of the site visit completed along the OHTL route (July 2025) did not identify any tall trees or vegetation that requires removal, even though the OHTL passes through two plots of land where olive and almond

Source of impact	Estimated displacement impacts
	trees are present. These impacts have been avoided by placing pylons either side of the land plots to ensure the wires are of a sufficient height above the vegetation. The situation shall be reviewed prior to the start of OHTL construction as the vegetation and trees may have grown higher since the survey was completed.
Unexpected damage to trees and vegetation that occurs during the OHTL stringing process.	Project Affected Households = None identified at this time although this may occur during the stringing process to the owners of assets below the route if the wires were to suddenly fall during installation.

Additional PAPs may be identified during development of the Land Acquisition and Livelihood Restoration Plan (LALRP) if informal land users are identified to be using land along the OHTL route which is under government ownership.

Resettlement principles are defined in the LARF which also includes an indicate eligibility and entitlement framework. The displaced persons are eligible for compensation for the loss of assets at full replacement cost and livelihood restoration measures. The livelihood restoration measures will be defined using an engagement-led approach during development of the Land Acquisition and Livelihood Restoration Plan (LALRP) . A range of measures will be specifically designed to assist the livelihoods of adult females in displaced households, and additional measures will be designed for vulnerable people in displaced households.

The following consultations were undertaken during development of the LARF:

- 10 engagements with the landowners who own land to be used for the Solar PV Site.
- Omda of Khobna
- Director of OTC (Office de la Topographie et du Cadastre) - government cadastral office) for Sidi Bouzid.

The LARF includes details of a grievance mechanism, and monitoring and evaluation indicators which include both leading and lagging indices. Given the very small number of displaced persons, it is likely that development of the Land Acquisition and Livelihood Restoration Plan (LALRP) will take 3-4 months to prepare and implement. When SCATEC consider that the objectives of the Plan have been achieved, an internal Completion Audit will be conducted to verify that all actions have been completed and, where additional actions are identified, these will be placed into a Corrective Action Plan.

5.10 *Archaeological sites and Cultural heritage*

For the PV solar plant

A site survey on June 1st, 2025 revealed scattered ceramic shards and flint fragments within the PV solar plant area.

The site shows no signs of historical occupation, aside from three unused and deteriorated structures from the 1950s–60s, deemed insignificant by landowners during consultations on June 21st, 2025.

OHTL route

Along the OHTL route, ceramic artifacts—mostly dating to antiquity—and flint pieces were also found, likely deposited by runoff into the Hmilit al Babboush plateau. However, between summits

S2 to S5, the presence of diverse and dense antique pottery fragments (e.g. amphora handles, oil lamp pieces, painted stucco) indicates areas of potential archaeological significance.

Due to proximity to the Oued Ghedada archaeological site and historical sites like Ksar Sid Brahim (~8 km away), future detailed archaeological surveys are recommended once pylon positions are finalized. Any chance finds during construction must be reported to the National Heritage Institute (INP-Tunis).

5.11 *Decommissioning phase*

After 25 years of operation, the PV plant will either transferred to STEG, or dismantled by the Developer ensuring restoration of the site to its original condition.

Before any dismantling activity begins, the entity responsible for this phase should prepare a plan for the disposal of the various components of the PV plant. The plan should first opt for the recycling of the various components of the PV plant, as far as possible. If necessary, the plan must consider disposal in existing waste management facilities in Tunisia as a last resort.

5.12 *Cumulative Impact Assessment Summary*

Cumulative impacts, particularly during the construction phase may include a temporary increase in traffic, noise, and dust emissions, as well as potential restrictions on access to certain grazing areas, in increased pressure on local water use, and biodiversity, particularly on avifauna etc. Impact of the new OHTL of Sidi Bouzid 2 is expected to be limited in comparison with STEG existing OHTL and planned OHTL for PV Project of Khobna (Qair). However, given the presence of Bouhedma National Park (IBA/KBA) and Sebket Ennaoual (RAMSAR/IBA/KBA) cumulative impacts on avifauna are plausible. It is therefore recommended that:

- i) Where technically feasible, consolidate and optimize the number of transmission lines.
- ii) Optimize OHTL design and maintain horizontal line configuration: Avoid stacking lines vertically to minimize disturbance and flight barriers.
- iii) The lines should have the same consistent height. This design helps reduce collision risk and allows for clearer flight paths.
- iv) Conduct surveys (migration seasons: spring (February to April) and autumn (from August to October)), , including pre-construction surveys to the extent possible, to identify the seasonal movements of birds and implement appropriate cumulative mitigation measures for the OHTLs.
- v) Implement post-construction avifauna fatality monitoring (Post-Construction Fatality Monitoring – PCFM). This monitoring will help quantify bird mortality associated with the transmission line and, where necessary, inform the design of targeted mitigation measures, such as the installation of bird flight diverters (BFDs) adapted to locally identified species.
- vi) Equip the new OHTLs with Bird Flight Diverters (BFD), following industry standard designs and spacing in appropriate locations. BFDs should be dynamic as these have better collision avoidance rates.
- vii) Apply multiple collision risk approach recommendations.

6 MANAGEMENT OF IMPACTS AND ISSUES

An essential step in the ESAR is the identification of measures that can be taken to ensure that impacts are mitigated and hence removed or reduced to acceptable levels. The measures are described under the title of a management plan.

6.1 *Scatec's Existing ESMS and Internal Organisational Capacity*

Scatec have an established corporate Quality, Risk, Health, Safety, Security & Environmental ESMS which includes the following elements:

- Global HR policy
- Diversity, Equity, Inclusion and Belonging policy
- HSSE policy
- Quality policy
- Sustainability policy
- Human Rights Policy
- Environmental Policy
- Risk Management policy
- Community Investment Procedure
- Lifecycle management guide
- Anti-corruption programme
- Code of Conduct
- Supplier Conduct Principles

Scatec has ISO certification of their ESMS to ISO 45001, ISO 9001, and ISO 14001. This corporate-level ESMS will be applied to develop and implement the project-specific management plans which are described below.

In Tunisia, Scatec have an Environmental and Social Manager and a Community Liaison Officer (CLO) who is a resident from Khobna.

The following project-specific management plans must be designed and implemented to manage impacts prior to the start of construction.

The following will be developed by the Developer:

- HR policies and procedures that reflect the combined requirements from Tunisian legislation and ESR2, including a Worker Grievance Mechanism.
- Permit and Consents Register which reflects the need to obtain (or renew as required) permits for the execution of the project to comply with all legal requirements and relevant authorizations.
- Stakeholder Engagement Plan and Community Grievance Mechanism
- Land Acquisition and Livelihood Restoration Plan An Environmental and Social Management Plan that will be inserted into the EPC contractor's tender documentation which reflects legally binding commitments to achieve sound E&S performance during the construction, in accordance with national legislation and EBRD's Environmental and Social Policy. This ESMP will also reflect the ESMS requirements of the EPC contractor (see below).
- Contractor Management Plan
- Emergency Preparedness and Response Plan (EPRP)
- Biodiversity Management Plan (if required)

The following management plans will be developed by the EPC contractor:

- Local Recruitment Plan
- Utilities Management Plan
- Worker Code of Conduct and Security Personnel Code of Conduct
- Worker Grievance Mechanism
- Human Resources Management Plan in compliance with Scatec human resources policies
- Worker Accommodation Plan (if required)
- Security Management Plan (if required)
- Emergency Preparedness and Response Plan
- Occupational Health and Safety Management Plan
- Traffic and Transport Management Plan
- Pollution Prevention Management Plan
- Waste Management Plan
- Chance Find Procedure
- Training Plan
- Supply Chain Management Plan
- Change Management Register/Procedure (if required)
- Pylon Routing Procedure
- Community Health and Safety Management Plan

6.2 *Environmental and social Monitoring*

6.2.1 Construction

During the construction stage, Developer and the EPC Contractor will conduct their own E&S monitoring activities which are described in this section. Periodic monitoring may be also undertaken by the *Direction Régionale de l'Environnement* or ANPE as the national environmental regulator.

The Developer will conduct the following monitoring and oversight activities:

- Review and approval of the EPC Contractor's ESMS documentation prior to any mobilisation of equipment and personnel.
- Pre-mobilisation E&S audit of the EPC Contractor before they depart to the site, to ensure that they have adequate E&S resources as stated in the ESMP which are required to implement the mitigation measures include in the E&S Assessment Report.
- A quarterly E&S audit and inspection on the EP Contractor from the start of the construction works, to continue until the work has been completed.
- A pre-demobilisation audit to check that areas of disturbed land have been effectively restored and remediated, where it is necessary/required to do so, prior to the final invoice being paid to the EPC Contractor.

The EPC Contractor's ongoing E&S monitoring reporting to the Developer will comprise the following:

- Daily HSE observation report indicating any corrective actions on observed safety deficiencies, unsafe acts and conditions.
- Weekly site inspections to be carried out using checklist template, based on their ESMS requirements.
- Monthly issuance to the Developer of their latest Risk Register, Waste Inventory Register, and outcome of audits undertaken (in the month) of any third-party waste management infrastructure

used;

- Compilation of a monthly E&S Performance Report covering the following topics:
 - E&S training activities undertaken including driver training;
 - OSH incidents and community health and safety incidents (see below);
 - Details of protective fencing installed to prevent unauthorised entry;
 - Number of engagements undertaken in local schools to raise awareness of the risk of approaching the construction works;
 - Outcome of the ongoing vehicle inspections required by the Traffic and Transport Management Plan;
 - Number of supply chain companies which have been audited in accordance with the Supply Chain Management Plan;
 - Water usage and sources of water being used (including their licensed status);
 - Fuel usage;
 - The generation of hazardous and non-hazardous waste by type and treatment/disposal facility being used, including details of any third-party contractors used to transfer waste materials;
 - The number of workers on-site, broken down by gender and locally recruited staff, or part of the EPC Contractor's main workforce;
 - The number of third-party security personnel being used to provide guards to equipment storages and field camps, details of their screening, and training on the Security Code of Conduct.
 - The number of grievances passed to the Developer per month;
 - The number of worker grievances raised amongst the EPC Contractor's workforce;
 - The number of camps that are operational and the date when they were last inspected internally by the EPC Contractor;
 - Number of chance finds made the actions taken thereafter;
 - Details of any incidents that have required implementation of the Emergency Response Plan and emergency scenario drills completed;
 - Record of any disturbance to fauna (including avifauna) and flora (accidental or otherwise) including road kills, irreparable damage to dens/burrows/nests;
 - Record of evidence of poaching, illegal 'taking/hunting' of flora, fauna (including avifauna);
 - Record of any bird kills or serious injury due to pylon and electrical equipment deployment and a record of any corrective measures undertaken by staff (all) as a result of one or more of the above 3 items;
 - Number of people preferentially employed who are residing in a displaced household, and a breakdown of their local recruitment activities.

OHS monitoring and reporting

In relation to OHS reporting, the following lagging and leading indicators will be reported by the EPC Contractor, to the Developer on a monthly basis:

Lagging indicators

- Lost Time Injury Frequency Rate (LTIFR) which measures serious workplace injuries that result in employees missing work
- Total Recordable Injury Frequency Rate (TRIFR) which includes all recordable incidents, such as medical treatment cases, restricted work, and lost time injuries.
- Severity Rate: Reflects the average impact of injuries in terms of workdays lost Fatality Rate: Monitors the number of workplace fatalities per total hours worked or per number of employees.

Leading indicators

- Hazard Reporting Rate which tracks how many hazards are identified and reported by workers.
- Safety Training Completion Rate which is the percentage of employees who have completed mandatory OHS training programs.
- Inspection and Audit Compliance which is the percentage of scheduled safety inspections and audits completed on time.
- Corrective Action Closure Rate which measures the percentage of identified issues that are resolved within a defined timeframe.
- Near-Miss Reporting Rate which tracks the number of near-miss incidents reported and acted upon.
- Personal Protective Equipment (PPE) Compliance which is the percentage of workers observed complying with PPE requirements during audits.
- Behavioural and Engagement Metrics which aims to ensure a safety culture is maintained.
- Toolbox Talk Attendance Rate which is the percentage of workers attending regular safety briefings.
- Employee Engagement in Safety Programs which measures participation in OHS initiatives, like volunteering for safety committees.
- Feedback Utilization Rate which tracks how often worker suggestions about safety are implemented.

Health and Well-being Metrics

- Occupational Illness Rate (OIR) which measures the number of illnesses directly related to the work environment.
- Health Screening Participation Rate which tracks the percentage of workers participating in regular health check-ups.

6.2.2 Operations

During the operation stage, the Developer will collect the following information on a monthly basis and report this to EIB/EBRD:

- E&S training activities undertaken;
- OSH;
- Community health and safety incidents;
- Comparison of measured EMF levels against national or international exposure guidelines, such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP);
- Number and extent of fire events in the Project infrastructure
- Number of bird/bats
- collisions with any OHTL infrastructure, including species and life stage details;
- Bird mortality and injury rate, including species and life stage (juvenile etc)
- Record of any disturbance to fauna (including avifauna) and flora (accidental or otherwise) associated with any maintenance activities;
- Record of evidence of poaching, illegal 'taking/hunting' of fauna (including avifauna) and taking of flora; and
- Record of any damage to biodiversity mitigation measures devices (e.g., marking devices, flags etc) so that repairs can be arranged.

7 COMMUNICATIONS

As this Project involves the funding of a greenfield facility, it is **Category B** considering EBRD's Environmental and Social Policy (ESP, 2024) and as **Medium Risk** according to the EIB's E&S standards categorisation process, which means that a comprehensive ESAR and review of associated documents must be carried out, followed by their public disclosure for a minimum period of 30 days.

Scatec intends to disclose, as a minimum, the following Project disclosure package:

- The Non-technical Summary (this report);
- The Stakeholder Engagement Plan;

Scatec Website: <https://scatec.com/locations/tunisia/>

The documents will remain available on Scatec, EIB, and EBRD websites for a period of 30 calendar days prior to the project being reviewed by EIB Boards of Directors, and will remain available to the public throughout the duration of the project.

Scatec has implemented a grievance mechanism that can be used by any person or group who wishes to raise a concern or request additional information. A complaint can be received in several forms and through different channels:

- by post to the following address:
24 rue du Lac Tanganyika, Les Berges du Lac 1, 1053 Marsa, Tunis, Tunisia
- by e-mail (moez.bahloul@scatec.com)
- telephone call to Scatec E&S Project Manager (+216) 98 157 018