

AL HENKIYAH 1,100 MW SOLAR PV POWER PLANT



NON-TECHNICAL SUMMARY (NTS) IN ENGLISH

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REV 0

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1 INTRODUCTION

In the Kingdom of Saudi Arabia (KSA), the production of electricity is predominantly dependent on natural gas and petroleum as its principal sources. In 2022, natural gas played a major role in the energy sector, accounting for almost 67% of the total electricity generation. Concurrently, oil constituted approximately 33% of the total, while renewable energy sources remained a negligible portion, providing less than 1%.

In the months with higher temperatures, there was a clear 9% rise in the production of electricity from oil, reaching a maximum of 1.1 million barrels per day in the year 2022. This surge was intended to supplement the current supply from natural gas in order to fulfill the increased seasonal demand. However, Saudi Arabia is committed to decreasing carbon dioxide emissions and transitioning to a more sustainable energy framework.

The National Renewable Energy Program (NREP) is a key component of Vision 2030 for the Kingdom of Saudi Arabia (KSA). It is a comprehensive and long-term plan aimed at diversifying the country's power sources by incorporating renewable energy. The ultimate goal of this program is to achieve economic stability in the long run. One of the main goals of the NREP is to broaden the range of energy sources used in generating electricity, with the aim of raising the proportion of renewable energy to around 50% by 2030.

In accordance with the above, based on a Build, Own, Operate (BOO) Scheme, a consortium of Abu Dhabi Future Energy Company PJSC – Masdar, EDF Renewables, and Nesma Renewable Energy (hereafter referred to as the 'Developer') signed a Memorandum of Understanding (MoU) with the Ministry of Energy (MoE) to develop a 1,100 Mega Watt (MW) solar photovoltaic (PV) project to be located in Madina Province within an area of around 17 km² (hereafter referred to as the 'Project').

The Saudi Power Procurement Company (SPPC) has signed a Power Purchase Agreement (PPA) with the Developer for the 1,100 MW PV Project as part of Round 4 of the NREP.

The Developer signed a 25-year Power Purchase Agreement (PPA) with the Saudi Power Procurement Company (as the off-taker of the electricity) with an agreed fixed tariff.

This NTS provides a summary in non-technical language of the findings contained in the ESIA Report. The ESIA Report contains more detailed information on the Project and the environmental and social issues considered. It includes a description of the need for the Project; details of the Project and the main alternatives considered; the assessment of the potential effects from the proposed development upon the environment and community; and details of any required procedures to mitigate significantly adverse environmental effects. It includes an Environmental and Social Management Plan (ESMP) which describes the monitoring and mitigation requirements for the duration of the project, including responsibilities and any legal requirements. The Developer commits to the ESMP.

A Stakeholder Engagement Plan (SEP) has also been developed for the Project, which describes the planned stakeholder consultation activities and engagement process as well as a grievance mechanism to ensure that it is responsive to any concerns and complaints particularly from affected stakeholders and communities.

2 PROJECT DESCRIPTION

2.1 Project Setting

KSA is administratively divided into 13 regions. These are further divided into governorates, sub-governorates, administrative centers, and districts. The Law of Provinces (Royal Decree No. A/92 of 1992) classifies these areas into Class A and Class B based on factors like population, urban development, demographics, geography, housing, security, transport, environment, and history.

The Project site is located in the Madina Region (or Province), more specifically, the Project is located within Al Henakiyah Governorate around 45 km to the southeast of Al Henakiyah City (the administrative capital of Al Henakiyah Governorate), around 115 km east of Al Madina al Munawwarah City (the administrative capital of

the Madina Region), and around 600 km to the west from the capital city of Riyadh as shown in the figures below.

The Madina Region is further subdivided into eight (8) governorates. As previously mentioned, the Project site is located in Al Henakiyah Governorate which neighbors Al Madina Governorate to the east and Al Mahd Governorate to the south. Moreover, there are 11 administrative centers (cities, villages and towns) under Al Henakiyah Governorate. The closest administrative center to the Project site is Al Henakiyah City which is located around 45 km to the northwest of the Project site.

The Project site has a total area of 17 km² and is located within a governmental owned land around 430 m west of Road 8258.

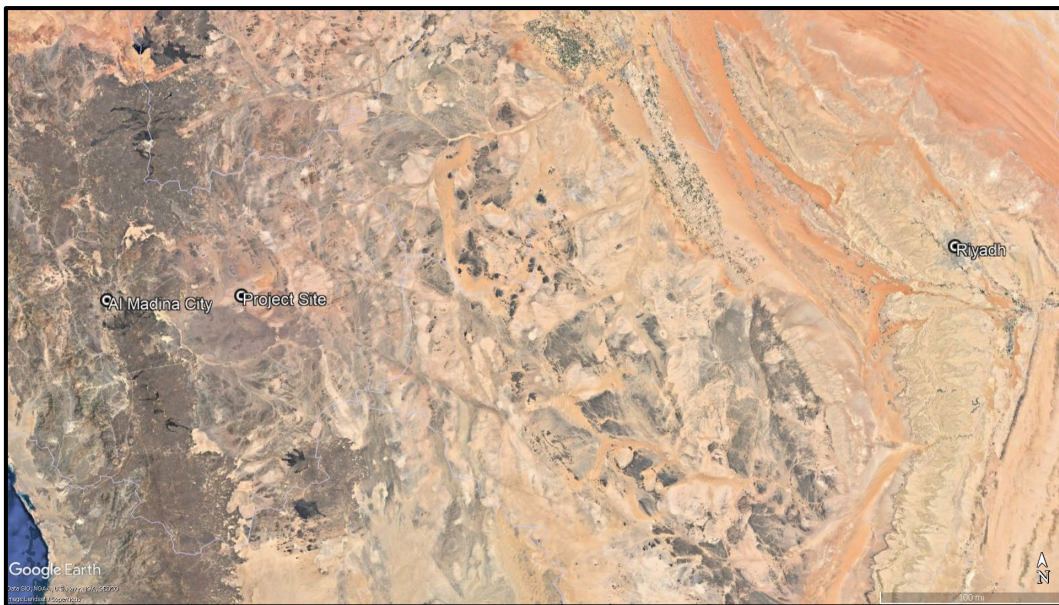


Figure 1: Project Site in Relation with the Capital City of Riyadh

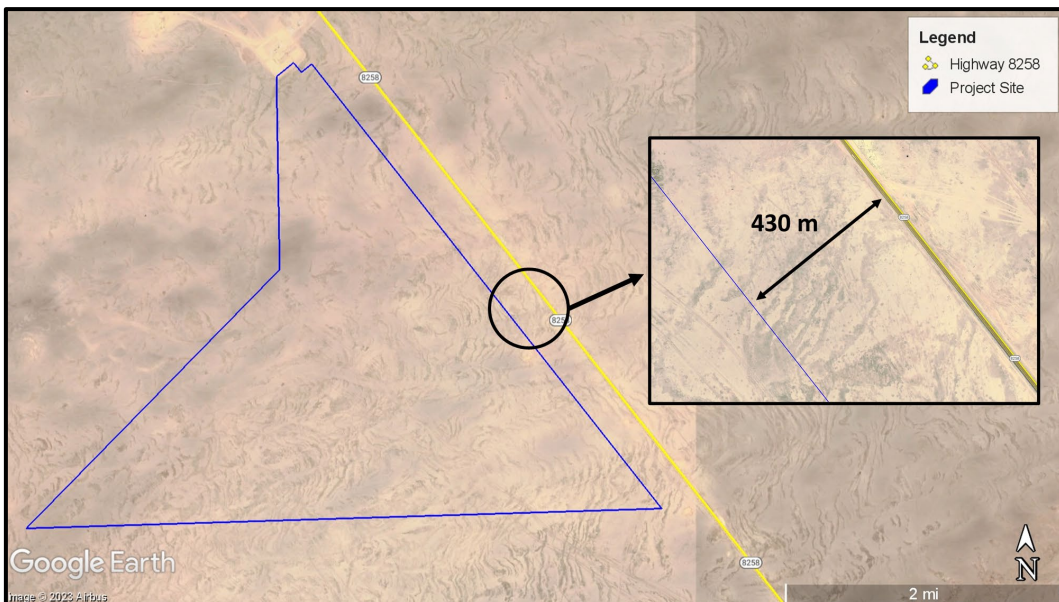


Figure 2: Project Site Relative to Road 8258

The Project will result in crucial positive environmental and economic impacts on the national level. Such positive impacts underpin the rationale for the Project. These include the following:

- Commitment of the Government to meeting the set targets for renewable energy sources;

- Contribute to increasing energy security through reliance on an inexhaustible and independent energy resources. The Project will serve the annual electricity needs of more than 87,700 household in KSA;
- Generating electricity through PV power is pollution-free during operation and will help in reducing greenhouse gas emissions as well as air pollutant emissions. The Project is expected to offset more than 1,840,000 metric tons of CO₂ emissions annually.

2.2 Project Components

The key components of the Project are the PV modules, Inverters, mounting structures and transformers. Solar PV modules are mounted on mounting structure and solar modules are connected in series to form strings and strings are connected in parallel which then will be connected to combiner box/inverters. The mounting structure type considered for the project is horizontal single axis tracker which tracks the position of sun from east to west during the day. Such tracking mechanisms are used to maximize the energy generation from solar PV modules.

Solar PV modules convert solar energy (radiation from the sun) into electricity. Solar PV modules are connected in series and parallel to form a solar array (figure below). Each array is equipped with a horizontal single-axis tracker which carries the array and orients it towards the sun throughout the day to maximize the amount of energy produced.



Figure 3: Typical Power Arrays Composed of PV Panels

Other buildings and infrastructure needed onsite include:

- Inverter/Inverter stations which convert Direct Current (DC) energy to Alternating Current (AC) energy. Inverter stations consists of MV transformer which steps up the voltage from Low Voltage to Medium Voltage level. Inverter stations are combined in multiple groups and will be connected to a substation through underground cables;
- Substation which converts medium voltage to a high voltage level for connection with National Grid;
- Building Infrastructure will mostly include offices for normal daily operational related work, as well as a warehouse for storage of equipment and machinery;
- Road network to include an internal road network for ease of access to the arrays for operation and maintenance purposes as well as security road around the perimeter of the Project site for security patrolling; and

- Fencing around the entire facility and security will be required to ensure safety from criminal activity and trespassing of unauthorized personnel.

Around 6,000 job opportunities at peak during the construction phase for a duration of approximately 16 months. This will mainly include around skilled job opportunities (to include engineers, technicians, consultants, surveyors, etc.) and semi-skilled and unskilled job opportunities (mainly laborers but will also include a number of security personnel).

Around 40 job opportunities during the operation phase for a duration of 25 years. This will include around 15 skilled job opportunities (such as engineers, technicians, administrative employees, etc.) and 25 unskilled job opportunities (such as security personnel, drivers, etc.).

2.3 Project Phases

- Planning and Construction Phase: This phase includes planning and preparation of a detailed design for the Project, transportation of the various Project components to the site (e.g., PV modules, inverters, mounting structures, transformers, cables etc.), on-site preparation activities for installation of the PV arrays, and various other components. Site preparation activities could include excavations, grading, and land-clearing activities. Commissioning tests are done at the end of the construction phase to determine if the installation is done properly and if the PV plant is operating satisfactorily. Such tests involve standard mechanical completion, electrical completion, functional tests, performance tests for each component and complete system of the Project. Tests will be as per applicable IEC standard and as per Project Agreement requirements.
- Operations Phase: This phase involves operating and maintaining the PV plant. This includes, for example, regular PV module cleaning to prevent dust build-up, which could affect their performance. Maintenance can be divided into preventive and corrective maintenance. The preventive maintenance follows a routine service schedule to prevent faults from occurring and keep the plant operating at its optimum level. The corrective maintenance is carried out in response to failures, for example, the repair/ exchange of damaged equipment or inverter faults.
- Decommissioning Phase: Although the current PPA term for the project is 25 years post PCOD, the lifetime of the PV plant can be in the range of 35- 40 years. Upon the expiration of PPA term or upon the expiration of lifetime (whichever occurs earlier), the plant could be decommissioned, and the panels dismantled. Decommissioning activities could include the disconnection of the various Project components (PV array, central inverter stations, delivery station, etc.) for final disposal. In addition, the internal road network will be restored, and gates and fences will be removed.

3 SUMMARY OF ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS & IMPACTS

3.1 Introduction

The Environmental and Social Impact Assessment (ESIA) comprised of environmental and social baseline studies and an assessment of impacts. Mitigation measures, which are included in the ESMP, were identified for potential significant effects and the significance of residual effects determined. The impact assessment followed an assessment methodology developed to reflect current best practice.

The ESIA has provided the engineers and designers with important information regarding the sensitivities of baseline environmental and social resources that could be affected by the proposed development. The resulting design proposal has been developed to take account of these sensitivities and avoid negative environmental effects wherever possible. The key baseline and impact assessment findings are further discussed below.

3.2 Environmental & Social Baseline Conditions & Impacts

(i) *Landscape and Visual*

The Project area in general can be characterized as being dominantly of wide and flat surfaces with no drastic changes in topography as shown in the figure below, with an elevation range between around 815 – 830 m above sea level. In addition, the site can be classified as a desert-like habitat that is arid and barren with little to no natural vegetation coverage. Moreover, as shown in the figure that follows, the Project site is completely vacant and no key structures or man-made features appearing above ground were noted such as roads, electricity lines, pipelines, transmission lines, tracks, etc.

Therefore, the key potential visual impacts from the Project development for both the construction and operation phases are discussed below, all of which have a minor or no significance rating:

- **Construction Phase-** the presence of elements typical of construction sites, such as equipment and machinery, including excavators, trucks, front-end loaders, compactors, etc., can cause visual impacts. The impacts are considered of minor significance. Proper housekeeping measures should be taken to reduce these impacts.
- **Operation Phase-** potential impacts include (i) project visibility, (ii) potential impacts from glare, and (iii) potential island effects.

Given the maximum height of the PV arrays (2 - 3m only), the Project is expected to be visible within the immediate vicinity and up to some hundred meters around the Project site, thus likely to create visual impacts. However, given that no key sensitive visual receptors are within the surrounding vicinity, such impacts are considered of **minor significance**.

There is potential for glare caused by sunlight being reflected off the PV panel modules and the metal mounting structure. The amount of sun reflected depends on several factors, such as the amount of sunlight hitting the surface of the panels, surface reflectivity, geographic location, time of year, cloud cover, and solar panel orientation. However, glare is likely to occur when the sun is not perpendicular to the panel or is low on the horizon (during sunrise and sunset) because the solar panels absorb much less of the incoming light. The figure below shows the typical glare from PV Panels. PV modules reflect much less light and have a lower potential for glare when compared to other materials widely used in other human developments, such as steel, standard glass, and plastic, and even when compared to snow and smooth water. To reduce the potential impacts from glare, the PV modules for this Project are designed with anti-reflective coatings to capture maximum sunlight and minimize reflections, thus reducing the potential for glare. Potential receptors of the impacts of glare are the desert dirt road users, who will temporarily be affected during sunrise and sunset hours when solar absorption is minimal. However, the potential impacts are considered **insignificant** because of their low magnitude and the low sensitivity of the receiving environment.

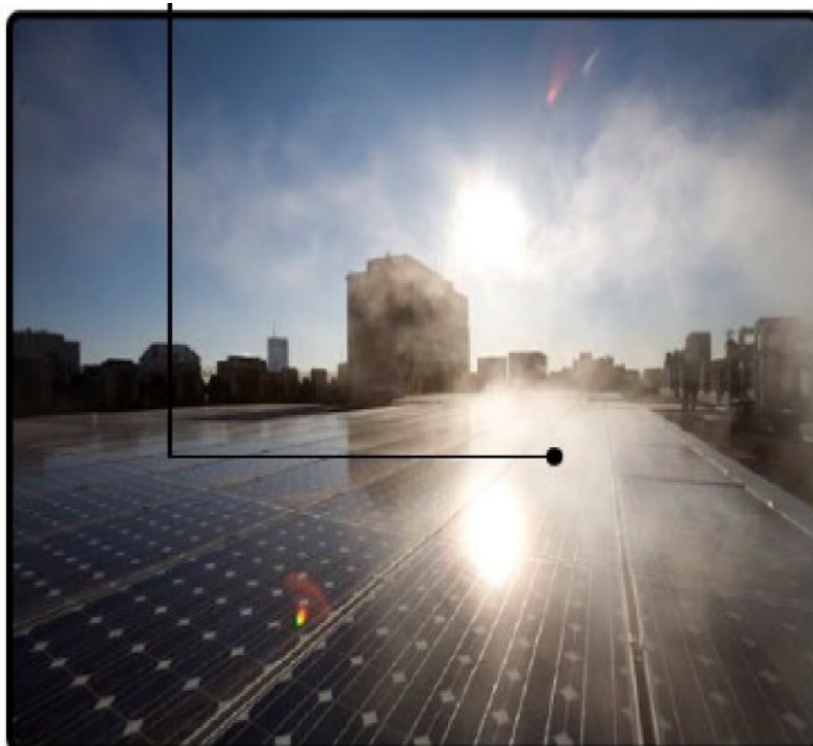


Figure 4: Typical Glare from PV Panels

Lastly, recent concerns about the Photovoltaic Heat Island Effect (PVHI) with solar PV developments exist. All available studies and work (most of which is conflicting) on the PVHI effect have been theoretical or based on simulated models. The available studies show the potential for PV power plants to create warmer environments; however, the lateral or vertical extent of such PVHI effects is unknown due to a lack of data. If the PVHI effects are real, they may be constrained to a small area within the PV installation that quickly dissipates within the surrounding areas. Given the available information on the PVHI effect, the impacts are considered insignificant due to their low magnitude and low sensitivity of the receiving environment.

(ii) Land Use

History of Land Ownership

The land plot where the Project site is located is under the ownership of the Ministry of Municipal, Rural Affairs and Housing (MoMRAH). MoMRAH has entered into a head land lease agreement Saudi Power Procurement Company (SPPC). In turn, SPPC entered into a sublease agreement with the Developer for the entire Project duration period.

Current Land Use

Informal grazing activities were recorded on site during site visits at one (1) location, it was noted that two grazers were undertaking grazing activities. The workers are employees to a Saudi employer who owns the sheep and lives in Al Henakiyah City, and the workers stated that they have been on site in their current location for around four (4) months and have around 35-40 sheep.

Apart from the above there are no physical or economical land use activities were noted onsite nor any evidence which could indicate any such land use activities to include both formal or informal activities. In particular the following was noted:

- No physical structures were noted onsite (such as human settlements or structures). In addition, no man-made features appearing above ground were noted such as roads, electricity lines, pipelines, transmission lines, tracks, etc.

- No evidence of any economic activities to include in particular agriculture activities or grazing activities. In particular, no ploughing marks were noted within the Project area (which would be indicative of agricultural activities) nor any livestock fecal remains (which could be indicative of grazing activities).

No nomadic or Bedouin activity was noted within the Project site or evidence of such activities.

As noted earlier, there is one (1) active area that has been identified as land use within the Project site. The active area contains an informal active sheep barn that is enclosed by a temporary and tangible fence accompanied by a tent that serves as the workers' dwelling. Such activities involve grazing activities.

According to consultations undertaken with Municipality of Al Henakiyah Governorate, it was indicated that grazing and herding activities in the Project site and surrounding areas is prohibited and illegal. Overall, such an impact is considered of minor significance.

During the planning phase, the Developer will implement several measures, including conducting a socio-economic and asset inventory census for displaced persons. Collaboration with the Al Henakiyah Governorate Municipality will ensure the relocation of grazers to a suitable alternative location with access to grazing lands and necessary resources. The Developer bears all expenses related to the smooth relocation process, covering livestock, equipment, shelters, and other essential belongings of the grazers. This comprehensive approach aims to mitigate any adverse impacts resulting from the Project, and after implementation, residual impacts are deemed not significant.

Considering the above, the Project development will not result in any significant land use issues. However, as part of the Stakeholder Engagement Plan (SEP), during the construction and operation phase the Community Liaison Officer (CLO) of the Developer team should aim to document grazers should they visit the area (although unlikely as explained above). In this case they are encountered, engagement activities should be undertaken with the objective of providing information on the project, activities, footprint etc. In addition, it should be emphasized that any grazing activities (if any) can continue within the surrounding areas of the Project.

(iii) Hydrology and Hydrogeology (Soil and Groundwater)

Key impacts related to the Project are mainly from improper housekeeping practices during construction and operation (such as illegal/improper disposal of solid waste, hazardous waste and/or wastewater), which could contaminate and pollute the soil and groundwater resources. Construction activities could disturb the soil, exposing it to increased erosion during rainfall, leading to siltation. Implementing general best practice housekeeping measures can also adequately control such impacts. The ESIA has identified adequate mitigation and monitoring measures to reduce these potential impacts and implement proper housekeeping practices. With such mitigation measures in place, the effects of improper management of waste streams and erosion on soil and groundwater are considered not significant.

(iv) Biodiversity

The biodiversity baseline assessment concludes that the Project site is barren and of low ecological significance and sensitivity. The Project site is not located within or near areas of critical environmental concern, such as protected areas (PAs), Key Biodiversity Areas (KBAs), and Important Bird Areas (IBAs).

The Project site in general is barren and of low ecological significance and sensitivity in terms of flora and fauna. The assessment identified several flora and fauna species within the Project site most of which are considered of Least Concern. In addition, there are no sensitive habitats recorded within the Project site and the site is not located within or near areas of critical environment concern, such as protected areas and/or KBAs/IBAs. With regards to avifauna in particular, the assessment states that the Project site is of medium sensitivity mainly due to its potential to host a small number of soaring and migratory birds based on the outcomes of the IBAT Migratory Soaring Bird Sensitivity Mapping Tool.

Potential impacts include (i) the 'lake effect' that can disorient migratory birds, (ii) improper conduct of workers, including the hunting of animals and birds, (iii) improper management of hazardous waste by workers, and (iv)

health and safety risks due to the potential presence of snakes on some parts of the site. The ESIA has identified adequate mitigation measures to control such impacts and ensure proper conduct and housekeeping practices are implemented. With the implementation of such measures, the impacts are considered of minor significance.

(v) Archaeology and Cultural Heritage

An archaeology and cultural heritage expert undertook a field survey in January 2024 intending to ascertain the presence of any surface archaeological or cultural heritage remains within the Project site. No records of any sites of interest or significance were found within the Project area, nor were any archaeological or cultural heritage sites located within a 1 km radius of the Project.

The main impact anticipated is during the construction phase from site preparation activities. As noted earlier, there are no archaeological remains on the surface of the Project site, and therefore there are no anticipated impacts. However, there is a chance that throughout such construction activities, archaeological remains buried in the ground are discovered. In such cases, the ESIA recommends the ‘chance find procedure,’ which entails immediately stopping construction activities and fencing out the area until the Ministry of Culture and Heritage Commission of Al Madina Province and Saudi Arabia's Heritage Commission has assessed it. With the implementation of such measures, the impact is considered not significant.

(vi) Air Quality and Noise

Construction and operation activities of solar PV Projects are passive in nature and do not result in any adverse air emissions or significant noise sources. However, construction activities may increase dust and particulate matter emissions, temporarily impacting ambient air quality. Moreover, machinery and equipment use are expected to be a source of noise and vibration within the Project site and its surroundings.

As part of the ESIA, appropriate mitigation measures have been identified for dust suppression and noise control, and these will be implemented during the construction phase. This includes regular watering of all active construction areas, proper stockpile management, and use of well-maintained mufflers and noise suppressants for high noise generating equipment and machinery. With the implementation of such measures, the impacts are considered of minor significance.

(vii) Infrastructures and Utilities

Water Resources and Utilities – Consultations were undertaken with the National Water Company (NWC) where it was indicated that the main water supply for the Al Henakiyah Governorate comes from a desalination plant operated by the Saline Water Conversion Corporation located in Yanbu Governorate in Al Madina Province through a 400 km pipeline from Yanbu to Al Henakiyah. The NWC stated that the Project can be supplied with its water requirements through water tankers delivering the water needs to the Project site from an integrated station that purifies and distributes water in Al Henakiyah Governorate.

Wastewater and Solid Waste – Wastewater and solid waste generated during the construction and operation phase will be minimal and are expected to be easily handled by the closest Wastewater Treatment Plant (WWTP) and Landfill. However, it should be noted that there that there is only one (1) landfill that is located near the Al Henakiyah City center and is around 45 km to the northwest of the Project site. Wastewater is carried out through the transportation of sewage through the sewage network that is connected to the Central Treatment Plant for Al Henakiyah Governorate that is managed by the NWC. The Central Treatment Plant is located around 33 km to the north of the Project site

Hazardous Waste Utilities: There are no hazardous waste facilities in Al Madina Province in general. However, where there are currently seven (7) licensed hazardous waste transportation companies in Al Madina Province that are qualified to handle the transportation of hazardous wastes to the nearest hazardous waste disposal facility.

Road Networks: A traffic and Transport Plan will be developed before the commencement of any transportation activities to ensure that the transportation process for all project components is appropriately and adequately managed. In addition, the plan will also identify appropriate traffic management procedures (both on-site and offsite).

(viii) Socio-economic Conditions

The main impacts anticipated on socio-economic conditions are related to potential job opportunities from the Project. These are positive impacts that are expected to benefit the local communities primarily. However, most jobs will only last until construction is done. The Project will create the following job opportunities:

- Approximately 6,000 job opportunities are expected during the construction phase (at peak) for roughly 16 months. This will include skilled job opportunities (e.g., engineers, technicians, consultants, surveyors, etc.) and semi-skilled and unskilled job opportunities (mostly laborers and security personnel).
- Approximately 40 jobs will be created during the operation phase for 25 years. This will include skilled job opportunities (such as technicians) and unskilled job opportunities (such as security personnel and drivers).

The Developer aims to hire local community members for skilled and unskilled jobs to the greatest extent possible throughout the construction and operation phases. The Developer is also committed to adhering to transparent recruitment and procurement procedures that will be developed and implemented in coordination with local authorities.

(ix) Occupational Health and Safety

Throughout the construction and operation phases, there will be generic occupational health and safety risks to workers that can be minor or severe. Such risks may include working under dusty and hot conditions, exposure to electric shock hazards during maintenance activities, etc. The ESIA requires that the contractor and operator of the Project prepare an Occupational Health and Safety Plan (OHSP) tailored to the Project’s site and activities. Such plans aim to ensure the health and safety of all personnel to maintain a smooth and proper progress of work at the site and prevent accidents. With the implementation of appropriate mitigation measures, the potential OHS risks can be of minor significance.

(x) Community Health, Safety, and Security

During the construction and operation phases, there could be potential impacts mainly limited to the following:

- Trespassing of unauthorized personnel into the Project site resulting in more people being exposed to the construction site hazards. It is expected that a detailed Security Risk Assessment (SRA) and Security Management Plan (SMP) will be provided by the EPC Contractor. The SMP is expected to include security measures to prevent unauthorized access to the Project site, such as fencing around the entire perimeter of the Project site and using several security guards on-site. With the implementation of such measures, the impact is considered of minor significance.
- The potential influx of workers during construction could increase the risk of diseases, social vices, inappropriate conduct by workers toward local communities, and increased pressure on infrastructure, services, and utilities. The ESIA recommends the following mitigation measures: (i) medical examination of all workers, (ii) development of a code of conduct and associated disciplinary procedures for workers, (iii) provision of details and procedures for ensuring and maintaining hygienic conditions on-site and conducting training and awareness campaigns for workers. With the implementation of such measures, the residual impacts are considered of minor significance.
- Potential impacts from security guards related to inappropriate management of security issues and incidents by security personnel towards local communities could result in resentment, distrust, and escalation of

events. The ESIA requires developing a security management plan that addresses such issues. With the implantation of such measures, the residual impacts are considered insignificant.

(xi) Climate Change Risk Assessment

A high-level Climate Change Risk Assessment (CCRA) related to the Project’s development was undertaken, and key physical risks that have been investigated which are relevant for the Project development that include floods, sand and dust storms, volcanic eruptions, water scarcity and drought, temperature increase and heat waves, and lastly strong winds. This section also provides a high-level estimation of the GHG emissions and avoidance rates from the Project activities. The Project is expected to provide around 3,245-Gigawatt Hour (GWh) of electricity annually. The Project will likely displace more than 1,840,000 million tons of CO₂ annually.

The proposed Project aligns with Saudi Arabia's climate change commitments, as outlined in various national programs and strategies. It supports the objectives of Saudi Vision 2030, aiming for 50% renewable energy in the total energy mix by 2030. Additionally, it adheres to the National Environmental Strategy, emphasizing climate change adaptation, private sector participation, and national capability strengthening. The Project's compatibility is further reinforced by Saudi Arabia's Updated Nationally Determined Contribution to the UNFCCC, aiming to reduce greenhouse gas emissions by 278 million tons of CO_{2eq} by 2030.

Saudi Arabia faces multiple climate change risks, including floods, sand and dust storms, volcanic eruption, water scarcity, and heatwaves. The Kingdom, with a predominantly arid climate, experiences frequent floods and is vulnerable to the impacts of climate change, such as decreased precipitation and increased temperatures. KSA's water scarcity, dependence on desalination, and susceptibility to sand and dust storms pose significant challenges. Furthermore, the region is at risk of extreme heatwaves, impacting both Project efficiency and the health and safety of outdoor workers. Despite these risks, the Project site in Al Madina Region is assessed to have low flood risk, irrelevant volcanic eruption implications, and manageable water scarcity concerns. The implementation of comprehensive mitigations, including flood risk assessments, emergency preparedness plans, and water conservation measures, renders these concerns insignificant. However, the Project must continue to address the high risk of sand and dust storms and extreme heat, emphasizing worker safety and considering long-term climate change projections.

(xii) Human Rights and Gender Assessment

Saudi Arabia presents a dual narrative in human rights, marked by a commendable Human Development Index (HDI) of 40 out of 189 countries, concealing underlying challenges in civil liberties. Despite progress in life expectancy, education, and per capita income, gender disparities persist, reflected in the Gender Development Index. The Freedom of the World Report rates the nation poorly at 7 out of 100, highlighting restrictions on political rights and civil liberties due to state-controlled measures, surveillance, and limitations on freedom of expression, assembly, and labor union activities.

While adhering to Labor Law and Executive Regulations, Saudi Arabia exhibits restrictive elements, notably lacking provisions for independent labor unions and the absence of laws protecting the right to strike. This creates a formidable landscape for workers' rights. The sponsorship (Kafala) system for migrant workers, despite reforms in 2021, continues to raise concerns. The Kafala system, although improving, poses challenges for domestic and agricultural workers, necessitating ongoing efforts to enhance the welfare and rights of migrant workers.

In the gender sphere, Saudi Arabia strives for progress with initiatives like the Nitaqat program, aiming to boost women's workforce participation. Despite a 147th rank in the 2021 Global Gender Gap Index, the nation appears on track to meet the Saudi Vision 2030 target of 30% women's employment by 2030, evident in its 80/100 score on the Women, Business, and the Law Index in 2021. Legal reforms positively impact gender dynamics, complemented by measures like the Anti-Harassment Law and Resolution No. 20912, fostering a secure and inclusive work environment. Social norms, however, remain influential in women's career advancement, emphasizing the need for holistic approaches that address cultural challenges alongside legal reforms.

Following mitigations, the project anticipates limited, short-term, and low-likelihood negative impacts on human rights and gender. The EPC Contractor will develop a comprehensive Labor and Working Conditions Management Plan, adhering to Saudi labor laws and IFC PS 2 requirements. This includes HR policies, recruitment procedures, local engagement, and worker welfare, with a focus on gender sensitivity and non-discrimination, aiming for a fair and inclusive working environment.

4 ENVIRONMENTAL & SOCIAL MANAGEMENT & MONITORING

The ESIA includes an Environmental and Social Management Plan (ESMP), which outlines adequate measures and controls to minimize and mitigate the potential environmental and social risks and impacts identified for the construction, operation, and decommissioning phases of the Project. To address all the potential risks and impacts of a project, the ESMP utilizes the mitigation hierarchy. After managing impacts, there is a need to monitor for compliance. Monitoring may include observation and recording or data gathering and sampling. Monitoring reports will be required from the Contractor and Operator during the construction and operational phases. The monitoring results will help assess compliance and the long-term cumulative effects, if any. If ongoing problems occur, adaptive mitigation measures can be developed and implemented.

5 ASSOCIATED FACILITIES

Saudi Electricity Company (SEC) will be responsible to design, construction, and operation of new substation (called Grid Station). The project will be connected via OHL line from PV plant substation to Grid Station. Six dedicated feeders are allocated in Grid Station to connect PV project.

As shown in the figure below, the Grid Station that will be developed by the SPPC is located adjacent to the Project site to the North. The specific details regarding the type of connection to the Grid Station will be developed during the detailed design stage.

Typical associated facilities (which will be constructed by SEC) will include the following:

- Grid station which will convert the voltage from 110kV to 380kV. The preliminary location of the Grid Station is provided in the figure below; and
- Any required Overhead Transmission Line (OHTL) that will run from the Grid Station to the National Grid (380kV).

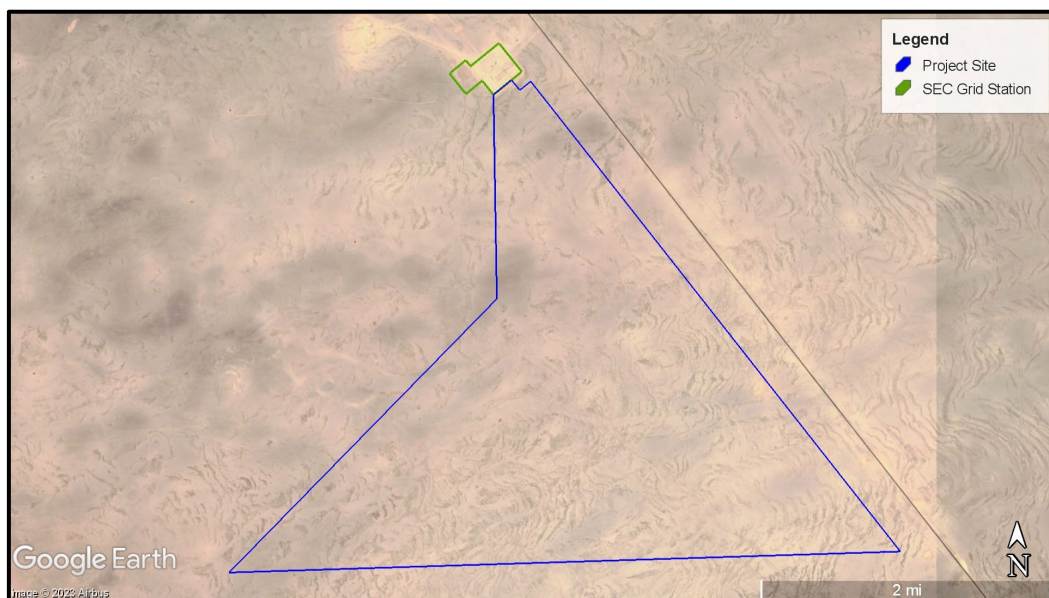


Figure 5: Project Site in Relation to Grid Station