

Non-Technical Summary (NTS)

Scatec Shadwan 900 MW Wind Farm, Egypt

RCREEE

Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة



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1. INTRODUCTION

Since 2007, Egypt has experienced an energy supply deficit due to the rapid increase in energy consumption and the depletion of domestic oil and gas resources, shifting its position as a net hydrocarbon exporter for the last three decades to that of a net importer. This has brought a set of challenges to the energy sector, including electricity shortages, caused in part by the decline of domestic gas production, as natural gas is the main source of electricity, accompanied by highly subsidized energy prices, with negative financial implications for already dwindling government revenues.¹

Acknowledging the severity of the situation, the Government of Egypt (GoE) has taken ambitious measures to adopt an energy diversification strategy with increased development of renewable energy and implementation of energy efficiency, including assertive rehabilitation and maintenance programs in the power sector.² To this extent, in 2013, the Arab Republic of Egypt (through the Ministry of Electricity and Renewable Energy) had developed and adopted the Integrated Sustainable Energy Strategy (ISES) 2015 – 2035, which provides an ambitious plan to increase the contribution of renewable energy to 42% of the electricity generated by the year 2035.³ This target includes approximately 26% from solar energy, 14% from wind energy, and about 2% from hydropower.⁴

In that respect, the GoE issued the Renewable Energy Law (Decree Law 203/2014) to support the creation of a favorable economic environment for a significant increase in renewable energy investment in the country. The law sets the legal basis for the Build, Own and Operate (BOO) scheme to be implemented. Through the BOO mechanism, the Egyptian Electricity Transmission Company (EETC) invites private investors to submit their offers for solar and wind development projects, for specific capacities. In addition, the GoE (through the New and Renewable Energy Authority (NREA)) provides the land for the investors.

In accordance with the Law above, the GoE has made land available for investors in the Gulf of Suez (GoS) to install wind power plants. Therefore, Scatec ASA is proceeding with developing a new wind power plant project with a capacity of 900 MW under the BOO scheme (hereafter referred to as the '**Project**') located in the Ras Gharib region within the Red Sea Governorate. Scatec ASA established a Special Purpose Vehicle (SPV), "Shadwan Wind Power SAE", that is wholly owned by Scatec ASA and that will be responsible for the development and implementation of the Project (hereafter referred to as the '**Developer**'). Following this, a Power Purchase Agreement (PPA) for a 900 MW Wind Farm between the Developer and the Egyptian Electricity Transmission Company (EETC) has been signed.

This document, the Non-Technical Summary (NTS), provides a summary in non-technical language of the findings presented in the Environmental and Social Impact Assessment (ESIA) Report. The ESIA Report contains detailed information on the Project and the environmental and social considerations involved. It includes a description of the Project's purpose, an assessment of potential environmental and social impacts, and any necessary mitigation measures for significant adverse effects. Additionally, the report includes an Environmental and Social Management Plan (ESMP), outlining monitoring and mitigation measures, responsibilities, and legal requirements for the Project's duration, all of which the Developer is committed to implementing.

A Stakeholder Engagement Plan (SEP) has also been developed, detailing the planned stakeholder consultation activities and engagement process, as well as a grievance mechanism to address complaints

¹ [UNIDO – Low-Carbon Hydrogen Assessments in Egypt Highlights \(PDF\)](#)

² [Renewable Energy Outlook, Egypt \(IRENA, 2018\)](#)

³ [Egypt - Countries & Regions - IEA](#)

⁴ [Egyptian State Information Service. \(2023\). Egypt's efforts in renewable energy and transition to a sustainable energy mix.](#)

from affected stakeholders and communities.

2. PROJECT DESCRIPTION

2.1 Administrative Setup and Project Location

Administratively, Egypt is divided into 27 Governorates. Governorates are then divided into ~~Aqsam~~ ^{Hay} (singular: Hay⁵) or Marakez⁶ (Districts) singular (Markaz) which are then subdivided into local units, which are finally divided into cities, villages and hamlets.

The Project site is located within the Red Sea Governorate and is around 270 km to the southeast of the capital city of Cairo. The Red Sea Governorate is bordered by the Red Sea Cost to the east and Bani-Suef, Menia, Asyout, Suhag, Qena, Luxor and Aswan Governorates to the west, Suez Governorate to the North, and North Sudan to the south. Red Sea Governorate's total area is around 120,000 km², forming 11.9% of the country's total area.

Administratively, the Red Sea Governorate is divided into seven (7) Cities (also known as Districts), each headed by a Local City Council. The capital of the Governorate is Hurghada that is located around 115 km southeast of the Project site.

Table 1: Region Division of Egypt

Governorate	Legend	Governorate	Legend	Governorate	Legend
Cairo	11	Gharbia	3	Suhag	24
Alexandria	7	Menoufia	2	Qena	25
Port-Said	14	Behera	10	Aswan	27
Suez	12	Ismailia	6	Luxor	26
Damietta	13	Giza	19	Red Sea	22
Dakahlia	4	Bani-Suef	8	El Wadi El Gidid	21
Sharkia	5	Fayoum	18	Matrouh	20
Kalyoubia	1	Menia	17	North Sinai	15
Kafr-El-Sheikh	9	Asyout	23	South Sinai	16

Table 2: Project Site Coordinates

Point	Latitude	Longitude
1	28.085945	32.944679
2	28.096690	32.945182
3	28.132781	33.001798
4	28.062129	33.077327
5	28.016011	28.016011

⁵ Hay. In the administrative division of Egypt, the Hay is an urban district made up of neighborhoods and residential blocks (not villages). It usually has more commercial and government services than smaller neighborhoods and functions as the main local administrative unit in urban governorates and large cities.

⁶ Markaz. In the administrative division of Egypt, the Markaz is the main city or village followed by a group of villages in agricultural areas (not urban), and often the most important city is a Markaz for a total of villages. The Markaz has more commercial markets than villages, and there may also be branches of government service institutions and agencies serving villages. Each Governorate of the Delta and Upper Egypt includes a number of Markaz, Cities and villages.

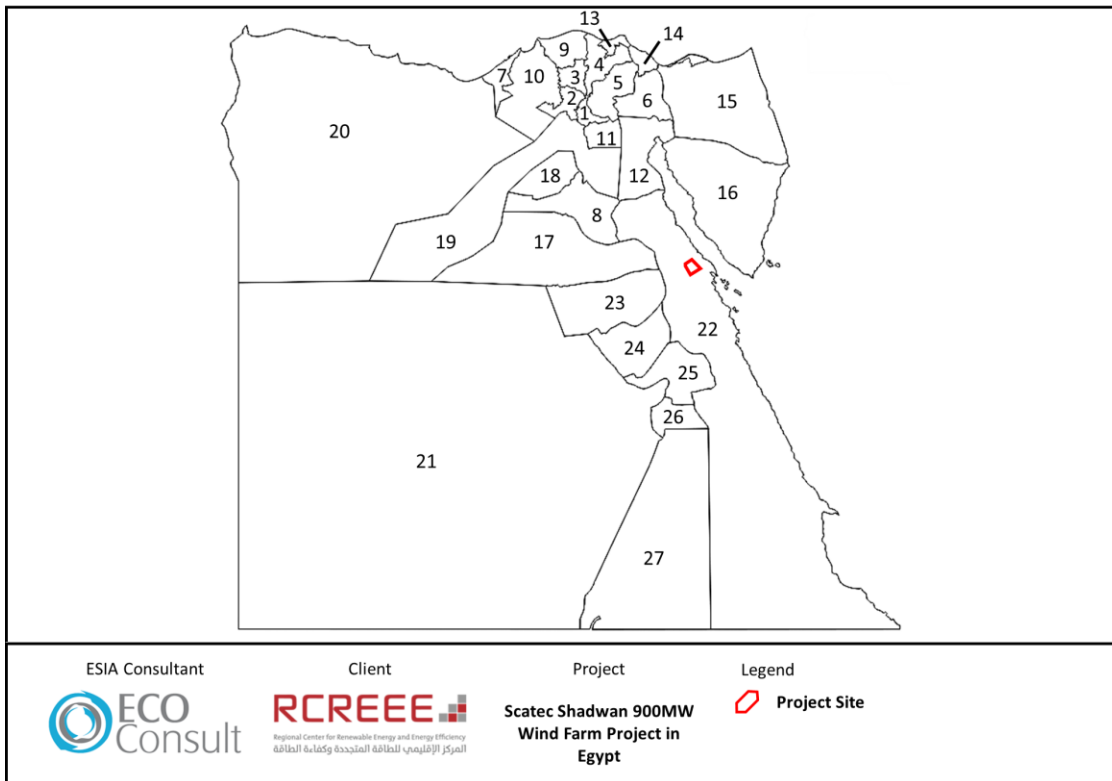


Figure 1: Administrative Division of Egypt

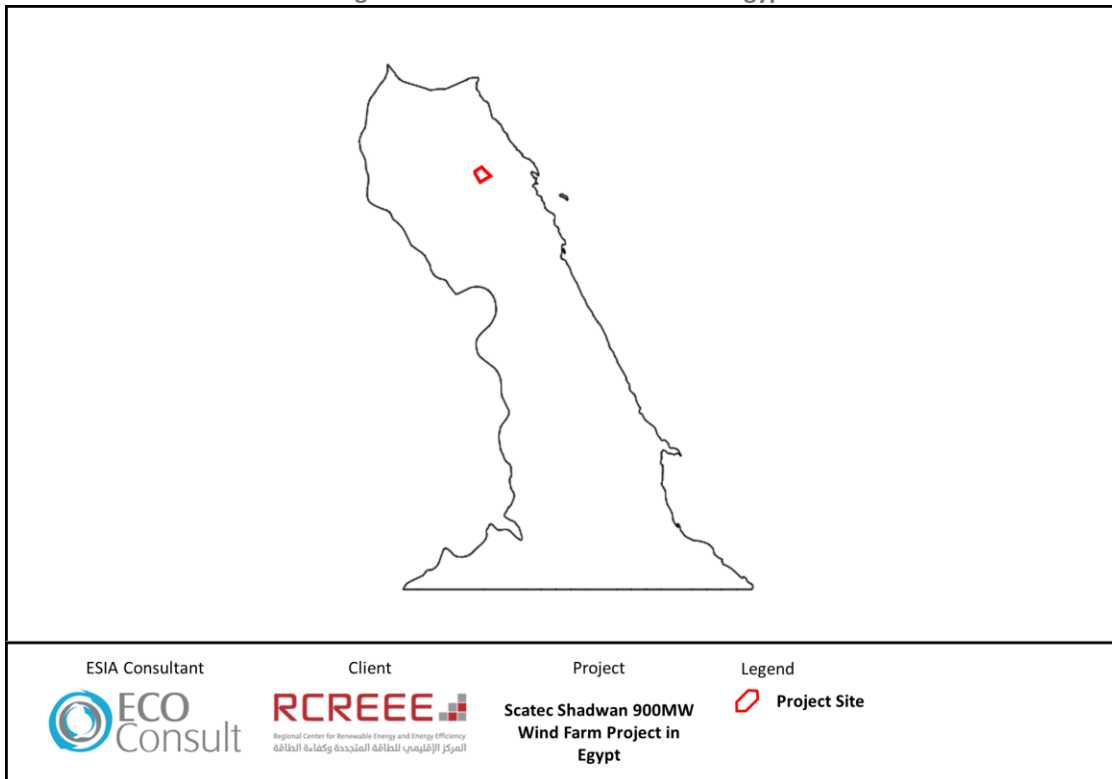


Figure 2: Red Sea Governorate

The Project site is located within the Ras Gharib City (or District) and therefore administratively is under the Ras Gharib City Council. The Ras Gharib District is further divided into Ras Gharib town as well as two

(2) rural (village) local units (Zaafarana and Wadi Dara). The closest community settlement to the Project site is Ras Gharib city that is located around 22km to the northeast. Ras Gharib City is the second-largest city in the Red Sea Governorate, and the most important Egyptian city in terms of oil production.

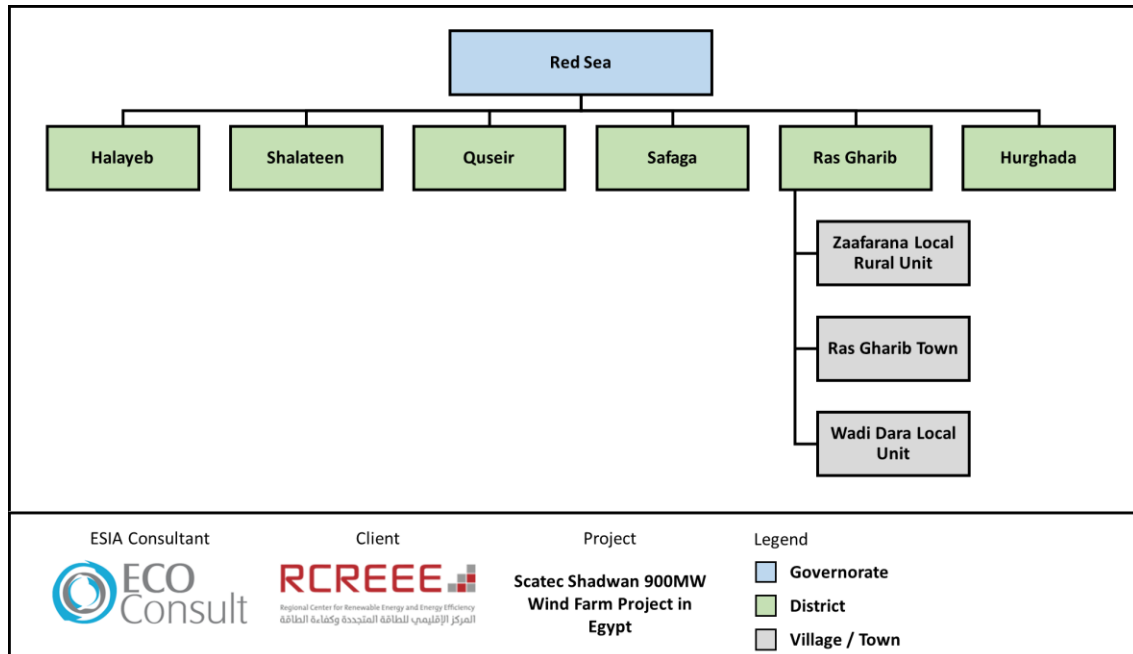


Figure 3: Administrative Division of Red Sea District

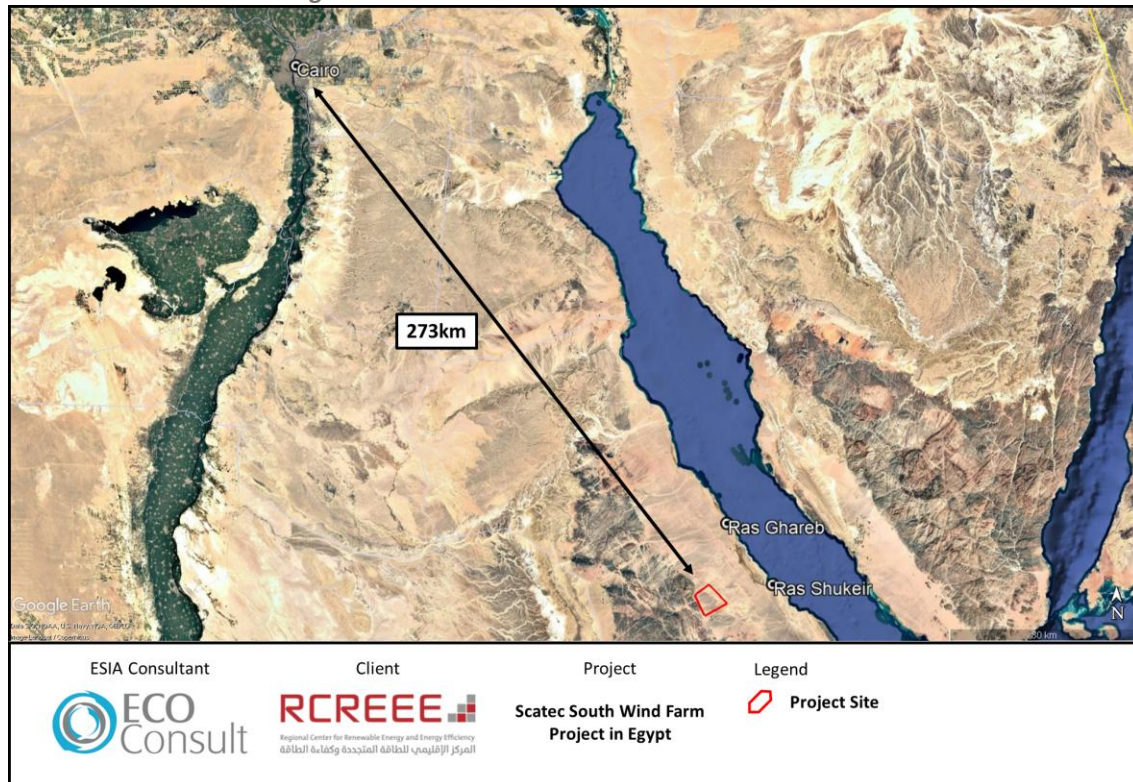


Figure 4: Project Distance from Cairo and Ras Gharib

The Project site is located within one of several areas in the GoS allocated by the Government of Egypt for the development of renewable energy projects. The Project site has an area of 90 km² and lies within 350 km² land defined by Presidential Decree No. 628 of 2024 which allocates this state-owned land to the New and Renewable Energy Authority (NREA) as shown in the figure below.

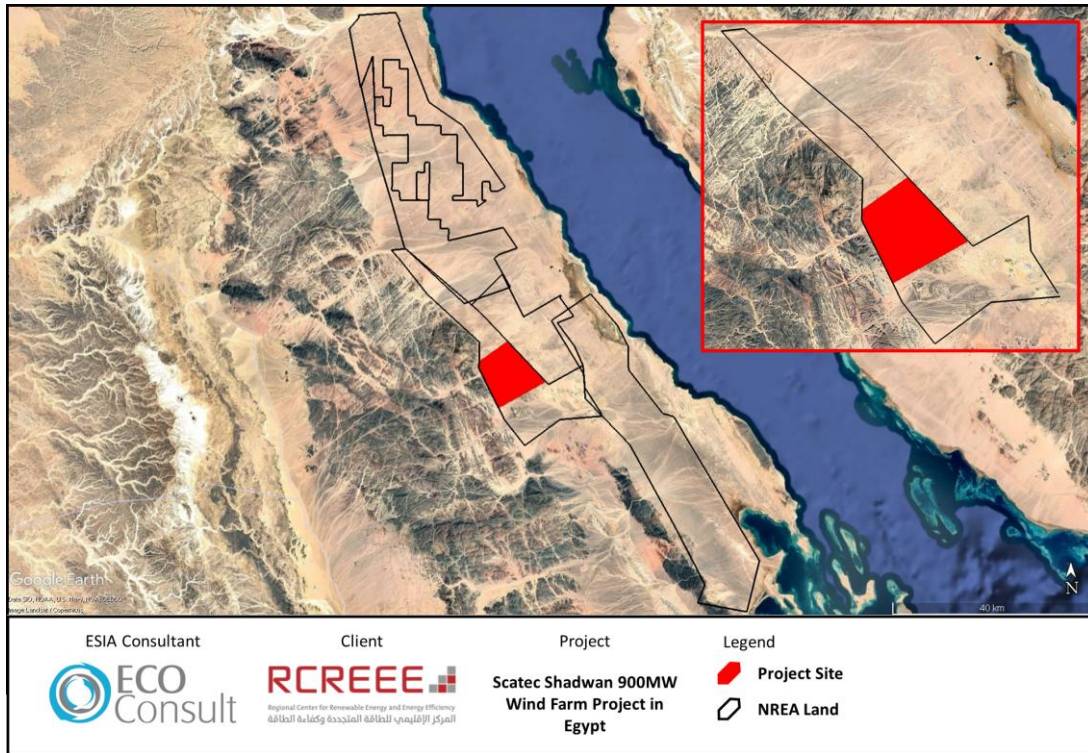


Figure 5: Project Site within Land Allocated for Renewable Energy Developments

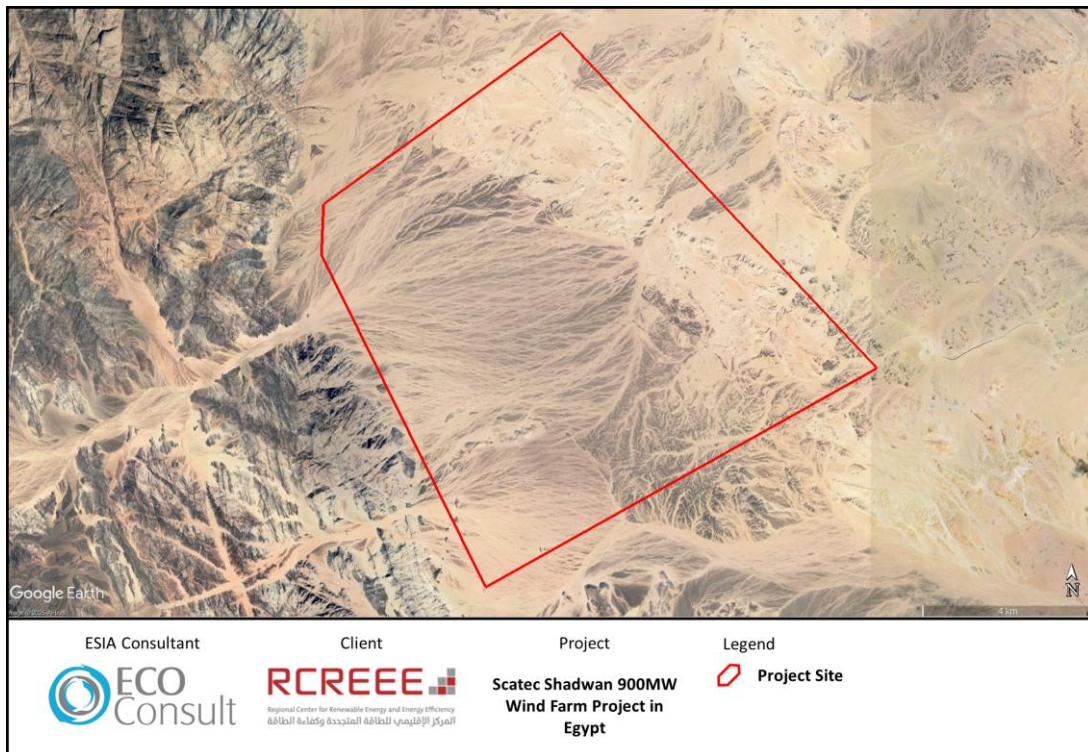


Figure 6: Project Site

2.2 Local Communities

Throughout the NTS report, the term local communities will be used. This will refer to the following settlements in particular:

- Ras Gharib city is located around 22 km north-northeast of the Project site; and
- Wadi Dara village is located around 10 km southeast of the Project site. Although it is not considered a residential community area; however, it is an area where local communities engage in economic activities. Community members operate poultry and cattle farms within Wadi Dara, and the area plays a significant role in supporting their livelihoods.

The above communities have been selected as affected communities based on the following rationale:

- Administrative Setup: the Project site as explained earlier is located within Ras Gharib District.
- Proximity to Site: the closest settlements were considered as local communities, therefore are the communities that are most likely to be impacted (positively or negatively) in some way by the Project.

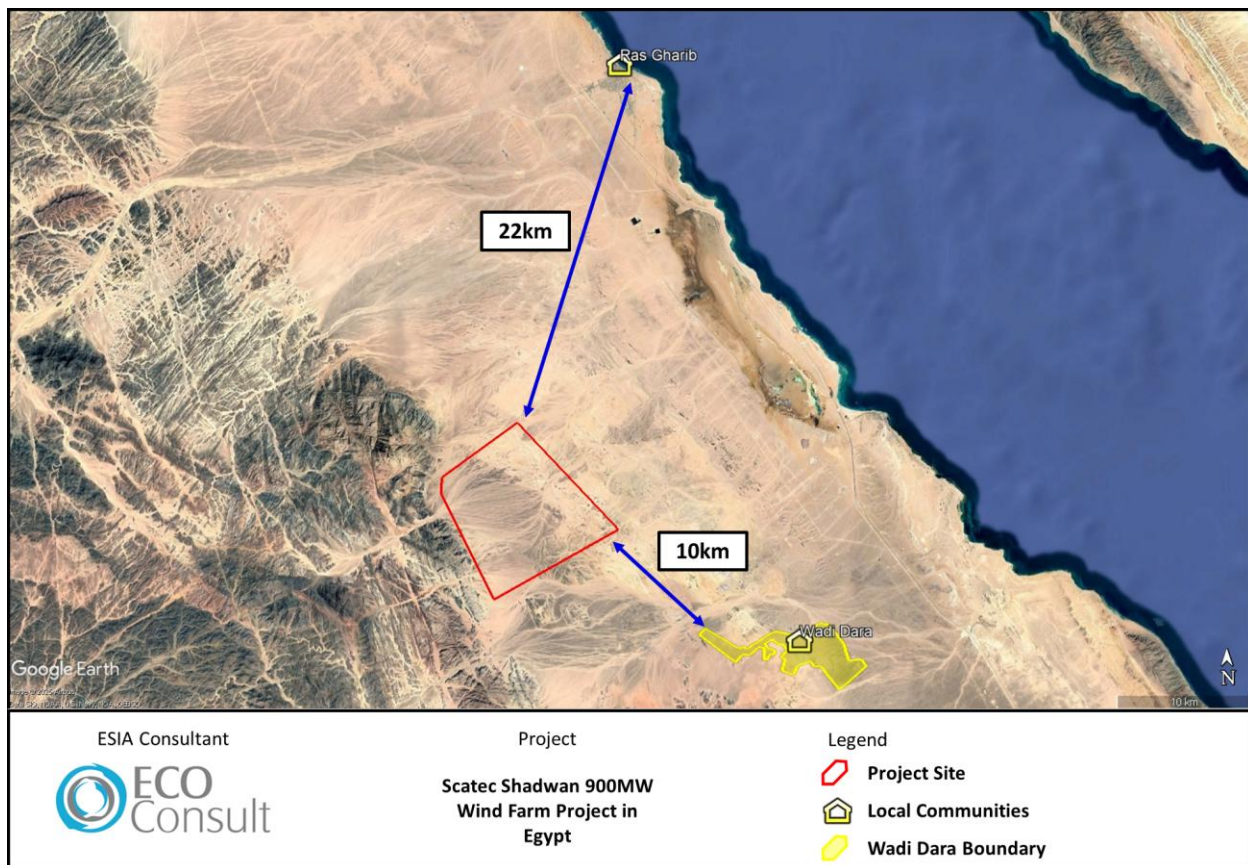


Figure 7: Project Site and Closest Communities

2.3 Project Components

Wind turbine technology relies on harvesting the kinetic energy in wind (i.e. movement of wind) and turning it into mechanical energy which in turn is used for electricity generation. The key components of the Project include the following:

- Wind Turbines: a typical wind turbine is presented in the figure below. For this Project there are to be 83 wind turbines occupying the Project site for a capacity of 11 MW. The turbines will have a hub height of 115 m, tip height of 220m and a rotor diameter of 210 m. The Developer has prepared an initial layout for the Project as shown in the figures that follows.
- Infrastructure and utility elements for the Project which will include:
 - Medium Voltage (MV) Cables: Underground medium-voltage cables (33 kV or 35 kV) will connect the wind turbines to the onsite substation through buried trenches.
 - Communications Network: A fibre-optic communication network will link all turbines to the SCADA system at the substation and will be installed within the same trenches as the MV cables.
 - Substation: An onsite high-voltage substation will collect power from the turbines and step up the voltage from 33 kV or 35 kV to 500 kV for connection to the national electricity grid.
 - Building Infrastructure: Onsite operational facilities will include administrative offices, a control room, workshop, and storage areas for equipment, spare parts, oils, fuel, and lubricants.
 - Road Network: An internal road network will be established to support turbine installation and ongoing maintenance, with alignment designed to follow existing tracks and dirt roads as much as possible.
- Associated facilities: which will mainly include three Overhead Transmission Line (OHTL) that will connect from the substation onsite to the National Grid. EETC is to be responsible for off-site connection works from the onsite substation to the National Grid. A standalone ESIA shall be undertaken by EETC for the OHTLs.

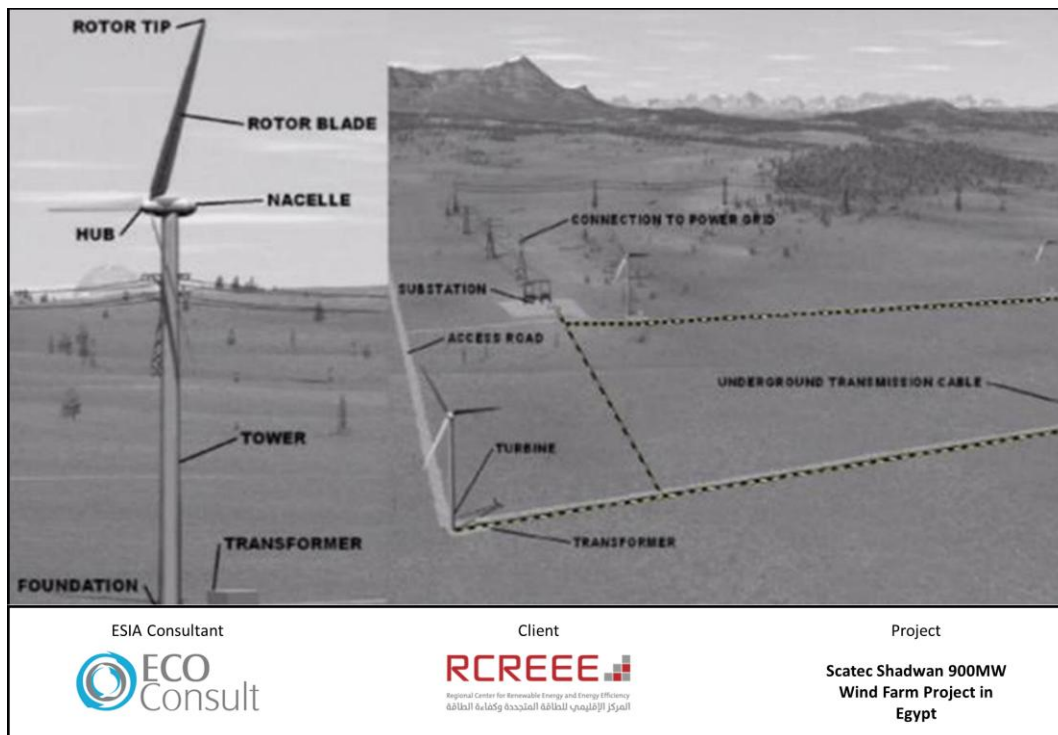


Figure 8: Typical Structural Components of a Wind Turbine and Wind Farm
(Source: EHS Guidelines for Wind Energy, IFC)

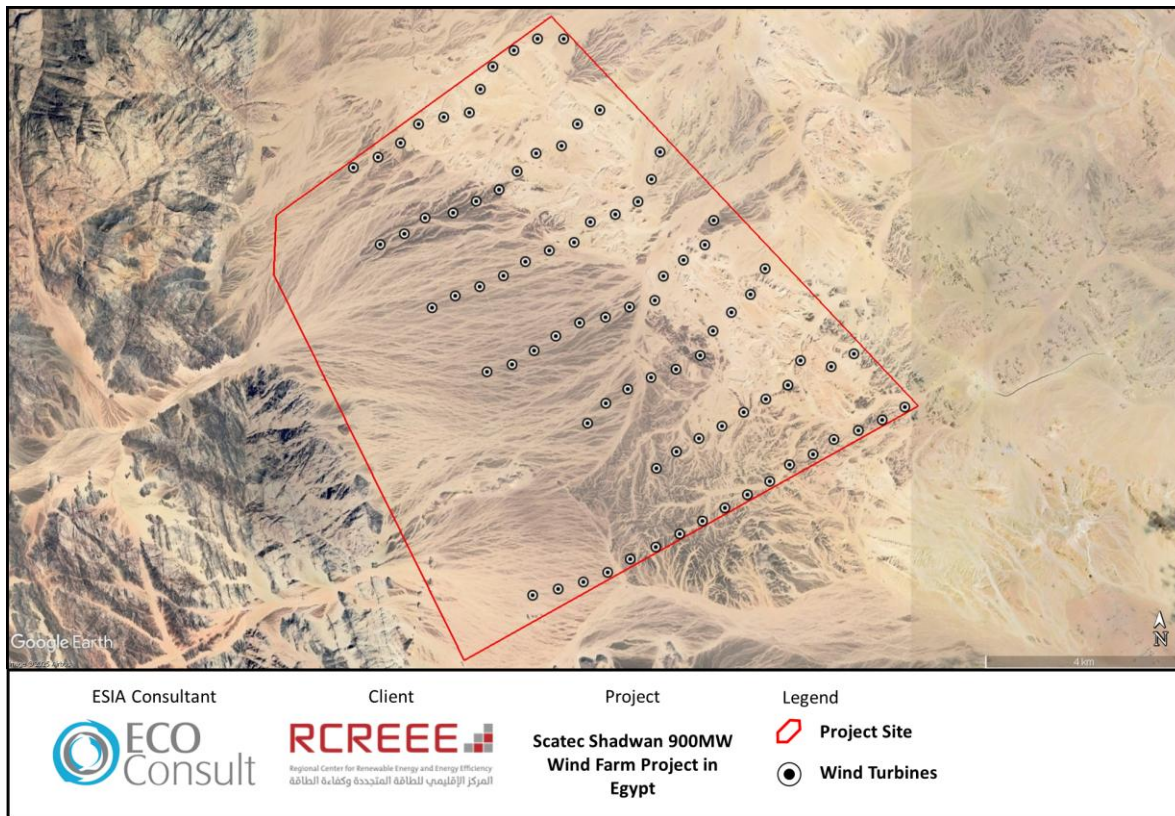


Figure 9: WTG Layout

2.4 Project Phases

The Project will include 3 distinctive phases as follows:

- **Planning and Design Phase:** this phase is ongoing and is expected to be completed by June 2026.
- **Construction Phase:** is expected to require around 31 months from June 2026, that will include: (i) preparation of the detailed design, (ii) transportation of components to the site, (iii) site preparation activities (land clearing, excavations, etc.), and (iv) installation of components.
- **Operation Phase:** is expected to start June 2028 for the duration of the PPA which is as discussed earlier set for 25 years. That will include the normal daily operation of the wind farm and the undertaking of maintenance activities as required.
- **Decommissioning Phase:** according to the PPA agreement, the Project is expected to be operational for 25 years. In the case of complete decommissioning of a wind turbine, the tower and blades of the removed wind turbine will be taken down by crane, disassembled into components, and then the turbine will be refurbished at source and used elsewhere for another Project or sent for final disposal. The base will typically be left in place and covered by gravel and peat or loam. Internal road networks and access roads are typically kept in place. Gates and fences (e.g. substation area and onsite offices) will be removed. Tracks used for maintenance vehicles will be restored and can be kept as agricultural routes. Gates and fences will be removed.

2.5 Analysis of Alternatives

2.5.1 Site Selection Alternatives

The GoE has allocated to the NREA through Prime Ministerial Decree No. (37/4/15/14) of 2015 land for the development of renewable energy projects through usufruct rights. The area was proposed by the National Centre for Land-use Planning and was approved by the Council of Ministers. In line with the decree, the government assigned about 7,600 km² in the GoS, east and west of the Nile, Benban, and Kom Ombo regions, of which about 5,700 km² (75% share) were designated for wind projects and 1,900 km² (25%) for solar energy projects (25% share). These projects are being developed through usufruct rights, which grant the government the right to use the land while retaining ownership.⁷

As discussed earlier, the Developer signed a MoU with the Government of Egypt. The Project is located inside an area of land allocated to NREA by virtue of Presidential Decree No. 628 of 2024 for the development of renewable energy development projects, as shown in the figure below.

In general, the key factors considered by the GoE and NREA for selection of such areas included the following:

- Areas to be under governmental ownership and therefore do not require any land acquisition measure;
- Areas to be mostly free from competing uses such as agricultural or housing developments to avoid resettlement and livelihood restoration requirements;
- Areas to be located with the highest wind and solar power potential;
- The geomorphology of the areas to be favorable for renewable energy development and requiring limited construction and landscape modification measures; and
- The access to the areas should be easy requiring only limited road construction measures.

Based on the above, NREA granted the Developer full access rights to the specific Project for the development of a 900MW wind farm Project. Therefore, taking the above into account, there are no site alternatives that were considered by the Developer in this case.

It is important to note that the Developer had no authority, influence or decision in the site selection process as land allocation was handled by the Ministry of Electricity for the Project. In addition, the entire Gulf of Suez area is now planned for new and additional wind farms and/or green hydrogen developments further restricting availability of any alternative lands within the area.

⁷ Renewable Energy Incentives (IRENA, 2018)

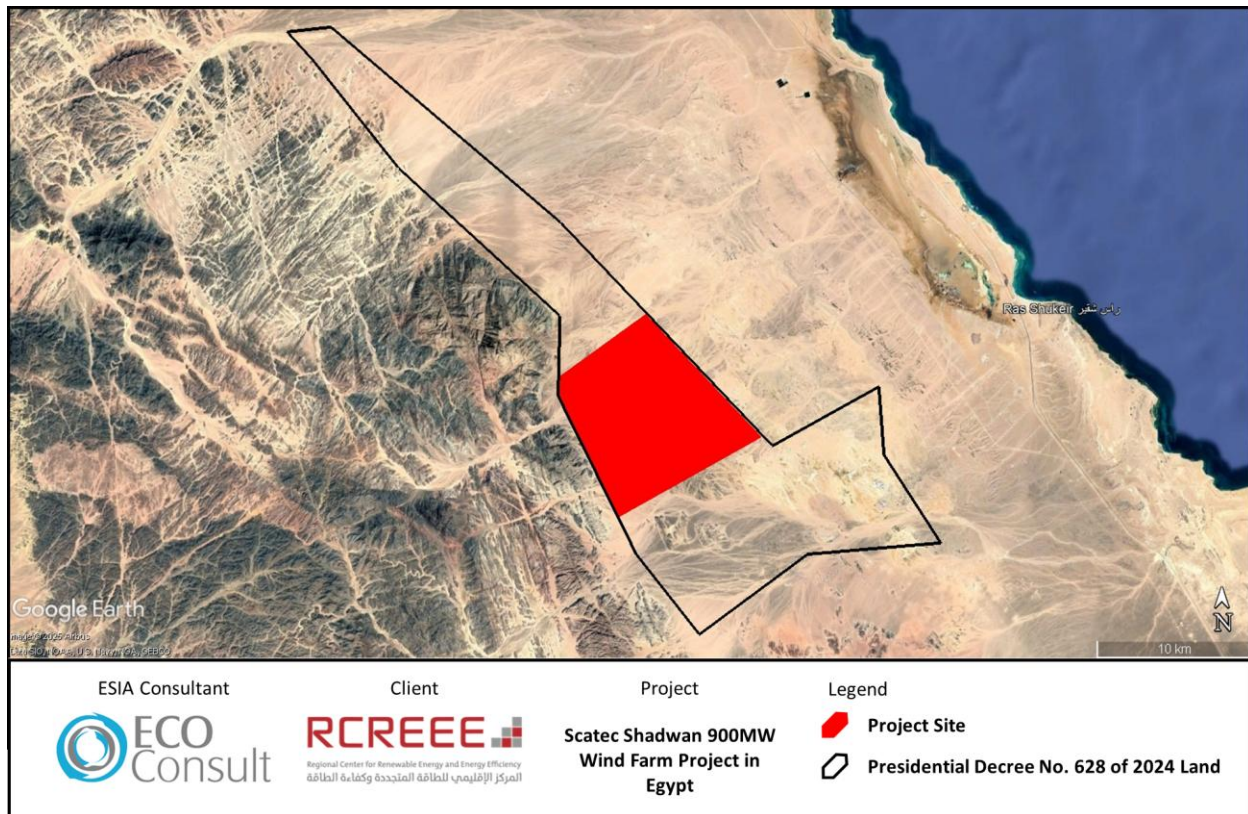


Figure 10: Project Site within Land Allocated for Renewable Energy Developments

Biodiversity

Initial analysis was undertaken by the “E&S Team” and based on desktop research it was indicated that the Project site does not intersect or overlap with any Key Biodiversity Areas (KBAs), Important Birds Area (IBA) and Protected Areas. The closest KBAs and IBAs to the Project site is Gebel El Zeit KBA IBA that is located around 7km east of the Project, and Hurghada KBA IBA that is located around 59km south of the Project site. The closest Protected Area is Red Sea Islands that is located 48km southeast of the Project site. In addition, there are there are four (4) Proposed Protected Areas near the Project that are El-Galala El-Qebalya, Shaieb El-Banat, Malahet Ras Shukeir and Wadi Qena – all of which are located 63km northwest, 54km south, 13km east and 31km west of the Project site, respectively.

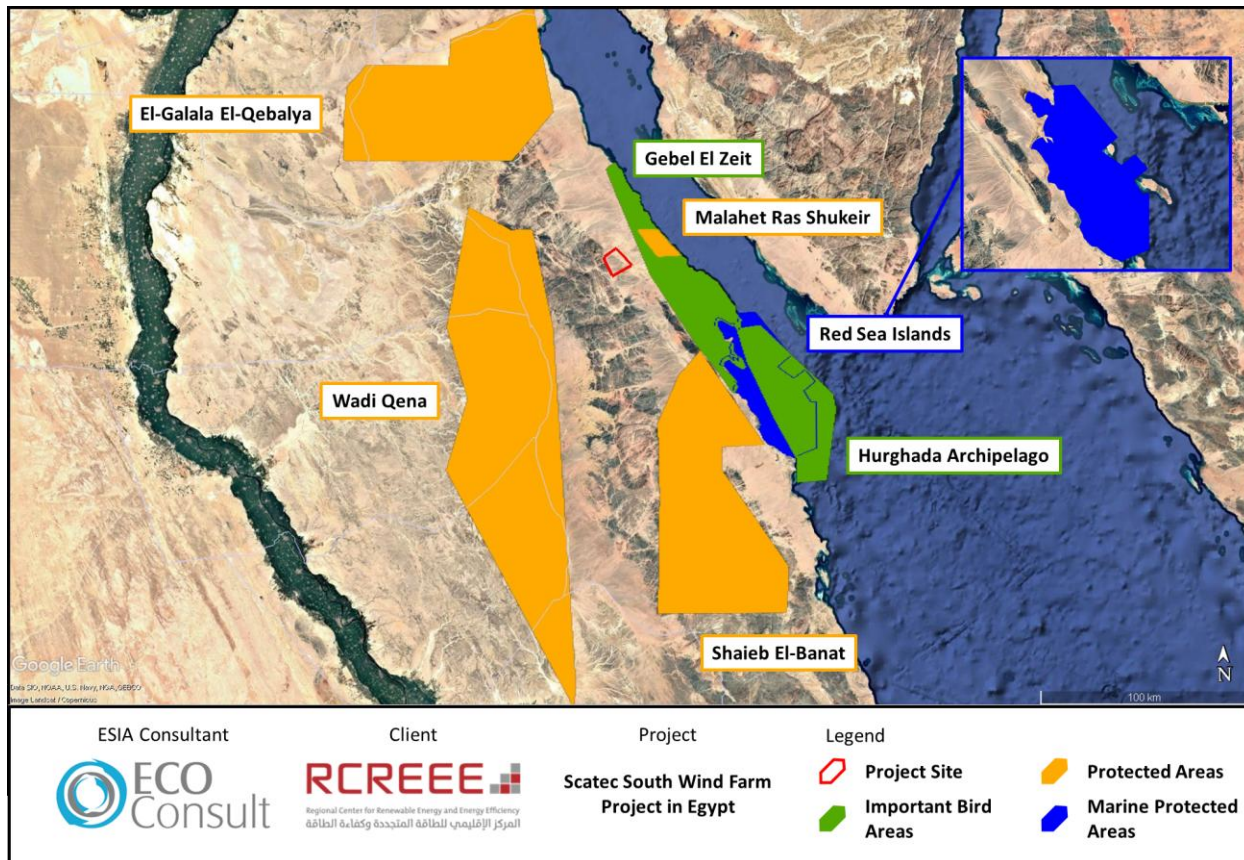


Figure 11: KBAs, IBAs and Protected Areas around the Project Site

Consultations were sought with Nature Conservation Egypt (NCE)⁸ in August 2025 to review the proposed biodiversity baseline methodology and to gather input on key issues, including proximity to Important Bird Areas (IBAs), Key Biodiversity Areas (KBAs), and other sensitive habitats. A follow-up consultation attempt was undertaken in September and October 2025 to re-engage NCE and obtain technical feedback on the proposed approach and survey coverage. Despite the outreach and multiple follow-ups, no feedback was received from NCE, and therefore no input could be integrated from their side into the assessment.

Land Use

Consultations were undertaken on the 10th of October with NREA in order to identify land tenure of the Project site and therefore avoid to the extent possible any acquisition process as well as physical and/or economical displacement impacts.

The entity confirmed that the Project site lies within lands under the jurisdiction of the NREA, designating NREA as the competent administrative entity and land-owning authority responsible for land allocation, facilitating project development, and reviewing associated environmental studies. In parallel, a desktop assessment, satellite imagery review, and site visit were undertaken to verify the presence of any existing and ongoing land use activities within the Project area to ensure that such uses are duly considered in the assessment. None were recorded. Accordingly, no restrictions or conflicts related to land use were

⁸ NCE is the Birdlife International partner in Egypt, and is a member of the International Union for the Conservation of Nature (IUCN).

identified at this stage of the assessment.

Community Settlements

Data was obtained on all potential community settlements within the area to ensure that the Project site is sited away from such areas to the extent possible. The closest settlements are Wadi Dara town located 10km southeast of the Project and Ras Gharib town located 22km north-northeast of the Project site. Therefore, based on this, no restrictions on community settlements were considered for the Project boundary.

2.5.2 Technology Alternatives

Renewable Energy Development Projects

As discussed earlier, the GoE has taken bold steps to adopt an energy diversification strategy with increased development of renewable energy and implementation of energy efficiency, including assertive rehabilitation and maintenance programs in the power sector (IRENA, 2018).

To this extent, in 2013, the Arab Republic of Egypt (through the Ministry of Electricity and Renewable Energy) had developed and adopted the ISES 2015 – 2035, which provided an ambitious plan to increase the contribution of renewable energy to 20% of the electricity generated by the year 2022, through hydro, wind, and solar and its efforts are ongoing.

Egypt enjoys favorable solar radiation intensity, and it is considered one of the most appropriate regions for exploiting solar energy both for electricity generation and thermal heating applications. Similar to the wind power development process, the GoE is developing many solar development projects (to include solar Photovoltaic (PV) and concentrated solar power) through the BOO mechanism and other (such as the Feed-In Tariff mechanism). Such development projects have been identified within key areas that provide the most favorable potential and conditions for solar development – this includes but not limited to Kom Ombo, West Nile, Hurghada, Zaafarana, Benban and other.

With regards to hydropower, the main hydro resource in Egypt is the Nile River, with the highest potential in Aswan where a series of power stations are located. Within this context, several projects have been realized, and several other hydroelectric plants are being developed.

Taking the above into account, with regards to the Project site in specifically it is best utilized for wind power projects. According to Egypt's Wind Atlas (Wind Atlas for Egypt Measurement and Modelling 1991-2005), the country is endowed with abundant wind energy resources, particularly in the GoS area. This is one of the best locations in the world for harnessing wind energy due to its high stable wind speeds that reach on average between 8 and 10 m/s at a height of 100m, along with the availability of large uninhabited desert areas.

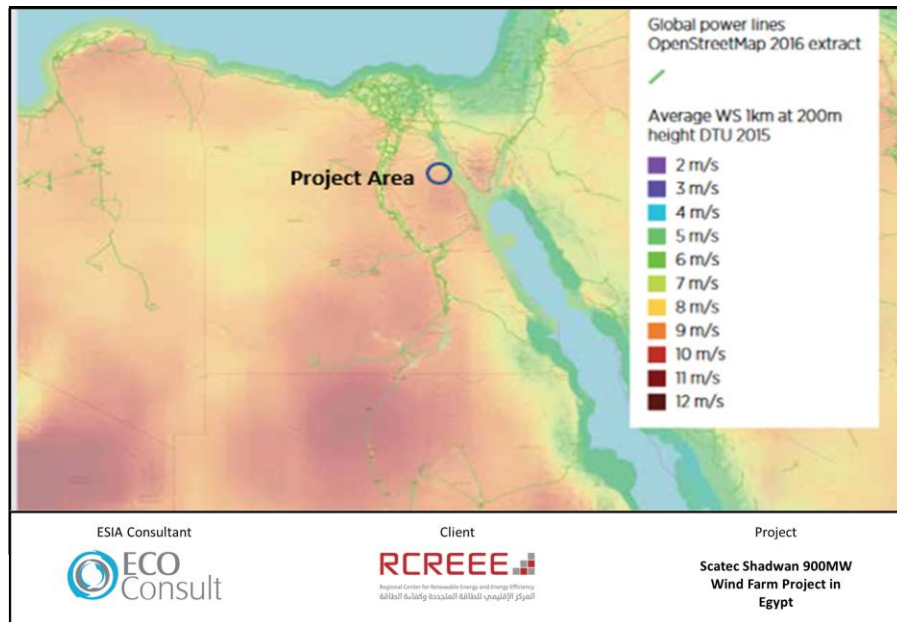


Figure 12: Egypt's Wind Atlas (Source: IRENA, 2018)

2.5.3 Design Alternatives

The Developer has prepared an initial layout for the Project that is being updated on a continuous basis at this point.

The Developer is committed to ensuring that all identified E&S constraints identified throughout the ESIA process are considered fully throughout the Project design, specifications and layout. Currently, no constraints have been identified to date. However, as part of the ESIA it is expected that E&S constraints will be identified, which will need to be considered as part of the detailed design. This could include, for example, archaeological sites, nests for key bird species, burrows for critical species (e.g. Egyptian spiny-tailed lizard), as well as other.

During the ESIA process, site-specific E&S constraints in relation to the Project site will be identified based on the methodology and scope of work identified within “Section 7” of the ESIA.

2.5.4 No-Project Alternative

The ‘no Project’ alternative assumes that the 900MW Project will not be developed. Should this be the case, then the Project site area would remain the same. The land area would remain with its current characteristics – vast barren desert grounds with very limited vegetation with no particular land use.

Should the Project not move forward, then the Project-related negative E&S impacts discussed throughout this NTS would be averted. However, as noted throughout the Project ESIA, generally such impacts do not pose any key issues of concern and can be adequately controlled and mitigated through the implementation of the ESMP discussed in “Section 7”. Nevertheless, should the Project not move forward; the significant and crucial positive economic and E&S benefits would not be realized. Such benefits include the following:

- This development allows for more sustainable development and shows the commitment of the Government of Egypt to realizing the energy strategy.

- Contribute to increasing energy security through development of local energy resources and reducing dependency on external energy sources;
- The clean energy produced from renewable energy resources is expected to reduce consumption of alternative fuels for electricity generation, and will thus help in reducing greenhouse gas emissions, as well as air pollutant emissions; and
- Project is expected during the construction and operation phase to generate local employment and commit to other social responsibilities. As such, this is expected, to a certain extent, to subsequently enhance the socio-economic conditions and standards of living of the local communities.

In conclusion, an ESIA must investigate all potential positive and negative impacts from project development. In the case of this Project, it is important to weigh the significant positive economic and E&S impacts incurred from the Project development, against the negative E&S impacts anticipated at the site-specific level – in which generally the ESIA concludes that they can be mitigated, managed and controlled to acceptable levels. The comparison in this Section clearly concludes that the ‘no Project’ alternative is not a preferable option.

3. REGULATORY AND POLICY FRAMEWORK

This section discusses the environmental clearance process, regulatory requirements for compliance throughout all project phases.

3.1 Environmental Clearance Process in Egypt

The ESIA for development projects in Egypt is governed by Law No. 4 of 1994 and its amendments, which require an environmental assessment for all electricity generation projects, including renewables. Wind farm projects fall under Category C, necessitating a full ESIA.

The process involves mandatory public consultations twice: once during the scoping phase and again after the draft EIA is prepared. The draft EIA summary must be disclosed in Arabic before public consultation. Following the ESIA, the final report is stored at EEAA’s library and made available online. Sensitive information can be withheld.

The ESIA includes:

- Regulatory and legal review
- Project description
- Baseline environment
- Impact identification and analysis
- Alternatives analysis
- Public consultation
- Environmental Management Plan (EMP)

The ESIA report is reviewed by EEAA, which may request revisions before final approval. The NREA is the licensing authority for wind projects.

3.2 Egypt E&S Regulatory Context

This section lists those legislations that are directly related to E&S compliance that must be adhered to by all parties involved in the Project throughout the planning and construction, operation, and decommissioning phase. These legislations include: (i) those issued by EEAA (laws, regulations and instruction), and (ii) the relevant national legislations issued by other line ministries (laws, regulations, instructions, standards).

The table below lists the key relevant legislation to each of the environmental and social parameter being studied and assessed within the ESIA.

Table 3: National Legislation and Guidelines Governing the E&S Compliance for the Project

Legislation
Landscape and Visual
Environmental Law No. 4 of 1994 (amendments in Environmental Law No. 9 of 2009)
Land Use
Expropriation of Real Estates for Public Interest Law - Law 10/1990
Civil Code 131/1948
Building Law No. 119 of year 2008
Law 557/1954
Unified Building Law – Article 39
Geology, Hydrology, Hydrogeology
Environment Law 4/1994
Biodiversity
Environment Law 4 of 1994
Natural Protectorates is Law 102/1983
Archaeology and Cultural Heritage
Archaeology Law 117/1983
Air Quality and Noise
Environment Law 4/1994 amended by Environment Law 9/2009 and Executive Regulations (ER)710/2012
ERs (amended by Decree 1095/2011 amended by Decree 710/2012) which include maximum limits of ambient air pollutants and noise emissions
Modified ERs (710/2012) of Environment Law 4/1994
Environment Law 4/1994 and its modified ERs
Infrastructure and Utilities
Traffic Law 66/1973, amended by Law 121/2008
Electricity Law No. 87 of year 2015
Petroleum pipelines Law 4/1988
Telecommunication Regulation Law 10/2003
Management of Solid Waste, Hazardous Waste and Wastewater
Environment Law 4/1994 amended by Environment Law 9/2009 and ER 1095/2011 amended by Decree 710/2012)
Ministerial Decree 44/2000 The Executive Regulations of Law No. 93/1962 on the Drainage of Liquid Wastes, Decree of Law 93/1962
Solid Waste Management Law - Law 202/2020
Socioeconomics
Law 94/2003 on Establishing the National Council for Human Rights

EEAA EIA guidelines
Occupational Health and Safety
Environment Law 4/1994 amended by Environment Law 9/2009 and ER 1095/2011 amended by Decree 710/2012)
Labor Law No. 14 of 2025 and its Executive Regulations
Decree 458/2007 - defining maximum limits for criteria and requirements necessary for drinking water and domestic use.
Law 73/2021: Occupational Safety and Health Law
Labor and Working Conditions
Labor Law No. 14 of 2025
Labor Law No. 12 of 2003 and its amendments by Labor law No. 14 of 2025 ⁹
Law No. 148 of 2019, which came into force on January 1, 2020

3.3 Requirements for Project Financing

The Project will be seeking financing from International Financing Institutions (IFIs). Therefore, the Developer wishes to design and manage the project in accordance with international E&S standards and requirements. For the ESIA, it will be based on the requirements of the following entities, each of which is discussed in further details below:

- International Finance Corporation (IFC);
- European Bank for Reconstruction and Development (EBRD); and
- African Development Bank (AfDB).

4. ENVIRONMENTAL & SOCIAL BASELINE CONDITIONS

4.1 Landscape and Visual

Landscape and Topography

The Project site is generally characterized as an open area with minimal changes in topography across the entire site. Typical views of the Project site are limited to the open landscape with elevated mountains along the western border of the Project site, with topography of a desert-like habitat as noted within the figure below.

⁹ It is important to clarify that while Labor Law No. 12 of 2003 remains in force, the Egyptian Parliament approved Labor Law No. 14 of 2025, which was published in the Official Gazette on May 3, 2025. Under its issuance provisions, it will enter into effect 90 days later, on August 1, 2025, and will be followed by the launch of specialized labour courts on October 1, 2025.

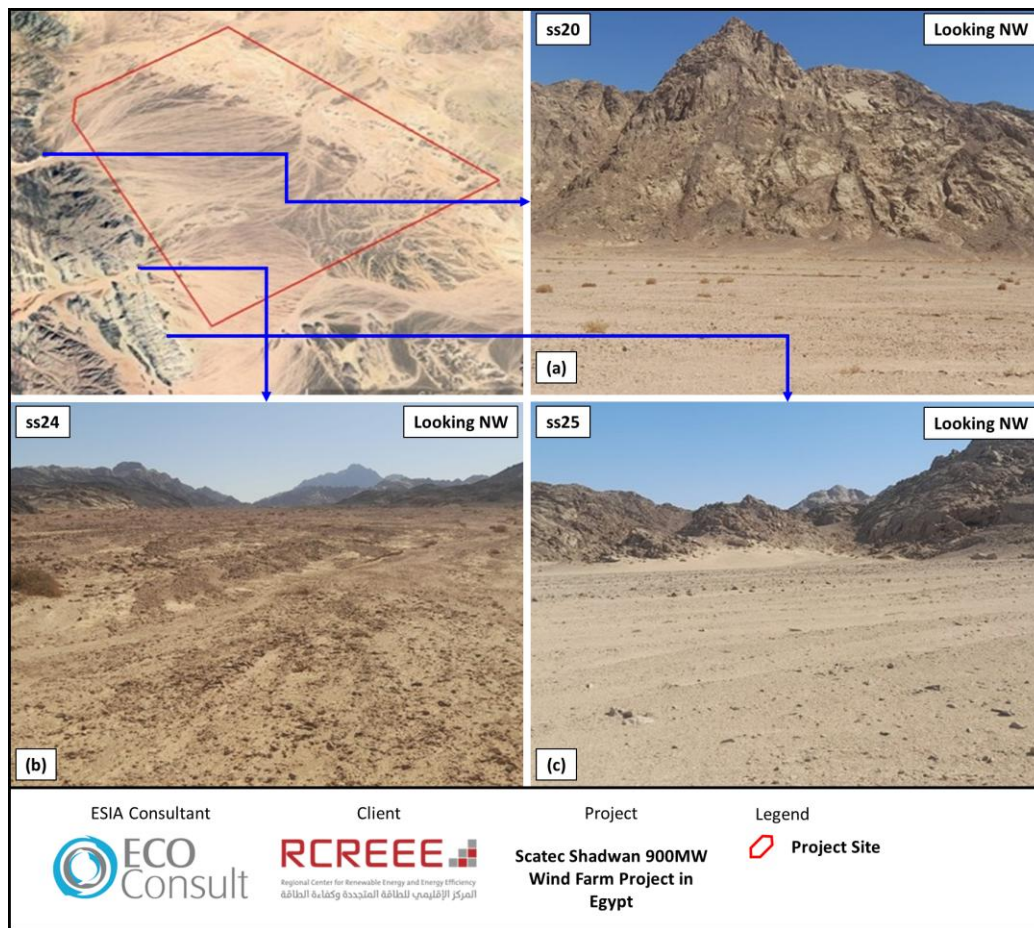


Figure 13: General Site Topography and Landscape

Visual Receptors

Visual impacts associated with wind energy projects typically concern the turbines themselves (e.g. colour, height, and number of turbines) and impacts relating to their interaction with the character of the surrounding landscape and the visual receptor which might be present.

Turbines are tall structures (220m for this Project) that can be seen from several kilometres away and impose a change on the landscape of the area where they are installed. However, visual impacts depend on several factors such as distance, size, visibility, landscape and geography, and the presence of potential sensitive visual receptors.

Nevertheless, visual impacts created from the development of the Project are not considered an issue of concern due to the following:

- The only potential sensitive receptors would be Wadi Dara village and Ras Gharib city which are located 10km southeast and 22km north-northeast of the Project site, respectively.
- Project area is considered a barren and desert area and in general is located within an industrial area with multiple wind farm developments for which its aesthetical value loses some importance.
- There are several existing and under construction wind farm developments in the area as well as several electricity distribution and transmission lines so the addition of this Project will not be a significant impact to the visual and landscape characteristics of the area.



Figure 14: Typical Views from the General GoS Area

- Being visible is not necessarily the same as being intrusive. Aesthetic issues are by their nature highly subjective. For some viewers, a Wind Farm could be regarded as manmade structures with visual burdens while to others it represents a positive impact in the sense that they introduce a break in the otherwise dull and monotonous view.

In addition to the above, the rotating blades will most likely be visible from vehicles passing across the Hurghada - Cairo Highway as well as the main road leading into Wadi Dara Village which also intersects the Project Site. The turbines can attract visual attention and potentially distract drivers passing along the highway.

4.2 Land Use

As mentioned earlier, the Government of Egypt has allocated to NREA by virtue of the Presidential Decree No. 628 of 2024 for the development of wind power projects. The Developer had no authority, influence or decision in the site selection process as the site was handed over by the Government to the Developer for development of the Project. In addition, the entire Gulf of Suez area is now planned for new and additional wind farm and/or green hydrogen developments. In general, key factors considered for selection of such areas required that areas had to be under governmental ownership in order not to require any land acquisition measures.

4.3 Geology, Hydrology and Hydrogeology

Geology

The Project site is located on the Gharib Plain, along the western margin of the Gulf of Suez, within a geologically varied area comprising rock units ranging from Precambrian to Quaternary. As shown in the figure below, the Project site is largely covered by Quaternary alluvial deposits, while older sedimentary

rocks occur to the east and Precambrian basement rocks form elevated areas to the west.

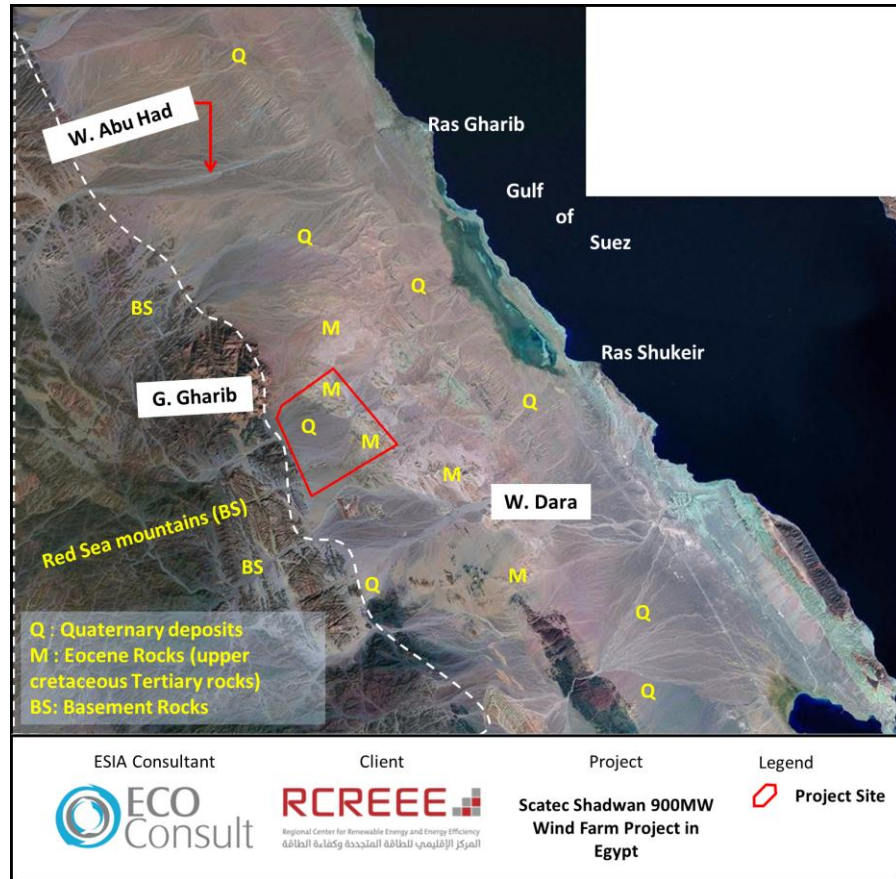


Figure 15: Land Sat Image Showing the Location of the Project Site

Basement Rocks

Precambrian igneous and metamorphic rocks of the Red Sea Mountain range form the elevated terrain west of the Project site and act as the main source of sediments transported toward the Project area through regional drainage systems. These basement rocks include older grey granites, which are highly weathered, and younger red granites, which form more resistant and elevated outcrops. Intrusive dyke swarms occur locally within the basement rocks.

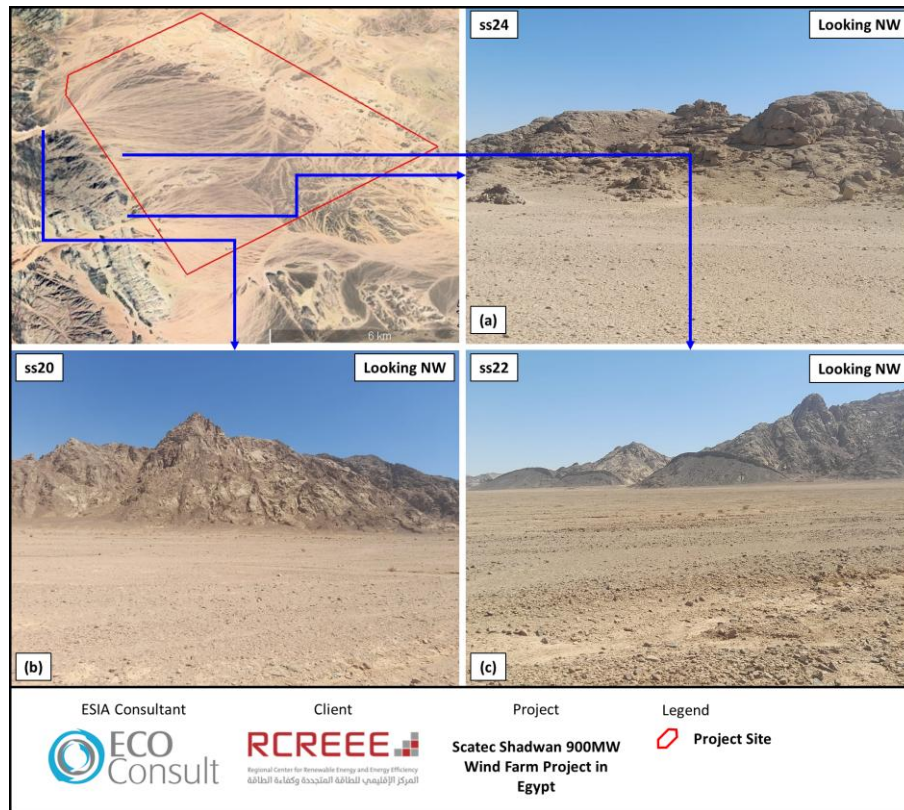


Figure 16: Sample Photos of Precambrian Basement Rocks; (a) Older Granite; (b) Younger Granite; (c) Basic Dyke Swarms Intruding the Basement in Different Direction

Sedimentary Units

Limited exposures of Upper Cretaceous and Miocene sedimentary rocks occur mainly in the eastern part of the Project site. Upper Cretaceous deposits consist of weathered sandstones and carbonates, while Miocene deposits include evaporites and locally preserved fossil coral reef structures, reflecting past shallow-marine conditions during the development of the Gulf of Suez.

Surface Deposits

Quaternary sediments cover most of the Project site, forming extensive alluvial fan systems composed of gravel, sand, clay, and aeolian deposits. These materials are derived from erosion of surrounding basement and sedimentary rocks, particularly the feldspar-rich granites of the Red Sea Mountains.

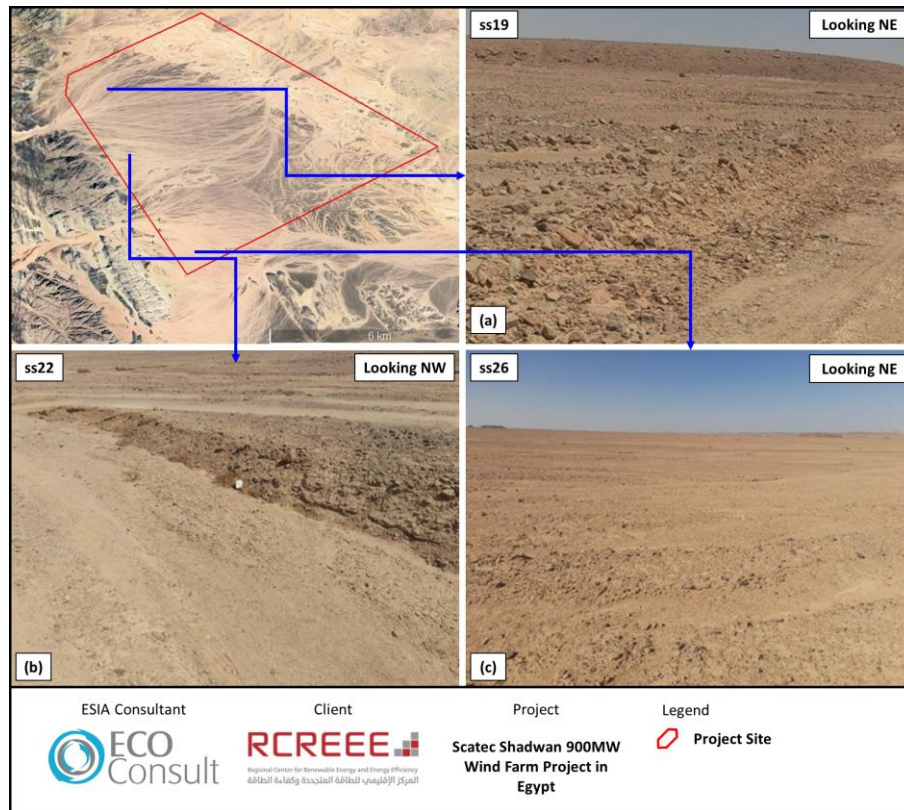


Figure 17: Sample Images of Quaternary Deposits Covering most of the Project Site

Structural and Subsurface Geology

The Project site lies within the Gulf of Suez rift system, an area shaped by regional extension and subsidence. Local surface expressions include young fault-line scarps developed within partially consolidated sediments, indicating tectonic activity during the post-Miocene to early Pleistocene period. These features are related to regional rift tectonics rather than salt movement.

Hydrology

The Project site is located within a gently sloping plain that generally inclines toward the Gulf of Suez. As shown in the figure below, the area is characterized by low-relief alluvial fans, shallow drainage lines, and isolated low sandstone and evaporite hills, mainly in the central and eastern parts of the site. Overall ground slopes are very gentle, and the landscape is largely flat to slightly undulating.

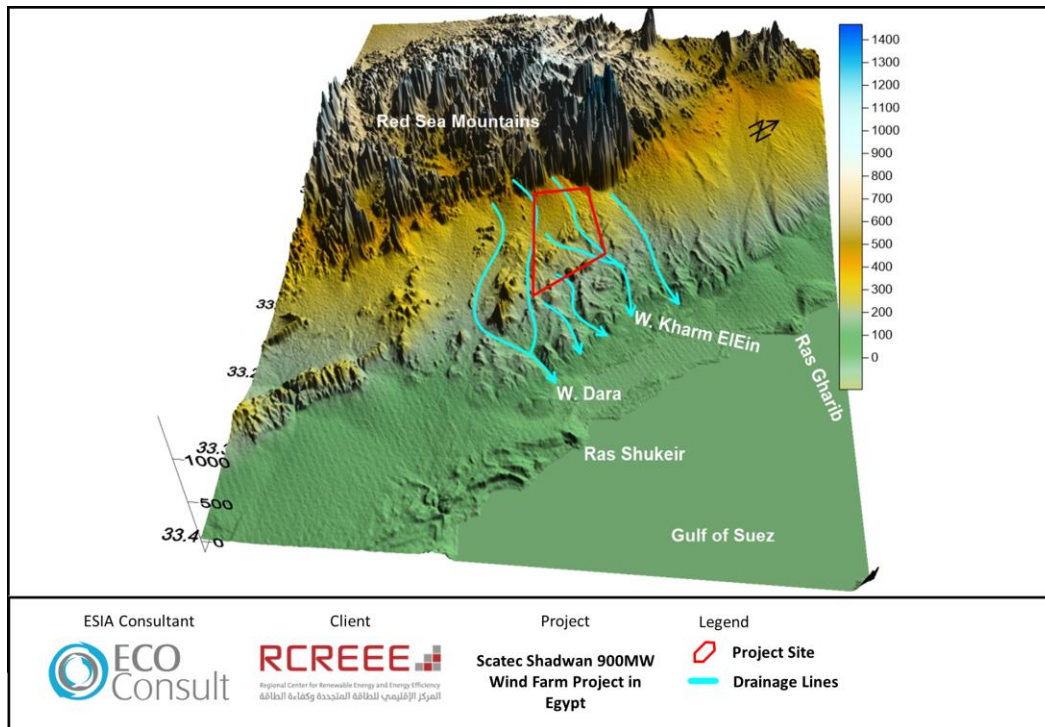


Figure 18: 3D DEM of the Project Area Constructed from SRTM Data

The Project site is located at the downstream extent of regional watershed areas, draining mainly from Wadi Dara to the south and Wadi Kharm Elein to the north. The drainage network within the Project area consists of wide, shallow, and weakly incised channels that only convey surface runoff during intense rainfall events. Within the Project footprint itself, these drainage lines have very gentle gradients, low sinuosity, and limited capacity for erosion. Overall, the drainage basins intersecting the Project site are considered to present low to medium flash flood hazard.

Overall, the Project site exhibits gentle topography rather than rugged terrain, with wide alluvial fans and poorly developed drainage channels. No permanent surface water bodies (such as rivers, lakes, or canals) are present within or around the site. Field observations confirm the absence of deeply incised or high-energy drainage features.

The surface sediments are predominantly porous and permeable alluvial deposits, allowing for high infiltration of rainfall runoff and limiting erosion. Drainage lines are filled with fine sand, gravel, and small rock fragments, reflecting low-energy flow conditions even during storm events.

Groundwater and Hydrogeology

The Project site is located in an arid area where groundwater recharge is limited, and available hydrogeological information indicates that it is underlain by a low- to moderate-productivity aquifer with generally brackish water quality, no identified shallow freshwater aquifer, insufficient rainfall to sustain recharge, and no evidence that groundwater represents a viable or sustainable water supply source for the Project.

4.4 Biodiversity – Excluding Bats and Birds

In addition, the biodiversity baseline assessment concludes that the Project site in general is barren and

of low ecological significance and sensitivity. The assessment identified several flora, fauna and avi-fauna species within the Project site most of which are considered of least concern and common to such area habitats. There are no sensitive habitats recorded within the Project site.

Indications of animals of special conservation interest (identified as IUCN Vulnerable species) were observed including the Spiny-tailed Lizard, the Nubian Ibex and the Dorcas Gazelle. Other animals (identified as IUCN Least Concern species) include the Red Fox, the Red-spotted Lizard, the Bosc's Fringe-toed, and the Sahara sand viper.

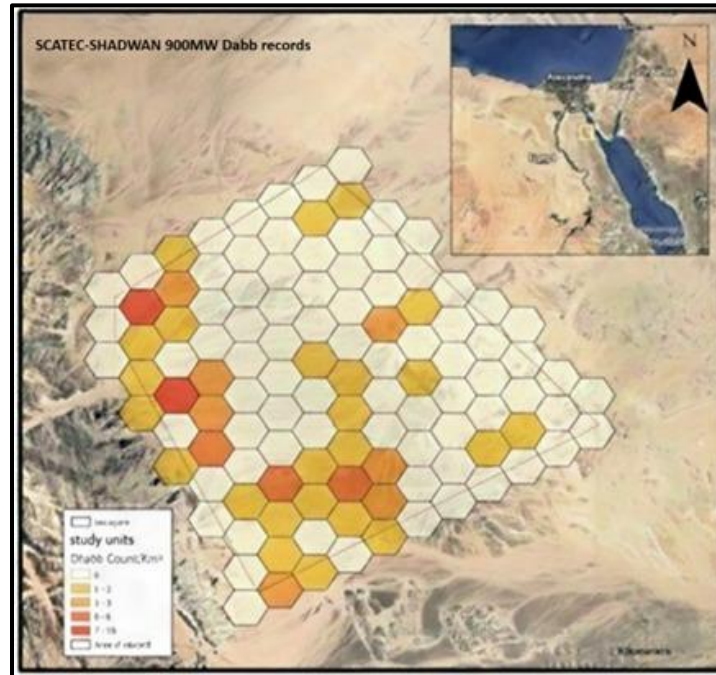


Figure 19: Spatial Distribution of Presence Marks of spiny-tailed lizard (*Uromastyx aegyptia*) on the site

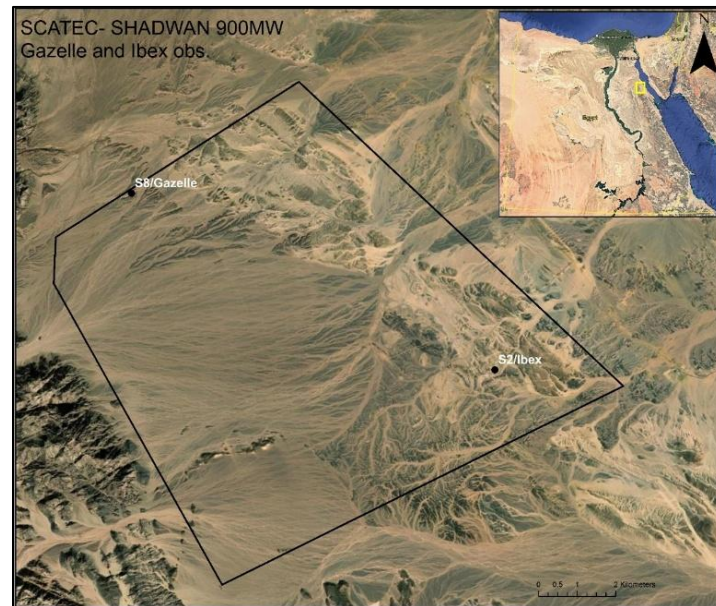


Figure 20: Observed gazelle and Ibex records on the site and coordinates

The main impacts on biodiversity are mainly from improper conduct, traffic control and housekeeping practices by workers (i.e. hunting of animals, discharge of hazardous waste to land, etc.) during the

construction and operation phase throughout the site to safeguard flora and fauna. The ESIA has identified adequate mitigation measures which aim to control such impacts and ensure proper conduct and housekeeping practices are implemented. With the implementation of such measures the impact is considered of minor significance overall.

4.5 Avifauna

4.5.1 Spring Season

1. A total of **2,861 hr. 34 min.** of monitoring was undertaken distributed over 8 VPs
2. A total of **139,517 individuals** of **31 species** were recorded
3. The **White Stork, Honey Buzzard and Steppe Buzzard accounted for 73% of the individuals.**
4. Species included six (6) globally threatened – this includes two (2) endangered species, three (3) Vulnerable and one (1) Near Threatened. The remaining 21 are evaluated as Least Concern according to the IUCN Red List. However, there is a potential **Golden Eagle RESIDENT breeding pair** which, despite being classified as Least Concern, has importance as Priority Biodiversity Feature. More research is encouraged and specific mitigation to apply. **For the first time in the GoS there is one species in the RVRSF which is resident, e.g. spends the entire year in the area.**
5. Migration patterns in terms of passage time in weeks/months was analyzed and compared with historical migration patterns in the region as established by Shirihai et al. (2000) (with over 30 years of data). The analysis focused on the dominant species mentioned above. **It was concluded that migration patterns in general are similar to those established by Shirihai et al. (2000) with minor differences.** These might be several causes which could include: (i) advanced timing of migration for this specific year; (ii) a common pattern extending globally (or (iii) probably differences in study sites from which they took the data.
6. The migration pattern extends from March to May, with intraspecific variations related to the migration dates. **According to the time of the day, there are two migration peaks – one in the mid-morning and another in the early afternoon for some species,** which coincides with the pattern observed in many other projects in the region. **Such windows are critical when applying the mitigation strategy (i.e. turbine shutdown) for the MSBs in the project footprint.**
7. Flocking behavior was analyzed and it was clear that **all the eagles migrate in small groups, as do the harriers and small falcons, which do almost individually, while only a couple of species migrated in large groups.**
8. **Statistical analyses were performed** for the passing rates for each species among the 8 VPs. It is concluded that **THERE ARE NO PREFERRED PASSING SITES OR AREAS (VP) within the project area.** The observed differences are because of the high numbers recorded for some species, like the White Stork, which affects the overall results. Birds pass just by chance, at least for the species for which a statistical analysis has been done. Species change the OPs over which pass in higher numbers. Further analysis would be required with precise data on weather (wind speed, directions and temperature). **However, there is a priority Biodiversity feature which is resident to be considered (Golden Eagle pair).**

9. **The species with a higher risk of collision with turbines were:** 1) the White stork, 2) the European Honey Buzzard, and Great White Pelican, and finally the Levant Sparrowhawk, Black stork, Short-toed eagle, and the Booted eagle.
10. Considering the species-specific passing rates (birds/hr), and the monitoring hours, the table below shows the minimum and maximum number of MIGRATORY birds passing over the Project area during the spring 2025 (Feb 20th to May 20th). Only those species with representative samples (which would inform SDOD) are included; e.g. small falcons and species recorded in low numbers have not been considered.

Table 4: Population estimates – minimum and maximum numbers of birds- migrating over Scatec plot in Spring 2025.

Species Name	Conservation Status ¹⁰	National Status	MIN	MAX
Black Kite <i>Milvus migrans</i>	Least Concern	Passage migrant	320	7,334
Bonelli's Eagle <i>Aquila fasciata</i>	Least concern	Passage migrant	130	130
Booted Eagle <i>Hieraaetus pennatus</i>	Least Concern	Passage migrant	350	672
Black Stork <i>Ciconia nigra</i>	Least Concern	Passage migrant	318	9,353
Common Crane <i>Grus grus</i>	Least Concern	Passage migrant	832	23,419
Egyptian Vulture <i>Neophron percnopterus</i>	Endangered	Passage migrant	316	634
Griffon Vulture <i>Gyps fulvus</i>	Least Concern	Wintering Resident/passage migrant	318	320
European Honey-buzzard <i>Pernis apivorus</i>	Least Concern	Passage migrant	319	35,859
Eastern Imperial Eagle <i>Aquila heliaca</i>	Vulnerable	Passage migrant	360	374
Marsh Harrier <i>Circus aeruginosus</i>	Least Concern	Passage migrant	317	439
Montagu's Harrier <i>Circus pygargus</i>	Least Concern	Passage migrant	235	238
Osprey <i>Pandion haliaetus</i>	Least Concern	Passage migrant	318	327
Pallid Harrier <i>Circus macrourus</i>	Near Threatened	Passage migrant / winter visitor	238	238
Steppe Buzzard <i>Buteo buteo vulpinus</i>	Least Concern	Passage migrant	351	12,156
Short-toed Snake-eagle <i>Circaetus gallicus</i>	Least Concern	Passage migrant / summer breeder	349	828
Greater Spotted Eagle <i>Clanga clanga</i>	Vulnerable	Passage migrant	319	438
Eurasian Sparrowhawk <i>Accipiter nisus</i>	Least Concern	Passage migrant	318	318
Steppe Eagle <i>Aquila nipalensis</i>	Endangered	Passage migrant / Winter visitor	351	3,371
White Pelican <i>Pelecanus onocrotalus</i>	Least Concern	Passage migrant	81	167,856
White Stork <i>Ciconia ciconia</i>	Least Concern	Passage migrant	0	540,102

¹⁰ EN: Endangered, VU: Vulnerable, NT: Near Threatened, LC: Least Concern

With the above estimates, the total number of birds potentially crossing the project area would range between 6,140 and 804,406 individuals, plus one resident Golden eagle breeding pair.

11. **Based on the results, and for the purpose of the spring 2025, there are no major red flags which could constraint the project,** if adopting the appropriate mitigation measures for both the MSBs, and the Golden Eagle. This should be confirmed in the ongoing pre-construction studies.

4.5.2 Autumn Season

1. A total of **2,975 hr. 34 min.** of monitoring was undertaken distributed over 8 VPs
2. A total of **59,148 individuals** of **24 species** were recorded
3. The **White Stork, Honey Buzzard and Steppe Buzzard accounted for 73% of the individuals.**
4. Species included three (3) globally threatened – this includes one (1) endangered species, one (1) Vulnerable and one (1) Near Threatened. The remaining 21 are evaluated as Least Concern according to the IUCN Red List. However, there is a **Golden Eagle RESIDENT breeding pair** which, despite being classified as Least Concern, has importance as Priority Biodiversity Feature. More research is encouraged and specific mitigation to apply. **For the first time in the GoS there is one species in the RVRSF which is resident, e.g. spends the entire year in the area.**
5. Migration patterns in terms of passage time in weeks/months were analyzed only for the four most abundant species, Great White pelican, White Stork, Black kite, and European Honey Buzzard. Comparing with historical migration patterns in the region as established by Shirihihi et al. (2000) (with over 30 years of data), **we conclude that migration patterns in general are similar to those studies in the region with minor differences.**
6. The migration pattern extends from August to November, with intraspecific variations related to the migration dates. **According to the time of the day, there is only one migration peak – just in the afternoon. Such period is critical when applying the mitigation strategy (i.e. turbine shutdown) for the MSBs in the project footprint.**
7. **Statistical analyses were performed** for the passing rates for each species among the 8 VPs. It is concluded that **THERE ARE NO PREFERRED PASSING SITES OR AREAS (VP) within the project area.** The observed differences are because of the high numbers recorded for some species, like the White Stork, which affects the overall results. Birds pass just by chance, at least for the species for which a statistical analysis has been done. Species change the OPs over which pass in higher numbers. Further analysis would be required with precise data on weather (wind speed, directions and temperature). **However, there is a priority Biodiversity feature which is resident to be considered (Golden Eagle pair).**
8. Considering the species-specific passing rates (birds/hr), and the monitoring hours, the table below shows the minimum and maximum number of MIGRATORY birds passing over the Project area during the autumn 2025 (Aug 10th to Nov 10th). Only those species with representative samples (which would inform SDOD) are included; e.g. small falcons and species recorded in low numbers have not been considered.

Table 5: Population estimates – minimum and maximum numbers of birds- migrating over Scatec plot in autumn 2025.

Species Name	Conservation Status ¹¹	National Status	MIN	MAX
Black Kite <i>Milvus migrans</i>	Least Concern	Passage migrant	752	1,535
Bonelli's Eagle <i>Aquila fasciata</i>	Least concern	Passage migrant		
Booted Eagle <i>Hieraaetus pennatus</i>	Least Concern	Passage migrant	369	371
Black Stork <i>Ciconia nigra</i>	Least Concern	Passage migrant	365	375
Common Crane <i>Grus grus</i>	Least Concern	Passage migrant		
Egyptian Vulture <i>Neophron percnopterus</i>	Endangered	Passage migrant	247	593
Griffon Vulture <i>Gyps fulvus</i>	Least Concern	Wintering Resident/passage migrant		
European Honey-buzzard <i>Pernis apivorus</i>	Least Concern	Passage migrant	9,727	21,351
Eastern Imperial Eagle <i>Aquila heliaca</i>	Vulnerable	Passage migrant		
Marsh Harrier <i>Circus aeruginosus</i>	Least Concern	Passage migrant	375	607
Montagu's Harrier <i>Circus pygargus</i>	Least Concern	Passage migrant	367	373
Osprey <i>Pandion haliaetus</i>	Least Concern	Passage migrant	353	383
Pallid Harrier <i>Circus macrourus</i>	Near Threatened	Passage migrant / winter visitor	168	761
Steppe Buzzard <i>Buteo buteo vulpinus</i>	Least Concern	Passage migrant	593	1,122
Short-toed Snake-eagle <i>Circaetus gallicus</i>	Least Concern	Passage migrant / summer breeder	1	1
Greater Spotted Eagle <i>Clanga clanga</i>	Vulnerable	Passage migrant		
Eurasian Sparrowhawk <i>Accipiter nisus</i>	Least Concern	Passage migrant	368	372
Steppe Eagle <i>Aquila nipalensis</i>	Endangered	Passage migrant / Winter visitor	338	460
White Pelican <i>Pelecanus onocrotalus</i>	Least Concern	Passage migrant	58,981	172,148
White Stork <i>Ciconia ciconia</i>	Least Concern	Passage migrant	147,056	546,939

With the above estimates, the total number of birds potentially crossing the project area would range between 223,803 and 805,395 individuals, plus one resident Golden eagle breeding pair.

9. **Based on the results, and for the purpose of the autumn 2025, there are no major red flags which could constraint the project**, if adopting the appropriate mitigation measures for both the MSBs, and the Golden Eagle. This should be confirmed in the ongoing pre-construction studies.

¹¹ EN: Endangered, VU: Vulnerable, NT: Near Threatened, LC: Least Concern

4.6 Bats

The baseline assessment of the Project site was based on a literature review and site surveys both of which are discussed in further details below.

A. Literature Review

This was based on previous studies, data, surveys, and records available in published scientific papers, books, and journals on bats of Egypt and the Gulf of Suez. The conservation status of the bat species listed from the literature review is based on IUCN's Red List of Threatened Species (IUCN, 2021).

B. Site Surveys

The site survey was performed using a bat detector; there were deployed two Song Meter SM4 Acoustic Recorder from Wildlife Acoustics Inc. The survey was based on automatic recordings from May through November continuously, according to the schedule in the Table. In general, from December to March in the northern hemisphere bat activity is reduced because of the hibernation. Nevertheless, Minimum temperatures below 15°C in Ras Gharib are uncommon. As happens in other countries or even Southern Spain, this mild weather makes the bats to be active almost all of the time.

The bat detectors were programmed to record from 30 minutes before sunset till 30 minutes after sunrise, including the change between summer and winter time in the last Friday of April and the last Thursday of October.

Table 6: Coordinates of location of the bat detectors

Location	Latitude	Longitude	Metmast	Rationale
1	28.0646	33.0547	No	Coverage within the study area
2	28.0643	33.0146	Yes	Coverage within the study area - Mountain

Table 7: Dates of recording in 2025

From	To	#Bat detector	Detector code	# nights	Files
03 rd May	15 th May	9	S4U23543	13	504
03 rd May	15 th May	10	S4U23512	13	362
15 th May	26 th May	9	S4U23543	12	362
26 th May	04 th June	9	S4U23543	10	909
04 th June	13 th June	10	S4U23512	10	error
13 th June	22 nd June	10	S4U23512	10	733
22 th June	01 st July	9	S4U23543	10	706
01 st July	11 th July	9	S4U23543	11	251
11 th July	20 th July	10	S4U23512	10	372
20 th July	30 th July	10	S4U23512	11	1405
30 th July	08 th Aug	9	S4U23543	10	735
08 th Aug	18 th Aug	9	S4U23543	11	1983
18 th Aug	28 th Aug	10	S4U23512	11	275
28 th Aug	07 th Sept	10	S4U23512	11	1418
07 th Sept	23 rd Sept	9	S4U23543	17	1444
23 rd Sept	06 th Oct	9	S4U23543	14	1080
06 th Oct	20 th Oct	10	S4U23512	15	994
20 th Oct	01 st Nov	10	S4U23512	13	309
Total				212	13,842

Two locations and three detectors were used for the bat monitoring from May through November. Weather data were taken from two met-masts installed in the project area. The Bat detector was the Song Meter SM4BAT from Wildlife Acoustics.

Met mast data were processed as follows:

- Meteo data recording at wind farms takes place on a 10 minute basis at different heights.
- Sunrise and sunset times were filtered from www.dayandnight.com
- Files with recordings were filtered selecting only those for which the wind speed was equal or lower to 8 m/s. Those above such threshold were discarded, as the bat activity even above 6 m/s is quite scarce.
- Extracted files were then analysed with “Anabat Insight” using Auto ID. Anabat Insights may apply filters during file conversion (e.g., .wav to .zc) or analysis to separate structured bat calls from unstructured noise. Filters can be used in a number of ways to streamline the analysis.

Results

A. Literature Review

Little is known about the distribution of the bats of Egypt. Qumsiyeh (1985), Osborn (1988), and Hoath (2003) reported around 20 species. As for the study area, Osborn (1988) reported only two species from the Red Sea Mountains of Egypt; namely *Nyctinomus aegyptiaca* and *Plecotus christiei*. Both species are resident within the area, and no large-scale migration was reported in Egypt. Qumsiyeh (1985) reported four bats from the Red Sea Mountains including *Taphozous nudiventris* from Quseir, *Pipistrellus kuhlii*, *Taphozous perforatus* and *Asellia tridens*. Most recently, Benda & Ševčík (2020) updated the distribution of the Egyptian bats with additional locality records with a total of 20 species.

Table 8: List of Bat Species Recorded in Project Site and Vicinity Based on Literature Review

Family	Species
Pteropodidae	<i>Rousettus aegyptiacus</i> (E. Geoffroy St.-Hilaire, 1810)
Rhinopomatidae	<i>Rhinopoma microphyllum</i> (Brunnich, 1782).
	<i>Rhinopoma cystops</i> Thomas, 1903
Emballonuridae	<i>Taphozous perforatus</i> Geoffroy, 1818
	<i>Taphozous nudiventris</i> Cretzschmar, 1830
Nycteridae	<i>Nycteris thebaica</i> (Geoffroy, 1813)
Rhinolophidae	<i>Rhinolophus clivosus</i> Cretzschmar, 1828
	<i>Rhinolophus hipposideros</i> (Borkhausen, 1797)
	<i>Rhinolophus mehelyi</i> Matschie, 1901
Hipposideridae	<i>Asellia tridens</i> (Geoffroy, 1813)
Vespertilionidae	<i>Pipistrellus kuhlii</i> (Kuhl, 1817)
	<i>Vansonia rueppellii</i> (Fischer, 1829)
	<i>Hypsugo ariel</i> (Thomas, 1904)
	<i>Cnephaeus bottae</i> (Peters, 1869)
	<i>Otonycteris hemprichii</i> Peters, 1859
	<i>Nycticeius schlieffenii</i> Peters, 1859
	<i>Barbastella leucomelas</i> (Cretzschmar, 1826)

	<i>Plecotus christii</i> Gray, 1838
Molossidae	<i>Tadarida teniotis</i> (Rafinesque, 1814)
	<i>Nyctinomus aegyptiacus</i> Geoffroy, 1818

All species are not threatened and listed under Least Concern category according to the IUCN Redlists.

However, three species; *Pipistrellus rueppellii*, *Taphozous nudiventris* and *Cnephaeus bottae* are listed as VU in the Egyptian Mammal Red List (Basuony et al., 2010).

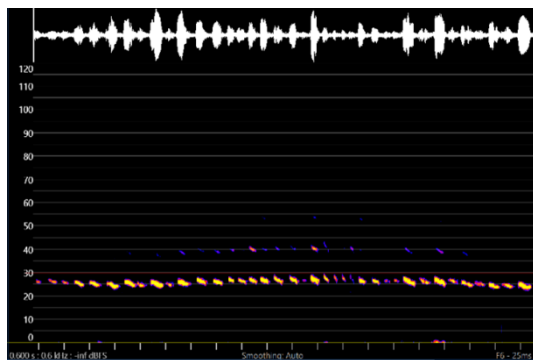
B. Outcomes of the surveys

Out of the 13,842 files recorded, days per month retrieving wind speeds lower than 8 m/s at some 10 min interval were the following: nineteen (19) in July, fifteen (15) in August, ten (10) in September, and another fifteen (15) in October.

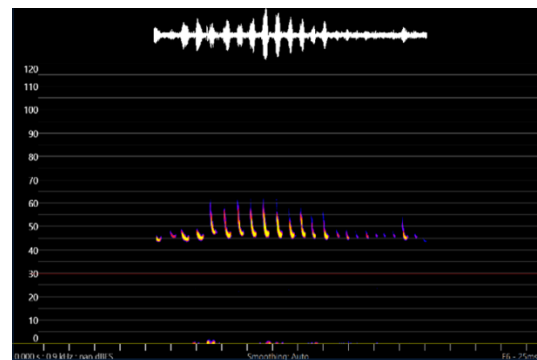
Bat calls were only recorded at one of the two detectors, being scarce despite using the Auto ID.

File name	Passes	<i>T. perforatus</i>	<i>P. kuhlii</i>	Total
S4U23512_20251008_033558.wav	24	0	24	24
S4U23512_20251022_005923.wav	0	51	0	51

The Figure below shows the calls of these two species.



Taphozous perforatus



Pipistrellus kuhlii

Figure 21: Sonograms of the species detected in the bat recording surveys at Scatec Shadwan 900MW

4.7 Archaeology and Cultural Heritage

An archaeological baseline survey has been carried out for the Project site which concluded the absence of records of any sites of interest or significance within the Project area aside from fragments of ancient pottery scattered on the surface. These shreds exhibit smooth, well-fired surfaces with colors ranging from light brown to reddish hues, indicative of early traditional manufacturing techniques. Based on an initial assessment of the form, fabric, and temper, the pottery is likely to date back to the Old Kingdom period (circa 2686–2181 BCE).

Based on the findings, the site is considered free of any archaeological remains, and construction of the wind energy project can proceed. However, the presence of an archaeological observer on site during the

initial excavation phases is recommended as a precaution in case any unexpected archaeological evidence is discovered.

However, upon completion of the detailed archaeological survey across the Project site, the following was concluded:

- No surface archaeological remains or indications of subsurface archaeological deposits were observed.
- Pottery shards were found onsite however they do not hold any archaeological or cultural significance and are therefore not considered relevant artifacts.
- The natural surface consists of gravelly/sandy/rocky soil (as appropriate), with no clear evidence of ancient human activity.
- The area is not listed as an official archaeological site according to the records of the Ministry of Tourism and Antiquities.

The main potential impact could occur during the construction phase from site preparation activities if a possible site of archeological remains is uncovered. Improper management (if such sites are discovered) could potentially disturb or damage such sites. Nevertheless, the ESIA requires the implementation of chance find procedures if such remains in the ground be discovered throughout the construction phase. With the implementation of such measures the impact is considered not significant.

4.8 Air Quality and Noise

An air quality and noise baseline was undertaken for the Project area at three monitoring points for a period of 24 hours for the following parameters: (i) gases to include Carbon monoxide (CO), Sulphur Dioxide (SO₂) and Nitrogen Oxides (NO_x), (ii) Suspended Particulate Matter to include Particulate Matter smaller than 10.0 (PM₁₀) and 2.5 microns (PM_{2.5}) in diameter, TSP (total suspended particle); and (iii) Noise Pressure Levels (NPL). The baseline concluded that pollutant levels for all parameters measured are significantly lower than the maximum allowable ambient air levels indicated within the legal limits. Similarly for noise, the results were within national limits for both day and night-time.

No key source of noise emission or activity were noted throughout the monitoring period. Therefore, the exceedance of noise levels is mainly attributed due to the intensity and speed of the wind at the measurement sites, despite efforts to mitigate the effect of wind speed on measurements.

Construction and operational activities of wind power projects are passive in nature and do not result in any key air emissions or significant noise sources. However, construction activities may increase level of dust and particulate matter emissions, which will temporarily impact ambient air quality due to the use of heavy machinery contributing to both noise levels and dust.

4.9 Infrastructures and Utilities

An assessment of baseline conditions was based on a site visit by the 'E&S Team' to the Project site and surrounding area in July 2025. The site visit aimed to identify any key visible infrastructure and utility elements within the Project site or surrounding areas (e.g., electricity infrastructure lines, water infrastructure lines, etc.).

In addition, a desktop review as well as consultations were undertaken with key governmental entities to better understand and characterize infrastructure and utility element services required for the Project

development as discussed further throughout this section.

Various infrastructure elements were found within the proximity of the Project site, such as the following:

- The Cairo-Hurghada (Highway-65) runs around 19km east of the Project site. There is also an existing road network for the adjacent wind farms.
- Three (3) communication towers were noted near the Project site – however, the nearest is located more than 18km east of the Project site.
- The nearest wastewater treatment plant is the Ras Gharib Treatment Plant that is located around 20km east of the Project site. It was indicated that wastewater generated by the Project should be managed using septic tanks and drained regularly via septic trucks.
- Several existing electrical infrastructure elements, to include substations and overhead transmission and distribution lines, exist in the Project area. This indicates that the area is already subject to routine electromagnetic field (EMF) exposure associated with standard power infrastructure.

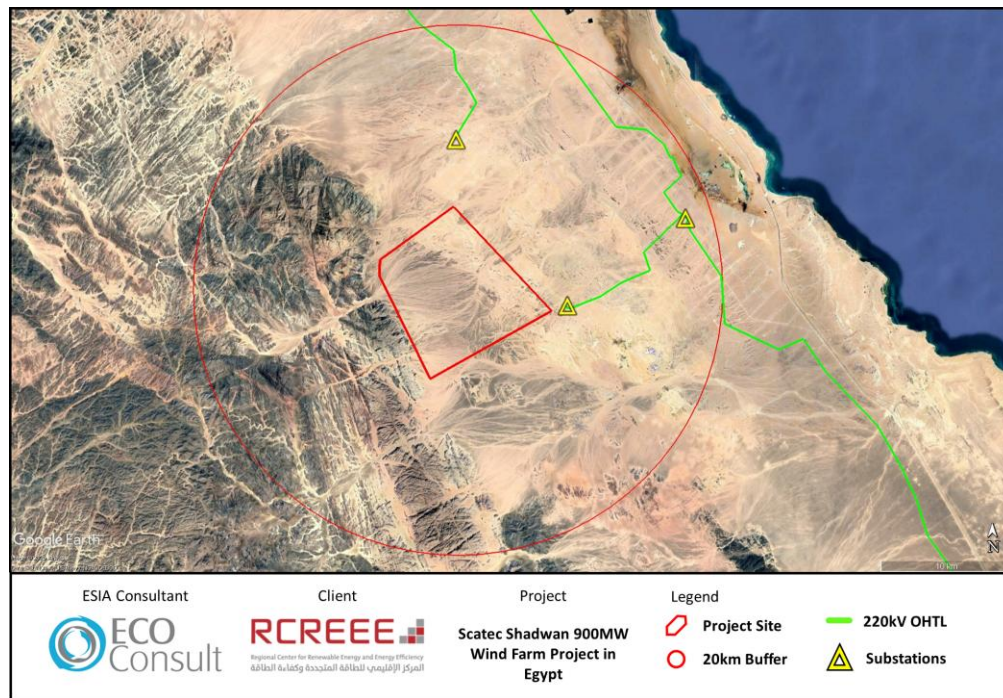


Figure 22: Existing Transmission Lines and Substations in the Project Area



Figure 23: Existing OHTLs



Figure 24: Existing Substations

4.10 Socioeconomics

The main impact anticipated on socio-economic conditions is related to potential job opportunities for local communities from the Project during construction and operation. However, such impacts are limited taking into account the nature of activities. No details are available at this stage on the number of job opportunities targeted to local communities, type of jobs, duration, etc; however, as many as 2,000 job opportunities are to be required during construction and 100 positions during operational phase.

Taking the above into account, the Project is committed to ensuring that priority for job opportunities is targeted for local community members to the greatest extent possible throughout the construction and operation phase for skilled and unskilled jobs.

At a later stage, a local recruitment procedure will be developed by the Contractors and Operator, under supervision from the Project. The procedure will identify the number of job opportunities targeted for local communities and recruitment process will be undertaken through the Governorate's Labor Office. Based on that, the recruitment procedure will also include a selection process that is fair, transparent and provides equal opportunities for all including females.

In addition, the Project will also implement a Social Responsibility Program that will be implemented for the local communities based on their needs and requirements.

4.11 Occupational Health and Safety and Worker Accommodation

During the construction and operation phase there will be occupational health and safety risks to workers, such as working on construction sites, exposure electric shock hazards during maintenance activities, working at heights, etc. The ESIA requires that the Contractor and Operator 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 in order to concur and maintain smooth and proper progress of work at the site and prevent accidents which may injure personnel. With the implementation of such measures the impact is considered not significant.

In addition, the Contractors will prepare a worker accommodation plan, which will define the minimum health and safety standards and principles for worker accommodation and ensure impacts on community health and safety from worker influx are managed and controlled. This could include impacts related to pressure on infrastructure, services and utilities, introduction of new reservoirs of diseases, inappropriate code of conduct by workers towards local communities, possible increase in social vices, and others.

4.12 Community Health, Safety, and Security

During construction and operation phase the main impacts on community health, safety and security include the noise, shadow flicker, trespassing by unauthorized personnel, and potential occurrence of incidences between site personnel and communities. These potential impacts are outlined below, accompanied by mitigation and monitoring measures in brief (full elaboration included in the ESIA).

5. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

5.1 Landscape and Visual

5.1.1 Potential Impacts during the Construction Phase

Site preparation activities which are to take place onsite by the EPC Contractor for installation of the wind turbines and the various Project components to include substation, transmission cables, access roads and internal road network, buildings, etc. are expected to include land clearing activities, levelling, excavation, grading, etc.

Construction activities would create a temporary negative effect on the visual quality of the site and its surroundings and may disturb the natural appearance of the desert terrain. The visual environment during the construction phase would include the presence of elements typical of a construction site such as equipment and machinery to include excavators, trucks, front end loaders, compactors and others.

Mitigation Measures:

- Ensure proper general housekeeping and personnel management measures are implemented which could include: (i) ensure the construction site is left in an orderly state at the end of each work day; (ii) to the greatest extent possible construction machinery, equipment, and vehicles that are not in use should be removed in a timely manner and kept in locations to reduce visual impacts to the area; (iii) to ensure proper storage, collection, and disposal of waste streams generated.
- Implementation of restoration and rehabilitation measures to restore the site's visual quality through, for example, re-contouring the land and removing temporary structures (e.g. batching plant).

- Ensure full application of the C-ESMP obligations and so fulfilling EEAA conditions stated in the ESIA approval letter, during the construction phase.

-

Monitoring and Reporting Requirements

- Inspections of the work should be carried out at all times to ensure the above measures are implemented.

5.1.2 Potential Impacts During the Operation Phase

Visual impacts of wind energy projects mainly relate to turbine height, scale, and visibility, and interaction with the surrounding landscape and visual receptors. Although the turbines for this Project are tall and visible over long distances, the overall visual impact is not considered significant due to the limited presence of sensitive receptors, the barren and industrial character of the Project area, and the existence of multiple nearby wind farms and transmission infrastructure. Visual effects are inherently subjective, and turbine visibility does not necessarily equate to visual intrusion. While rotating blades may be noticeable from nearby roads, including the Hurgada–Cairo Highway and access roads to Wadi Dara Village, this is not expected to result in a significant visual or landscape impact.

Mitigation Measure:

- Coordinate with the Traffic and Transport Authority, install clear and informative signage in Arabic and English language at Hurgada – Cairo Highway and on the road leaving the highway and into Wadi Dara Village to alert drivers of the wind farm ahead and provide guidance on safe driving practices.
- Ensure full application of the approved ESMP obligations and so fulfilling EEAA conditions stated in the ESIA approval letter, during the operation phase.

-

Monitoring and Reporting Requirements

- Inspections on highway to ensure signage is installed.

5.2 Land Use

There were no anticipated land acquisition impacts and there were no further requirements to be considered for the ESIA study. Therefore, there are no impacts anticipated in terms of land ownership.

In addition, there are no physical or economical activities undertaken at the Project site. Therefore, there are no anticipated impacts on land use in relation to physical and/or economical displacement from the Project footprint.

Based on the above, there were no anticipated impacts on land use and no further requirements that were considered for the ESIA study.

5.3 Geology, Hydrology and Hydrogeology

5.3.1 *Potential Impacts during the Construction and Operation Phase:*

1. Potential Impacts from Flood Risks on the Project Site

Mitigation Measures:

- Construct protective concrete fencing around critical Project infrastructure located within or adjacent to drainage mainstreams to reduce exposure to extreme rainfall and unexpected flood events. Fences should be designed to provide effective physical protection against surface runoff.
- Locate turbines, as far as practicable, on elevated ground and away from drainage mainstreams to minimize flood risk. Where avoidance is not feasible, enhance structural resilience through measures such as reinforced turbine foundations, elevation of turbine bases above anticipated flood levels, and installation of reinforced concrete fencing around turbine bases to protect against surface runoff impacts.
- Install appropriately sized culverts beneath Project access roads at drainage crossing points to ensure unobstructed passage of surface water and to prevent damage to road infrastructure during rainfall events.
- Develop and implement a Project-specific flood management plan that includes rainfall monitoring, defined emergency response procedures, protection of critical infrastructure, and contingency measures during severe rainfall events, in coordination with relevant local authorities.

Monitoring and Reporting Requirements

- Visual inspections

2. Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.)

C. Solid Waste Management.

Mitigation Measures:

- Coordinate with Ras Gharib City Council for the collection of solid waste from the site to the municipal approved dumpsite (the closest dumpsite being Ras Gharib Public Dumpsite) or for recycling (as discussed in further details below);
- Prohibit fly-dumping of any solid waste to the land
- Distribute appropriate number of properly contained litter bins and containers properly marked as "Municipal Waste."
- Adhere to waste hierarchy principles with associated mitigation measures to include prevent, minimize, reuse, recycle, recover and dispose.
- Distribute a sufficient number of properly contained containers clearly marked as "Construction Waste" for the dumping and disposal of construction waste.

- Recycling measures must be implemented as follows: (i) separation and disposal of recyclables in a separate container (cardboard, paper, glass, metal, etc.); and (ii) separation and disposal of non-recyclable materials in a separate container (e.g. food waste). Each container must be clearly marked.
- In addition, ways to reduce construction waste must be undertaken by reusing materials (for example through recycling concrete for road base coarse).
- Implement proper housekeeping practices on the construction site at all times.
- Maintain records and manifests that indicate volume of waste generated onsite, collected by contractor, and disposed of at the landfill.
- Ensure full application of the approved C-ESMP during the construction phase and so the approved ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.
-

Monitoring and Reporting Requirements

- Inspection of waste management practices onsite;
- Review of records and manifests for volume of waste generated to ensure consistency; and
- Regular environmental reporting on implementation of the waste management practices onsite.

D. Wastewater Management

- Coordinate with Ras Gharib Water Company to hire a private contractor for the collection of wastewaters from the site to the closest WWTP (being Ras Gharib WWTP);
- Ensure that constructed septic tanks during construction are well contained and impermeable to prevent leakage of wastewater into soil.
- Prohibit illegal disposal of wastewater to the land.
- Ensure that septic tanks are emptied and collected by wastewater contractor at appropriate intervals to avoid overflowing.
- Maintain records and manifests that indicate volume of wastewater generated onsite, collected by contractor, and disposed of at the WWTP.
- Ensure full application of the approved C-ESMP during the construction phase and so the approved ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.
-

Monitoring and Reporting Requirements

- Inspection of wastewater management practices onsite;
- Review of records and manifests for volume of wastewater generated to ensure consistency; and
- Regular environmental reporting on implementation of the wastewater management practices discussed above.

E. Hazardous Waste Management

Mitigation Measures (in brief):

- Hire approved private contractor for the collection of hazardous waste from the site to the approved hazardous waste disposal facilities.
- Ensure that hazardous waste is disposed in a dedicated area that is enclosed, of hard surface, with proper signage and suitable containers as per hazardous waste classifications and that they are labelled for each type of hazardous waste.
- Ensure hazardous waste storage area is equipped with spill kit, fire extinguisher and anti-spillage trays and a hazardous waste inventory is available.
- Prohibit illegal disposal of hazardous waste to the land.
- Possibly contaminated water (e.g., runoff from paved areas) must be drained into appropriate facilities (such as sumps and pits). Contaminated drainage must be orderly disposed of as hazardous waste.
- Ensure that containers are emptied and collected by the contractor at appropriate intervals to prevent overflowing.
- Maintain records and manifests that indicate volume of hazardous waste generated onsite, collected by contractor, and disposed of at the hazardous waste disposal facilities.
- Ensure full application of the approved C-ESMP during the construction phase and so the approved ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.
-

Monitoring and Reporting Requirements

- Inspection of hazardous waste management practices onsite;
- Review of records and manifests for volume of hazardous waste generated to ensure consistency; and
- Regular environmental reporting on implementation of hazardous waste management practices onsite.

F. Hazardous Materials

Mitigation Measures:

- Ensure that hazardous materials are stored in an area that is of hard impermeable surface, flame-proof, accessible to authorized personnel only, locked when not in use, and prevents incompatible materials from coming in contact with one another.
- Maintain a register of all hazardous materials used and accompanying MSDS must present at all times. Spilled material should be tracked and accounted for.
- Incorporate dripping pans at machinery, equipment, and areas that are prone to contamination by leakage of hazardous materials (such as oil, fuel, etc.)

- Maintenance activities and other activities that pose a risk for hazardous material spillage (such as refueling) must take place at a suitable location (hard surface) with appropriate measures for trapping spilled material
- Ensure that a minimum of 1,000 liters of general-purpose spill absorbent is available at hazardous material storage facility. Appropriate absorbents include zeolite, clay, peat and other products manufactured for this purpose.
- If spillage on soil occurs, spill must be immediately contained, cleaned up, and contaminated soil disposed as hazardous waste
- Ensure full application of the approved C-ESMP during the construction phase and so the approved ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.

Monitoring and Reporting Requirements

- Inspection for storage of hazardous materials to include inspections for potential spillages or leakages; and
- Report any spills and the measures taken to minimize the impact and prevent them from occurring again.

3. Potential Impacts from Erosion and Runoff (Construction Phase only)

Mitigation Measures:

- Existing natural flows will be maintained where possible as part of the drainage system design and any change to the natural/pre-development surface water conditions within the site to be minimized to the extent possible.
- Scheduling to avoid construction activities during heavy rainfall periods (i.e., during the wet season) to the extent practical. In addition, this will include modifying or suspending activities during extreme rainfall and high winds to the extent practical.
- Salvage and store topsoil and subsoil before areas are excavated, with topsoil stripped and stockpiled separately.
- Place clear markers indicating stockpiling area of excavated materials to restrict equipment and personnel movement, thus limiting the physical disturbance to land and soils in adjacent areas.
- Erect erosion control barriers around work sites during site preparation and construction to prevent silt runoff where applicable. This could include but not limited to silt fences, gravel bag berms, fibre rolls, or other similar applications.
- Return surfaces disturbed during construction to their original (or better) condition to the greatest extent possible.
- In terms of road design, all Project roads shall be appropriately graded and shaped, with access road gradients limited to reduce runoff-induced erosion. Effective short-term measures for slope stabilization, sediment control, and subsidence control shall be implemented, particularly during construction. On steep road sections, transverse drains (grips) shall be constructed, where

appropriate, to divert surface runoff from the road surface into swales or roadside drains. In addition, the alignment, length, and width of both on-site and off-site roads shall be optimized to minimize soil disturbance and reduce the need for cut-and-fill activities, with suitable runoff and erosion control features incorporated into the road design.

Monitoring and Reporting Requirements

- Inspection for erosion and runoff control to include inspections for implementation of mitigation measures.

5.4 Biodiversity

5.4.1 Potential Impacts during the Construction Phase:

1. Potential impacts of Habitat Loss, Fragmentation and Degradation

Mitigation Measures:

- All site workers will undertake a Project induction before working on site
- Prior to construction works, working areas will be clearly demarked (using appropriate temporary fencing (e.g. orange netting attached to wooden posts) so that site workers fully understand the working area.
- On completion of phased construction works the EPC Contractor will be responsible for habitat rehabilitation works in all areas that have been subject to temporary disturbance.
- Following construction an area of around xx km² will be enhanced using appropriate, native planting in suitable parts of the Project Area, this will ensure that no net loss of habitat as a result of the works. This planting enhancement will be at in the western part of the project area, away from the main construction works, to benefit PBF species as much as possible, particularly aimed at providing additional habitat close to the more typical mountain habitats of the PBF mammals.

2. Direct Impacts on sensitive receptors (Habitats and Flora) - Non-native Species and Introduced Flora

Mitigation Measures:

- Prior to construction works, working areas will be subject to a botanical walkover survey to identify areas of non-native or invasive species. Any specimens will be clearly marked, and the area avoided and if this is not possible the specimen will be removed and disposed of.
- Areas of soil removed from close proximity of these species will be stored separately and not used further on the site. It will be collected from the site and disposed of or used as deep sub-soil fill (to reduce the chance of seed germinating).
- Areas of non-native or invasive species will be mapped and a program of mechanical control will be completed over the construction period in order to remove these species from the AoI.
- Regular site walkover surveys throughout the construction period by a suitably qualified botanist to check to the presence and abundance of non-native or invasive species.

- Adequate wheel-washing facilities are to be constructed at the entrance to the site (e.g. at the eastern end of the access road) and any wastewater will be disposed of correctly to prevent spread of undesirable species.
- Soil imports to be taken from local quarries or borrow pits to avoid importing non-native and invasive species from further afield.

3. Direct Impacts on Sensitive Receptors (Nubian Ibex and Dorcas Gazelle)

Mitigation Measures:

- Schedule construction activities to avoid the peak birthing period of Dorcas Gazelle and Nubian Ibex during March and April wherever practicable to prevent disturbance to breeding individuals.
- Where construction activities are required during the birthing period, the Project Ecologist shall undertake pre works checks in suitable habitats to identify the presence of females with calves or pregnant females and communicate locations to the EPC Contractor to establish appropriate working buffers.
- Pre-construction and pre works surveys shall be conducted in the early morning from vehicles, with suitable habitats scanned from a distance of approximately 1 to 2 km to identify the presence of Dorcas Gazelle and Nubian Ibex.
- If females with calves less than one week old or pregnant females are recorded, no construction activities shall occur within 1 km of the identified area until cessation of breeding activity is confirmed by the Project Ecologist or Vertebrate Ecologist.
- Surveys of suitable habitat within 1 km of active work areas shall be undertaken in April and May during each construction year, and areas where females are recorded shall be avoided until birthing is completed and calves are at least one week old.
- Construction activities shall only resume once all animals have naturally moved away from the construction area to suitable habitat, and no active displacement or herding of animals shall be permitted.
- The Project Ecologist shall coordinate with other ecological survey teams to confirm records of Dorcas Gazelle and Nubian Ibex presence and ensure that pre-construction surveys target areas where these species have been previously recorded.
- Records of mammal fatalities on Project roads shall be collected and entered into the Project fatality database, with results reported as supplementary information within the six monthly PCFM monitoring reports.

4. Direct Impacts on Sensitive Receptors (Vertebrates) – Site Clearance and Earthworks

Mitigation Measures:

- All site workers will undertake a Project induction before working on site.
- Prior to construction works (habitat clearance, levelling or any other works), working areas will be clearly demarked so that site workers fully understand the working area. Working areas will be marked using orange netting fencing (or similar).

- Pre-construction surveys for sensitive species (i.e. those qualifying Priority Biodiversity Features) of herpetofauna will take place. The locations of known/active burrows used by Egyptian Spiny-tailed Lizard will be marked throughout the Project Area and appropriate buffers around each burrow established.
- Prior to the commencement of construction, suitable receptor sites for the release of relocated Egyptian Spiny-tailed Lizards shall be identified and mapped. Selected sites shall preferably be located within the Project-wide boundary and, in all cases, within 10 km of the Project site. Receptor sites shall contain appropriate vegetation to provide both food resources and cover, have suitable soil types that allow individuals to dig and establish new burrows, and not already be close to the carrying capacity for this species. In addition, receptor sites shall not be located within existing or proposed development areas, or in locations where future development is likely to occur.
- Detailed design for the final infrastructure layout will take into account the results of the pre-construction surveys and Project infrastructure will be sited to avoid the identified burrows. Where this is not possible, or where fresh burrows are identified at the commencement of clearance works, these burrows will be excavated by hand and the animals captured and translocated, details of this are provided below.
- If areas suitable for translocation exist within the Project Area these will be prioritized as this minimizes the impacts of transporting animals away from the Project site.
- Prior to work in an area containing Egyptian Spiny-tailed Lizard burrows any remaining burrows within 100m of proposed works will be re-checked by the Ecologist using an endoscope and if empty dug out and destroyed. If any animal is found in the working areas the burrow will be dug out carefully by hand and the animal captured and placed in a secure box before taking to a cool location ready for translocation to the receptor site. Once the lizard is removed from the burrow the hole will be collapsed and made unsuitable for future use.
- Where possible animals will be moved to existing, but inactive, burrow sites – as long as the site is still suitable for use, with nearby food and cover plants etc.
- All translocated Egyptian Spiny-tailed Lizards shall be soft-released to enhance post-release survival. Each individual shall be placed within a dedicated mesh enclosure located in suitable habitat, with a minimum size of 2 m × 2 m and covered to provide shade and protection from aerial predators. A starter burrow shall be created within each enclosure using an auger of approximately 20 cm diameter to a depth of around 30 cm to provide initial shelter. Supplementary feeding shall be provided during the acclimation period, and the enclosure shall be removed after approximately seven days to allow the lizards to disperse and forage naturally.
- Working areas should avoid trees / shrubs as these are likely, due to their sporadic distribution across the Aol to be of importance to breeding birds (e.g. passerines, raptors).
- Capture and movement of Egyptian Spiny-tailed Lizards will only be completed as a last resort. All works will aim to be completed at least 100m from active burrows. Locations where burrows are present up to 200m of construction will be monitored throughout the construction period and if significant negative impacts (i.e., abandonment of burrows or increased mortality) are observed the remaining burrows in closest proximity will be excavated and the animals captured and translocated to holding areas in accordance with the below protocols for the duration of the construction window in that location.

- A post-relocation report shall be prepared following completion of the relocation activities. The report shall document the survey dates and timing of capture and release, prevailing weather conditions during the survey and relocation efforts, locations of captured individuals, and the number of individuals captured during each relocation event. It shall also include a breakdown of individuals by age class and sex (juveniles, mature males, and mature females), details of the release sites used for each relocation effort, the number of males and females released at each site, and records of any mortalities occurring during the relocation process.

5. Direct Impacts on Sensitive Receptors (Vertebrates) – Vehicle Collisions

Mitigation Measures:

- Appropriate speed limits will be enforced on internal road network and working areas (20 km/h).
- Regular signage will be installed along the site access roads and internal roads informing all drivers of the speed limit
- A ban of driving at night will be enforced and if absolutely necessary the speed limit will be reduced to 15kph
- Ban against off-road driving at all times of the day
- Regular checks of the road for carcasses and if found these will be moved to at least 50m from the road to reduce the likelihood of hitting scavengers, including birds of prey.
- A chance find procedure will be developed by the EPC Contractors so that all workers report any road collisions so that any such incident can be investigated in full.

6. Direct Impacts on Sensitive Receptors (Habitats, Vertebrates) – Poaching, Collection etc.

Mitigation Measures:

- The Project will enforce strict controls on hunting, gathering, poaching and otherwise disturbing flora and fauna within Project Aol.
- The ban on hunting etc. will be included in the site induction along with discussions about the sanctions for breaches of this control measure.
- A chance find procedure will be implemented should any site worker find a wild animal, especially one that has become a nuisance (e.g. scavenger in the works camp, presence of small mammals in worker accommodation, presence of snake or scorpion on the works site) and the EPC Ecologist will arrange for an appropriately qualified person to capture and relocate. Where scavengers have been identified within the works site additional housekeeping measures may be required.

7. Direct and Indirect Impacts on Sensitive Receptors – Reduced Air Quality / Dust

Mitigation Measures:

- Where necessary tracks will be damped down to reduce the risk of dust. Damping down will also include areas adjacent to road where necessary.
- Vehicles will be properly maintained to reduce emissions.
- Emissions from the batching plant will be monitored in line with control plans to minimize air pollution.

8. Direct Impacts on Sensitive Receptors (Vertebrates) – Noise

Mitigation Measures:

- Vehicles will be properly maintained to reduce noise emissions.
- Use of available technology and management practices with construction methodologies to reduce noise and vibration.
- Regular monitoring of noise and vibration levels within works compounds and works areas and applying corrective measures as necessary. Quarterly noise monitoring will be undertaken.

9. Direct Impacts on Sensitive Receptors (Vertebrates) – Lighting

Mitigation Measures:

- Limit the amount of lighting, especially within the wider Aol (e.g. at turbine construction sites). Night-time working is not anticipated and will certainly not be a regular occurrence. This will be achieved by ensuring that night-time work is only undertaken with appropriate justification, e.g. emergency work.
- Where lighting is required within worker compounds, site offices, etc. Ensure that any lighting is shielded and protected to reduce light-spill and glare. Low intensity lighting should also be used, where possible, to further reduce light spills.
- For external security lights PIR trigger units will be used and these should be timed to automatically switch off after five minutes.
- No lighting will be installed along the access roads.

10. Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Littering, Waste Management

Mitigation Measures:

- Waste Management will be included in the Site Induction so that all site workers understand their responsibilities of maintaining a clean and tidy site. Where possible all materials than can be recycled will be.
- Zero tolerance to littering on the works site and within the worker compound. This zero-tolerance approach should also be applied to smoking and workers must use appropriate smoking areas (supplied with 'butt bins') at all times, even when on construction sites. Litter must not be thrown out of vehicle windows when driving to and from or around the site.
- Daily inspections of working areas and worker compound should be completed, and corrective actions applied, where necessary.

11. Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Pest Species

Mitigation Measures:

- Where pest species are identified the EPC Contractor / Ecologist will be notified and an appropriate course of action taken. For small mammal pest's live traps will be used, in order to reduce the risk of by-catch. Poison baits should be avoided, unless it can be certain that non-target species will be affected, and any such use should be in accordance with national and international best practice. If

poison baits are to be used it must be certain that any poisoned animal cannot move out on to the wider Aol to reduce the risk of natural predators eating poisoned animals.

5.4.2 Potential Impacts during Operation Phase:

1. Indirect Impacts on Sensitive Receptors (Vertebrates) – Disturbance

Mitigation Measures:

- Speed limits of 20 kph will be enforced
- Sensitive species are to be included in the site induction for all operational staff where additional control measures will be discussed including allowing animals to move around the site, not chasing after them in vehicles or approaching them on foot

2. Direct Impacts on Sensitive Receptors (Vertebrates) – Vehicle Collisions

Mitigation Measures:

- Speed limits of 20 kph will be enforced by the O&M Contractor
- Regular signage will be installed along the internal roads informing all drivers of the speed limit
- A ban on driving at night will be enforced and if absolutely necessary the speed limit will be reduced to 15 km/h on any internal roads.
- Ban against off-road driving at all times of the day, and if necessary, the works area will be subject to a walkover by the Project Ecologist
- Regular checks of the road for carcasses and if found these will be moved to at least 50 m from the road to reduce the likelihood of hitting scavengers, including birds of prey
- A chance find procedure will be developed by the O&M Contractors so that all workers report any road collisions so that any such incident can be investigated in full and included in ongoing mortality monitoring at the site.

3. Direct Impacts on Sensitive Receptors (Vertebrates) – Lighting

Mitigation Measures:

- Site-wide lighting is not being implemented so any lighting impacts during operation will be very limited. Night-time work is not anticipated and will certainly not be a regular occurrence.
- Where lighting is required within worker compounds, site offices etc. ensure that any lighting is shielded and protected to reduce light-spill and glare. Low intensity lighting should also be used, where possible, to further reduce light spills.
- For external security lights PIR trigger units should be used and these should be timed to automatically switch off after five minutes.
- No lighting will be installed along access road

4. Direct Impacts on Sensitive Receptors (Habitats and Flora) – Non-native Species and Introduced Flora

Mitigation Measures:

- Post-construction monitoring will be completed across the AoI to record the presence and distribution of non-native and invasive plant species and a programme of mechanical control will be completed over the operational period to remove these species from the AoI. Chemical control will be avoided however, if necessary, it will be used in accordance with national and international guidelines and will also be subject to risk assessment and approval from the Lenders. The programme of control will continue until the species are absent from Project AoI.
- A programme of regular monitoring will be completed with surveys completed in Years 1, 2, 5, 10, 15 to survey for the presence of non-native and / or invasive species and relevant control of these species will be completed, where necessary

5. Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Pest Species

Mitigation Measures:

- Where pest species are identified, the O&M Contractor / Ecologist will be notified, and an appropriate course of action taken. For small mammal pest's live traps will be used, to reduce the risk of by-catching. Poison bait should be avoided, unless it can be certain that non-target species will be affected, and any such use should be in accordance with national and international best practice. If poison baits are to be used it must be certain that any poisoned animal cannot move out to the wider AoI to reduce the risk of natural predators eating poisoned animals.

6. Other

Monitoring and Reporting Requirements

Long term monitoring of the Project AoI will be completed as set out above and will include:

- Habitat and Flora monitoring within the AoI to measure the success of habitat rehabilitation work to reasonably demonstrate no net loss of natural habitat as well as to record the presence of invasive / non-native flora. Monitoring will be completed in Years 1, 2, 5, 10 and 15. Full site walkover surveys as well as quadrat surveys will be completed.
- Monitoring of mammal and herpetofauna assemblages across the AoI. Repeats of baseline surveys will be completed in Years 1, 2, 5, 10 and 15. Population densities recorded in Year 5 will be compared to baseline levels and if required additional work will be completed.
- All of the above monitoring requirements will be included within a Biodiversity Management Plan which will include Key Performance Indicators (KPIs) against which the results of the monitoring will be assessed.

5.5 Avi Fauna

5.5.1 Potential Impacts During the Construction Phase

Direct and Indirect Impacts during Site Preparation Activities

- Implementation of proper housekeeping measures to reduce impacts including:
 - Restrict activities exclusively to the allocated construction areas, including movement of workers and vehicles to allocated roads within the site, prohibiting off-roading to minimize disturbances.
 - Ban hunting of birds on site at any time and under any condition to anyone, especially workers.
 - Implement measures, preventing bird attraction to the site. This includes measures such as prohibiting littering, dumping, and ensuring waste streams are disposed appropriately.
 - Avoid unnecessary elevated noise levels at all times. In addition, apply adequate noise abatement measures. This could include the use of well-maintained mufflers and suppressants for high noise generating equipment and machinery. Develop a regular maintenance schedule of vehicles, machinery, and equipment for early detection of issues to avoid unnecessary elevated noise level, etc.
- Reduced speed limits inside the footprint to avoid road kills and dust.
- Report any incidental finding and killing of wildlife. Develop a protocol to report the deaths and injured wildlife or animals recorded onsite.
- Ensure full application of the approved C-ESMP during the construction phase and so fulfilling EEAA conditions stated in the ESIA approval letter.

5.5.2 Potential Impacts During the Operation Phase

Direct and indirect collision impact on birds from risks of collision and electrocution for any kind of bird

- Apply site specific turbine design and layout requirements to reduce avifauna collision risk, including avoidance of continuous turbine lighting, use of the minimum number of intermittent flashing lights in accordance with civil aviation requirements, compliance with minimum turbine spacing of 2.5 times rotor diameter and 7 times rotor diameter between turbine rows, and implementation of upfront mitigation measures including observer led Shut Down on Demand based on migration intensity and CRM results, subject to regulatory approval.
- Implement Shut Down on Demand procedures during operation, ensuring continuous observer coverage of turbines and buffer areas, adequate buffer distances to allow timely turbine shutdown, deployment of trained observers working in pairs and shifts, effective communication between observers and shutdown operators, and periodic review of shutdown protocols in coordination with regional projects and best practice.
- Design and implement an Active Turbine Management Plan during operation in line with Good International Industry Practice, including bird monitoring and observer led shutdown on demand during migration seasons, with continuous daily monitoring during spring migration from 20 February to 15 May and autumn migration from 10 August to 15 November, in accordance with the RCREEE ATMP protocol and Technical Committee guidance.
- Undertake targeted monitoring and mitigation measures for resident Golden Eagle, including cliff nesting raptor monitoring during the breeding season, assessment of breeding and fledgling success, and implementation of additional studies such as satellite tracking where required to identify foraging areas and inform year round mitigation, with the potential for year round shutdown on demand if

necessary to achieve no net loss of the breeding pair.

- Design and implement a Post Construction Fatality Monitoring program during operation to assess vertebrate mortality and the effectiveness of mitigation measures, with fatality rate estimates reported every six months by migration season, annual CRM updates, comparison against ESIA predictions, and application of adaptive management measures where higher than predicted mortality is recorded.
- Implement a chance find procedure for vertebrate carcasses during operation, requiring site personnel to report findings to the Project Ecologist, and remove prey species carcasses from roads and on site areas to reduce the attraction of scavenging birds.

5.6 Bats

5.6.1 Potential Impacts during the Construction Phase

Such impacts on bats are of a long-term duration as they result in a permanent change in the landscape of the site. Thus, they are expected to be of negative nature, low magnitude, and low sensitivity and therefore not significant due to the reasons provided below.

- Based on literature review all bat species that are expected within the Project area are considered of Least Concern according to IUCN Red List of Threatened Species.
- The Project site being a feeding ground for bats is expected to be minimal and non-significant given the expected low nocturnal insect activity due to the arid nature of the Project site and vegetation coverage.
- Based on preliminary visits of the Project area it does not seem to support roosting sites for bats.

Taking the above into account, no mitigation measures are expected to be required,

5.6.2 Potential Impacts during the Operation Phase

Mitigation and Monitoring Measures

- Based Developer will be required to undertake at height bat acoustic surveys for one (1) year during first or second year of operations to verify outcomes above. Such acoustic surveys will be done at the met masts and should be undertaken by a third-party entity with experience in bat assessments and studies.
- To verify the outcomes above, as part of the PCFM Program to be developed for birds, it should cover bats as well. Based on the outcomes of the PCFM, additional management measures should apply such as curtailment of turbines and increase cut-in speed to 6 m/s.
- The mitigation will be developed by an international expert on bat monitoring and interactions with wind energy facilities.

5.7 Archaeology and Cultural Heritage

5.7.1 *Potential Impact During the Construction Phase*

Mitigation Measures

- During excavation activities, the Ministry of Tourism and Antiquities must be notified to check if they will provide any observers to oversee the process and ensure that no underground archaeological remains of importance are unearthed and/or disturbed.
- There is a chance that potential archaeological remains in the ground might be discovered. It is expected that appropriate measures for such chance finding procedures will be implemented. Those mainly require that construction activities be halted and the area fenced along with proper signage, while immediately notifying the Ministry of Tourism and Antiquities/Red Sea and Suez Antiquities Inspection Office. No additional work will be allowed before the Ministry/Inspection Office assesses the found potential archaeological site and grants a clearance to resume the work. Construction activities can continue at other parts of the site if no potential archaeological remains are found. If found, same procedures above apply.

Monitoring Requirements

- Conduct regular visual inspections and design compliance checks to confirm implementation of approved turbine lighting, layout, and spacing requirements, with records maintained by the Project Environmental Team.
- Maintain logs of Shut Down on Demand events and bird observations, and include summaries within periodic avifauna monitoring and environmental compliance reports.
- Implement visual bird monitoring during migration seasons in accordance with the approved Active Turbine Management Plan, with monitoring results summarized in seasonal monitoring reports.
- Undertake targeted visual monitoring of resident raptor activity during the breeding season, and document observations and findings in dedicated raptor monitoring reports.
- Conduct Post Construction Fatality Monitoring surveys during operation, record carcass findings, and report results within six monthly and annual environmental monitoring reports.
- Record all chance finds of vertebrate carcasses by site personnel and report findings to the Project Ecologist, with outcomes documented in monitoring records and included in periodic reporting.

5.8 Air Quality and Noise

5.8.1 *Potential Impacts During the Construction Phase*

Mitigation Measures

- If dust or pollutant emissions were found to be excessive due to construction activities, the source of such emissions should be identified and adequate control measures must be implemented;
- Comply with the Occupational Safety and Health Administration (OSHA) requirements and the Egyptian Codes
- Basic dust control and suppression measures will be applied throughout the construction period to

minimize dust generation and dispersion.

- Develop a regular inspection and scheduled maintenance program for vehicles, machinery, and equipment to be used throughout the construction phase for early detection of issue to avoid unnecessary pollutants and noise emissions.
- Based on inspections and visual monitoring undertaken, if noise levels were found to be excessive from construction activities, the source of such excessive noise levels should be identified and adequate control measures must be implemented;
- Apply adequate general noise suppressing measures.
- Ensure full application of the approved C-ESMP during the construction phase and so fulfilling EEAA conditions stated in the ESIA approval letter.
-

Monitoring and Reporting Requirements

- Dust and noise monitoring should be undertaken on a quarterly basis during the construction phase at key points where active construction activities are undertaken. The monitoring should include TSP, PM₁₀ and PM_{2.5} and noise levels.

5.9 Infrastructure and Utilities

5.9.1 Potential Impacts During the Planning and Construction Phase

1. **Inappropriate management of planning activities and site locations (e.g. siting of turbines) and construction activities (e.g. excavations) could disturb such aviation practices.**

Mitigation Measures

- Establish coordination with NREA to ensure that the clearance that has been provided by the Ministry of Defence for the area includes in particular approvals from civil and military aviation entities. In addition, based on the that adhere to any specific navigational safety requirements (e.g. navigational lights, blade paintings, etc).

Monitoring and Reporting Requirements

- Submission of formal non-objection letters from relevant entities
- 2. **Construction activities could damage/disturb underground communication cables (if present within the area), while rotating turbines during operation could disrupt Line of Sight (LoS) connections between telecommunication transmission towers.**

Mitigation Measures

- Establish coordination via NREA with NTRC to provide information on the at least six (6) months prior to the commencement of construction (to include location and specifications of turbines in specific) and include any specific requirements to be considered as part of the detailed design to include setback distances if required for telecommunication, infrastructure (e.g. from LoS connections).
- Ensure full application of the approved C-ESMP during the construction phase and so the approved

ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.

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Monitoring and Reporting Requirements

- Submission of formal non-objection letter from NTRC

5.9.2 Potential Impacts During the Construction and Operation Phase

1. **Waste handling requirements generated from the Project could entail constraints on existing users.**

Additional Requirements

- Coordinate with the RSWWC and Sanitation Authority in Ras Gharib and obtain list of authorized contractors for collection of wastewaters from the site to the Ras Gharib WWTP.
- Coordinate with the RSWWC and Sanitation Authority in Ras Gharib to hire a competent private contractor for the collection of solid waste from the site to the Ras Gharib Public Dumpsite.
- Coordinate with Environmental Management at RSWWC and Sanitation Authority in Ras Gharib to obtain list of authorized contractors for collection of hazardous waste from the site to the closest approved facility for final disposal.

Monitoring and Reporting Requirements

- Submission of formal non-objection letters from relevant entities
2. **Water requirements of the Project could entail constraints on existing users such as local communities or industrial establishments.**

Additional Requirements

- Coordinate with the Ras Gharib Water Company to sector the water requirements of the Project.
- Ensure full application of the approved C-ESMP during the construction phase and so the approved ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.

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Monitoring and Reporting Requirements

- Submission of proof of coordination with relevant entities.

5.9.3 Potential Impacts During the Operation Phase

1. **Inappropriate management of planning activities (e.g. siting of turbines and proper buffer distance) could affect such nearby wind farms.**

Mitigation Measures

- Further follow up/communication with NREA to ensure if buffer distance of the Project from other nearby wind farm projects is considered sufficient and appropriate from a technical perspective

Monitoring and Reporting Requirements

- Submission of proof of coordination with relevant entities.

5.10 Occupational Health and Safety and Worker Accommodation

5.10.1 Potential Impacts During the Construction and Operation Phase

1. Generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents

Mitigation Measures

- Prepare an Occupational Health and Safety Plan (OHSP).
- Prepare an Emergency Preparedness and Response Plan (EPRP).
- Prepare and establish and implement a worker grievance mechanism to ensure that all worker complaints are properly received, documented, addressed, and closed out in a timely and transparent manner.
- Follow the Workers' accommodation: process and standards" (EBRD/IFC Guidance Note, 2009). In case there is an accommodation onsite.
- Ensure full application of the approved C-ESMP during the construction phase and so the approved ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.

Monitoring and Reporting Requirements

- Inspection to ensure the implementation of the provisions of the Occupational Health and Safety Plan and assess compliance with its requirements;
- Regular Reporting on the health and safety performance onsite in addition to reporting of any accidents, incidents and/or emergencies and the measures undertaken in such cases to control the situation and prevent it from occurring again; and
- If applicable, inspection on workers accommodation to ensure its compliance with the requirements of "Instructions for Prevention of Health Nuisances from Workers Accommodation No. (1) For the year 2013" and "Workers' accommodation: process and standards" (EBRD/IFC Guidance Note, 2009).
- Submission of an Emergency Preparedness and Response plan
- Submission of a Worker Grievance Mechanism.

5.11 Public Health and Safety

5.11.1 *Potential Impacts During the Construction Phase*

1. Influx of workers to the area could result in community impacts such as pressure on infrastructure elements, increase in social vices, risk of spread of disease, and other.

- All workers must be subject to a preliminary medical examination before commencement of any job tasks in accordance with local applicable requirements. In addition, routine medical examination for workers (bi-annually) must be undertaken.
- Ensure and maintain hygienic conditions onsite at all times specifically related to toilet and washing facilities, eating areas, etc.
- Develop a code of conduct for workers which takes into account appropriate behavior by workers at all times, religious customs, traditional cultures and social norms in the area.
- Induction training and awareness raising sessions on risks associated with the most common contagious diseases (e.g. influenza virus), communicable diseases, general measures for hygiene, code of conduct expected to be implemented and other as appropriate

Monitoring and Reporting Requirements

- Submission of the Worker Influx Plan

5.11.2 *Potential Impacts During the Construction and Operation Phase*

1. Trespassing of unauthorized personnel into construction active areas could result in health and safety impacts

Mitigation Measures

- Develop a Security Risk Assessment to identify and manage potential security risks.
- Ensure full application of the approved C-ESMP during the construction phase and so the approved ESMP obligations during the operation phase. In addition to fulfilling EEAA conditions stated in the ESIA approval letter.

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Monitoring and Reporting Requirements

- Submission of Security Risk Assessment

2. Inappropriate management of security issues and incidents by security personnel towards local communities (e.g. overreaction, mistreatment, use of excessive force) could result in potential for conflict, resentment, distrust and escalation of events.

Mitigation Measures

- Develop a Security Management Plan (SMP) plan to identify appropriate measures for hiring, rules of conduct, training, equipping, and monitoring of security personnel to control and manage such issues.

The plan must adhere to: (i) IFC PS 4 (Community Health, Safety and Security); and (ii) EBRD PR 2 (Labor and Working Conditions), all of which identify requirements for security personnel.

Monitoring and Reporting Requirements

- Submission of the Security Management Plan

5.11.3 Potential Impacts During the Operation Phase

1. Noise

Wind turbines produce noise during operation from mechanical and aerodynamic sources. Mechanical noises are mainly limited from the machinery in the nacelle of the turbine (gearbox, generator, auxiliary equipment, etc.) while aerodynamic noise is generated from the movement of air around the turbine blades and tower.

A detailed noise impact assessment is required to be carried out to model turbine noise emissions under various scenarios and to verify compliance with national and international standards. Should the results of the Detailed Noise Assessment indicate any potential exceedances at sensitive receptors, appropriate mitigation measures will be implemented.

3. Shadow Flicker

Shadow flicker occurs when the sun passes behind the wind turbine and casts a shadow several hundred meters away from the turbine's location. As the rotor blades rotate, shadows pass over the same point causing an effect known as 'shadow flicker'. Shadow flickers only occur under specific environmental conditions which must also align for flickers to occur which include position and height of the sun, wind speed, direction, cloudiness, and position of the turbine to a sensitive receptor.

Based on all of the above, a shadow flicker assessment is required to be undertaken to model potential shadow flicker effects from the wind turbines in order to verify compliance with applicable national and international guidelines. Should the results of the detailed assessment indicate any potential unacceptable impacts at sensitive receptors, appropriate mitigation measures will be implemented.

6. STAKEHOLDER CONSULTATION AND ENGAGEMENT

6.1 Targeted Consultations

Targeted consultations were undertaken with key stakeholders that are relevant to the Project to include but not limited to: (i) central governmental entities; (ii) local governmental entities; (iii) key Non-Governmental Organizations (NGOs); (iv) local community representatives; (v) and other.

The objective of stakeholder consultation is to ensure that a participatory approach takes place, which in turn documents concerns of all stakeholder groups and make sure that such concerns are considered, responded to, and incorporated into the decision-making process of the development. Stakeholder consultation needs to be a two-way communication process that imparts information to stakeholders but also obtains additional and on-the-ground information from them. Stakeholder consultation and engagement must take place at the inception phase of the ESIA process and be implemented all through the study period.

The specific objectives of this section are to:

- Describe and identify the stakeholders affected and/or with an interest in the Project;
- Summarize stakeholder engagement and consultation conducted to date. In addition, describe how the views and issues raised have informed and influenced the development of the Project; and
- Outline the future plans and approach to stakeholder engagement.

Throughout the consultations, a handout (in Arabic language) was prepared and distributed to such stakeholder groups with key information to include but not limited to rationale for Project, Project location and setting, key components and activities of the Project and other as applicable.

The table below presents a summary for the outcomes of the stakeholder consultations undertaken, while figure that follows presents sample photos.

Table 9: Outcomes of Stakeholder Consultations

Entity	Date	Key Outcomes
National Governmental Entities in Egypt & Regional Governmental Entities in Red Sea Governorate		
Ras Gharib City Council	24 June 2025	▪ The Project is located within the administrative boundaries of Ras Gharib City Council (Red Sea Governorate), which includes Zaafarana Village to the north and Wadi Dara Village to the south. It is the second largest city in the Red Sea Governorate, covering an area of approximately 14,344 km². ▪ The land designated for the Project is State-owned land located several kilometers away from the Ras Gharib city center and falls fully under national jurisdiction for wind energy development as designated by the Egyptian Republic Presidency. ▪ The Project area does not conflict with local land use plans. However, the Ras Gharib City Council expressed the need to obtain a permit from the Armed Forces confirming the absence of oil exploration plans. Further engagement with other high-level authorities may be necessary for sensitive areas. ▪ Local infrastructure services (roads and traffic, cleanliness, water, sanitation and solid waste) are internally coordinated through the Ras Gharib city council. ▪ The Ras Gharib City Council coordinates with NREA to manage and dispose of hazardous waste in the Alexandria Dumpsite (Nahdet Masr Company in El Hamman City) with close coordination with local companies for transportation arrangements. ▪ The city council plays a central role in facilitating all procedures for windfarm investors, including coordination during construction and operation. It also serves as a direct liaison between project developers and the community. - Weekly public meetings are held every Wednesday at the city council premises, where residents can raise grievances or receive feedback. Requests can be submitted from Thursday to Monday for review. - Residents can also communicate through the Red Sea Governorate's official website¹² or the Government Unified Complaint System¹³.

¹² <http://www.redsea.gov.eg/t/ras%20gharib/rasgharib.aspx>; <http://www.redsea.gov.eg/t/Contactus.aspx>; <http://www.redsea.gov.eg/t/Complaints.aspx>

¹³ <https://www.shakwa.eg>

		- All kind of announcements for public events and local news are published on the city council website. Specific information on public consultation events or local projects news can also be disseminated through the public relation office, or by hanging a banner at the city council. Public consultation sessions are typically held at the Four Seasons Hall in Ras Gharib. Key stakeholders to involve include parliament members, Bedouin family heads, NGOs, CBOs, and relevant line ministries and directorates. ▪ Local employment opportunities can be advertised through the Ras Gharib City Council website and coordinated with the labor office. The Red Sea governorate and NREA support local hiring. Use of local contractors is encouraged to boost the Ras Gharib's economy. ▪ No community concerns or grievances are currently anticipated due to the Ras Gharib community's long-standing familiarity with wind energy development. ▪ The Project must obtain relevant permits and approvals, including environmental approvals, planning permissions, grid connection agreements, land use permits, building permits and site visit permits. The Developer should also consider potential impacts on proximity to residential areas, potential impact on local wildlife and birdlife, potential noise and visual impacts on the local community, and workers on-site safety. ▪ Throughout the Project cycle, the Ras Gharib city council coordinates directly and closely with the Civil Defense, Domestic Intelligence, Police, Fire-fighting Service, and Armed Forces in case of any emergency. It also coordinates with various medical service providers inside and outside Ras Gharib, e.g., Ras Gharib General Hospital, Hurghada General Hospital, Menya General Hospital, and Electricity Hospital in Cairo for medical emergencies. ▪ The Ras Gharib city council highlighted a need to guide developers (in general) toward allocating 3-5% of the Project budget to Corporate Social Responsibility (CSR), in cooperation with the city council, focusing on: - Encouragement to establish on-site camps for workers to avoid pressure on local housing; - Improving local health and education services; - Upgrading roads and completing sanitation networks (especially in El Sakala); - Installing water recycling facilities for tree planting; and - Establishing Bedouin settlements in remote areas like Arab Ayesh and Wadi Araba.
Wadi Dara Local Unit	25 June 2025	▪ Wadi Dara village is accessed via one main paved road and a network of unpaved farm alleys. ▪ The unit mentioned that there are no infrastructure or social services that exist in the village beyond limited electricity (3 hours/day) and groundwater wells. ▪ The unit does not anticipate any disruption or impacts on local infrastructure from the construction or operation of the wind farm. ▪ Wadi Dara falls under the jurisdiction of Ras Gharib City Council and is represented by the Board of Directors of the Dara Agricultural Cooperative. ▪ The closest Bedouin settlement is Arab Ayesh. No contact or land/resource overlap exists between this community and Wadi Dara.

		▪ Community engagement should be coordinated by the Wadi Dara Agricultural Cooperative and local investors. There are no active tribal, women, or youth groups in the area. ▪ Wadi Dara was established in 1995 as an agricultural production development initiative. 5000 feddans ($\approx 21 \text{ km}^2$) were allocated to the Cooperative – 50 feddans ($\approx 0.21 \text{ km}^2$) per investor (80 total) and 5 feddans ($\approx 0.021 \text{ km}^2$) per cooperative member (200 total). It was designated as a Local Unit in 2002. ▪ Residents are permanent agricultural laborers hired by investors. Families may visit during summer but do not reside year-round due to lack of basic services. ▪ Key community concerns include investor contributions to local infrastructure upgrades, particularly: - Extended access to electricity - Provision of potable water - Establishment of a basic healthcare unit
Egyptian Environmental Affairs Agency (EEAA) Office in Cairo	16 October 2025	▪ EEAA confirmed that relevant environmental and social data may be accessed through the New and Renewable Energy Authority (NREA) and the central EEAA offices. ▪ Survey methodologies were presented, and the entity advised incorporating recommendations received from the General Petroleum Authority, including potential site identification and the inclusion of a waste management plan within the ESIA. ▪ Planned biodiversity fieldwork was discussed, including bird and bat surveys and habitat assessments. EEAA advised that additional feedback would be provided by NCE and Biodiversity Department during a separate session on 22 October 2025. It was also advised to follow national wind farm siting guidelines. ▪ It was advised to consult the NCE for guidance on threatened species and potential sensitive habitats. <i>However, it is important to note that Consultation attempts with NCE between August and October 2025 sought feedback on the biodiversity baseline methodology and key ecological sensitivities. No response was received, and NCE also did not attend the public consultation session held in Ras Gharib as presented the Section below.</i> ▪ EEAA confirmed the absence of recent biodiversity data within the Project area or 10 km buffer but welcomed efforts to collect data within this range. Reference materials from previous studies will be gathered and shared where possible. ▪ The need to define buffer zones, exclusion areas, or setbacks will be determined in consultations with biodiversity specialists, guided by an ongoing national strategic study under EEAA supervision. Additional biodiversity features potentially impacted by the Project will be identified through field surveys and reference to the regional critical habitat assessment. ▪ Permitting requirements include use of an EEAA-accredited consultant, submission via NREA, and 30 working days for official review and issuance of environmental permit. ▪ Bird monitoring during construction and operation phases will be required as per the signed protocol. EEAA is responsible for reviewing and approving all monitoring methodologies and protocols.

		- EEAA will issue an environmental opinion (approval, rejection, or request for revision) after reviewing the submitted ESIA. - Any further requirements or issues of concern will be determined upon submission and review of the final documentation.
EEAA Red Sea Branch, Regional Director	15 October 2025	- Project description and ESIA survey methodology were presented, and EEAA confirmed that the proposed survey methodology is sufficient. - EEAA confirmed no available secondary data or environmental studies for the Project area or 10km buffer. - EEAA stated that issues related to protected species fall under the Protected Areas Department and are not within its own jurisdiction. - Permitting must be coordinated through NREA and EEAA in Cairo. - EEAA raised no objection to the Project but noted that its acceptance is conditional on final ESIA review. - Monitoring expectations, additional issues of concern, and any required revisions will be confirmed after review of the environmental report.
EEAA Red Sea Branch, Director of Inspection and Legal Monitoring	15 October 2025	- Project description and ESIA survey methodology were presented, and EEAA confirmed that the proposed survey methodology is sufficient. - EEAA clarified that issues related to threatened species and protected zones fall under the authority of the Protected Areas Department. - Permitting must be processed via NREA and the Ministry of Environment in Cairo, with EEAA reviewing submitted environmental studies. - The Project received conditional non-objection subject to full review of the ESIA. - No additional concerns or requirements were raised during the consultation.
EEAA Red Sea Branch, Red Sea Protectorates	15 October 2025	- The Red Sea Protectorates team acknowledged the Project and noted that biodiversity-related publications relevant to the area are available through EEAA's Environmental Impact Assessment Department. - No biodiversity studies or species of concern were identified within or near the Project area. - It was recommended to establish safe bird corridors between adjacent wind projects. - All environmental permits are to be obtained from EEAA headquarters in Cairo. - No objection letter was available at the time of consultation. - Additional recommendations included ensuring the review and publication of relevant environmental studies and reports.
New & Renewable Energy Authority (NREA)	10 October 2025	- The Project was presented including its location, boundaries, production capacity, and technology via a detailed presentation. - NREA confirmed that the Project land is free from conflicting surface or subsurface activities and stated that official land allocation and handover documents had been provided to the Developer. They also committed to

		sharing formal land use plans for both the Project site and surrounding areas up to 30km. - NREA emphasized adherence to internationally approved technical standards and confirmed that turbine layout plans must be submitted for review and approval prior to implementation. - It was confirmed that NREA is coordinating with relevant government authorities including the Armed Forces Operations Authority, Red Sea Governorate, and the National Authority for Regulating State Land Use. Further coordination will continue with other entities. - NREA requested submission of full turbine technical specifications and a Waste Management Plan.
Ministry of Labor, Ras Gharib	12 October 2025	- Project description and ESIA methodology was presented, including its components, location, and anticipated construction and operation activities. The ESIA methodology was outlined, with emphasis on labor-related risks such as occupational health and safety, labor abuses (e.g., discrimination, child labor, passport retention), and working/living conditions (e.g., leaves, compensation, sanitation, drinking water, accommodation). - A request was made to prioritize hiring locally rather than bringing in labor from outside Ras Gharib. - Recommendations included establishing an on-site employment center to facilitate the hiring of Ras Gharib residents and allocating a defined labor quota for locals.
Radio and Television Unit – Ras Gharib & Red Sea Governorate	12 October 2025	- Project description and potential turbine-related signal interference (e.g. reflection, attenuation) was presented. - No major broadcasting towers or transmission infrastructure identified near the Project site. - Coordination advised with Ras Gharib Radio and Television Unit during use of cranes, erection of turbines, or other activities involving tall structures. - No requirement indicated for signal impact study. No additional concerns or recommendations were raised.
Red Sea Water and Wastewater Company (RSWWC) – Ras Gharib	14 October 2025	- The Project scope and ESIA methodology were discussed, with specific focus on potential impacts to local water supply and wastewater systems. - It was confirmed that Ras Gharib is supplied via the Kureimat Line along the highway, which experiences service disruptions affecting local demand, especially during labor-intensive periods. - No water supply facilities or pipelines were identified within the Project footprint. Direct connection to the main line or treatment plant is considered difficult. Instead, it is recommended to use water tankers during the construction period. - For wastewater, the nearest treatment facility is located on Umm Al-Yeser Road. Coordination must be undertaken with Ras Gharib management, and regular drainage of septic tanks is required. - Additional recommendations included proposing the Developer to construct a dual water supply line to alleviate pressure from increased population and labor demands.

Sanitation Authority – Ras Gharib	16 October 2025	- The Project overview and ESIA approach were discussed, focusing on construction-phase wastewater generation and management. - No sanitation facilities are located on or near the Project site. The nearest treatment plant is situated on Umm Al-Yeser Road (Ras Gharib Treatment Plant). - Due to infrastructure limitations, wastewater generated by the Project should be managed using septic tanks and drained regularly via septic trucks. - Coordination with the Sanitation Department of Ras Gharib is required throughout construction phase. - No additional concerns or requirements were raised.
Hazardous Waste Management Unit – Red Sea Governorate	15 October 2025	- The Project and ESIA scope were presented, including expected hazardous waste streams during construction (e.g., oils, lubricants, contaminated containers). - There are no hazardous waste treatment or disposal facilities within the Red Sea Governorate. - Hazardous waste must be collected, transported, and disposed of by a licensed company approved by the Waste Management Regulatory Authority (WMRA). Tracking forms are required. - Coordination should be made with the Secretary General of the Governorate regarding permitting and oversight. - No additional concerns or requirements were raised.
Solid Waste Management – Red Sea Governorate	15 October 2025	- The Project and ESIA scope were presented, including anticipated solid waste streams such as packaging, construction debris and municipal waste from workers. - The nearest landfill is located in Ras Gharib next to Umm Al-Yeser, with a current capacity of 200,000 m³. It is operated in accordance with national standards. - It was confirmed that the landfill is capable of handling the waste volumes expected from the Project. - It is recommended to contract licensed companies for waste transport and disposal. - Recycling and reuse of solid waste is encouraged. A committee may be formed by the Solid Waste Department to oversee recycling and related actions.
Ras Gharib National Council for Women (NCW)	24 June 2025	- To ensure continuous access to Project information and updates for women groups, the following platforms and entities were recommended: - Ras Gharib City Council “Fonar Gharib” Facebook page - NGOs’ WhatsApp groups - Employment vacancies on company websites - Women and youth can be informed about consultation sessions through NGOs and CBOs operating in Ras Gharib. - Job and procurement opportunities targeting women and youth should be advertised through active NGOs. Many youths in Ras Gharib require technical

		training as most are graduates of non-technical fields such as commerce, law, science and education. - It was noted that wind farm projects have positively contributed to the community, unlike oil companies that have historically lacked engagement. As an example, one windfarm project has previously upgraded the facilities of a local NGO. - Priority needs for Ras Gharib include: - Creating job opportunities for young men and women; - Delivering technical training programs to prepare youth for Project-related employment; and - Supporting youth development through sports and talent-nurturing activities.
NGOs		
Ressala Charity Organization	24 June 2025	- Local active NGOs and CBOs maintain close connections with women in Ras Gharib, especially single breadwinners. Information on Project updates and disclosures can be disseminated through the City Council and active local NGOs. - There is no single entity responsible for coordination, as NGOs operate under the Social Solidarity Department at Ras Gharib City Council but manage their own priorities and activities. - To ensure women's participation in scoping and disclosure sessions, coordination should take place with the heads and directors of active local NGOs and CBOs in Ras Gharib and Zaafarana including: (i) Ebad El Rahman NGO; (ii) El Fardos NGO; and (iii) Ressala Charity Organization. - Employment and procurement opportunities can be announced via local Facebook groups Ressala Gharib¹⁴ and Fanar Gharib¹⁵, as well as through the directors of active NGOs and CBOs (Ebad El Rahman NGO, El Fardos NGO, and Ressala Charity Organization). - Bedouin family heads in Ras Gharib can also help communicate job opportunities to female members during their clan meetings, as there are no active parliament members in the area. - Ras Gharib faces a lack of basic infrastructure and social services. Windfarm projects have provided valuable contributions in the past (e.g., support during orphans' day, Ramadan food supplies, and hospital equipment). - Community priorities remain focused on: - Expanding educational services - Improving healthcare services - Organizing medical convoys
El Fardos NGO for Patients' Care and Service	24 June 2025	- To ensure continuous access to Project information for women in the local community, it was recommended to: - Assign a dedicated community liaison officer to coordinate between windfarm projects and Ras Gharib civil organizations (one officer may cover multiple projects, requiring coordination between project managers).

¹⁴ [Ressala Gharib Facebook page](#)

¹⁵ [Fanar Gharib Facebook page](#)

		- Post updates through the “Fanar Gharib” Facebook page and Ras Gharib Radio channel. ▪ Entities suggested for coordination include: - Active and established NGOs and CBOs - Bedouin family heads - Religious leaders in Ras Gharib (e.g., Al-Azhar, endowment, and Mary Gergis Church) ▪ To ensure women’s participation in scoping and disclosure sessions, the following was proposed: - Mobilize participants through local NGOs and CBOs - Coordinate with the National Council for Women (NCW), Ras Gharib Branch ▪ Women can contribute to windfarm projects during construction by offering services to workers’ camps such as food catering and tailoring of clothing and beddings, and during operation in roles such as HR officers, E&S officers, or engineers. Employment opportunities can be advertised through: - The Labor Office in Ras Gharib - The City Council’s official website - The “Fanar Gharib” Facebook page ▪ Additional issues raised include lack of municipal services (transport, housing, subsidized bread), high unemployment, and vulnerability of female-headed households. Proposed interventions include: - Subsidize electricity and gas bills for Ras Gharib residents by at least 10% as a benefit-sharing mechanism - Enforce a minimum 10% quota for local hiring, prioritizing qualified residents with higher education - Establish community cultural projects for Ras Gharib families - Provide group loans for women to launch small enterprises - Contribute seasonal food assistance during Ramadan and religious feasts ▪ Offer scholarships for academically distinguished students from poor families
Hammadin Bedouins from Maaza Tribe	24 June 2025	▪ No Bedouin families currently use or have historically used the Project area for grazing, seasonal migration, water access, agriculture, or other livelihood activities. The area has been affected by prolonged drought, with no rainfall for nearly nine years, making it unsuitable for grazing. ▪ Bedouins typically migrate in search of water for grazing, staying in tents or huts during winter and relocating to the mountains in summer. However, the Project area has not been part of this movement due to lack of water and vegetation. ▪ There are no Bedouin structures (e.g., tents, shelters, wells) currently in use in the general Project area and vicinity. Only natural water wells and crushed rock wind barriers were previously present but are now abandoned due to drought. ▪ There are no cultural, spiritual, or historical sites of significance to Bedouin traditions (e.g., graveyards or shrines) located within or near the Project area.

		▪ Preferred communication channels with Bedouin communities include: - Tribal leaders from the Hammadin Tribe (4–5 Sheikhs in Ras Gharib) - Bedouin liaison officers working at windfarm project sites - Officers from the Social Solidarity Department at the City Council responsible for providing Bedouin support in Ras Gharib ▪ Consultations and meetings with Bedouin communities can be organized at any time and location, provided at least one week’s advance notice is given. ▪ The Bedouin tribe expressed that their main interest lies in securing employment opportunities and receiving tangible services from the Project. They noted previous negative experiences with wind farm developers who consulted them but failed to deliver any benefits. ▪ Key contributions recommended include: - Engaging local subcontractors to provide equipment, vehicles, and support services - Prioritizing local hiring, especially for security and guard services, rather than outsourcing from outside Ras Gharib - Establishing a one-class school in remote Bedouin settlements - Organizing mobile medical convoys to remote areas - Providing an ambulance for remote Bedouin communities
Hammadin Bedouins	12 October 2025	▪ Bedouin representatives confirmed that the Project site and its vicinity are not used for grazing, seasonal migration, water access, or other livelihood activities. ▪ No seasonal structures, water wells, or spiritual/cultural heritage sites were identified within or near the Project footprint. ▪ Communication with Bedouin communities should occur through the tribal sheikh via phone with advance notice. ▪ No additional concerns were raised, but employment opportunities for local tribal youth were encouraged.
Ibad Al-Rahman Women’s Association	13 October 2025	▪ The association acknowledged the temporary nature of construction-phase job opportunities and limited operational roles due to the Project type. ▪ Access to information should be facilitated via social media, local NGOs, and the local administrative unit. ▪ Invitations for scoping and disclosure sessions, as well as employment/procurement opportunities, should be channeled through local NGOs and announced via the same platforms. ▪ No additional concerns were raised, and the association recommended offering training courses for women in Ras Gharib.
Gas Exploration Entities		
General Petroleum Company	17 November 2025	▪ The Project and its components were presented in detail, including turbine locations, total site area, and maps showing geographic boundaries and proximity to petroleum infrastructure.

		- Existing infrastructure near the Project site includes water wells, pumps, and low-voltage electricity towers affiliated with Gulf of Suez Petroleum Company (GUPCO) - Correspondence has already taken place between the Developer and GPC's Planning Sector regarding ongoing and planned petroleum activities near the Project area. - Setback distances from petroleum infrastructure were specified as 500 meters in urban areas and a minimum of 1 kilometer in road and desert areas. - Coordination between the Project and petroleum operators was discussed, particularly regarding emergency preparedness and incident response. - It was clarified that coordination is required with both GPC and GUPCO (coastal gas installations) for any construction works in proximity to their facilities. - The Project must coordinate with GPC's Safety, Environment, and Survey Departments to ensure compliance with environmental, health, and safety requirements. - Permits are issued through the Ministry, with follow-up and oversight conducted by the relevant sector. Intervention is carried out in case of any identified impacts. - All necessary approvals have been secured, and updated site maps were shared with the Ministry and relevant entities. - Additional comments and requests included: - Installation of road signage (including emergency contact points, lighting, and rest areas) to assist GPC field teams during site visits. - Provision of real employment opportunities for the local community in technical and specialized roles – not limited to unskilled labor or security. - Road improvements between the Project sites and Ras Gharib.
Academic and Research Institutions		
Educational Directorate – Ras Gharib	13 October 2025	- The Directorate acknowledged that employment and procurement opportunities will primarily arise during the construction phase and will be limited during operations. - Project updates, disclosures, and data should be shared via targeted social media outreach (e.g., Fanar Gharib). - Participation in scoping and disclosure sessions, and access to employment opportunities, should be coordinated through the Labor Office and announced via social media. - No issues of concern were raised; recommendations included support for school maintenance, youth employment, and offering specialized training for local residents.



Consultations with Egyptian Environmental Affairs Agency (EEAA) – Office in Cairo



Consultations with EEAA Red Sea Branch, Red Sea Protectorates



Consultations with New & Renewable Energy Authority (NREA)



Consultations with Ministry of Labor, Ras Gharib



Consultations with Radio and Television Unit – Ras Gharib & Red Sea Governorate



Consultations with Red Sea Water and Wastewater Company (RSWWC) – Ras Gharib



Consultations with Hazardous Waste Management Unit – Red Sea Governorate



Consultations with Ras Gharib City Council



Consultations with Hammadin Bedouins from Maaza Tribe



Consultations with Hammadin Bedouins



Consultations with Ressala Charity Organization



Consultations with Ibad Al-Rahman Women's Association

Figure 25: Sample Photos of Targeted Consultations

6.2 Focus Group Discussions (FGD)

6.2.1 Public Scoping Session

A public scoping session was held in Ras Gharib city, Red Sea Governorate at the Hotel (venue) on the 22nd

of October 2025. The objectives of the public scoping session included the following:

- Introduce the Project to stakeholders (location, components, activities, etc.);
- Present the methodology and study outlines of the Project;
- Identify key anticipated impacts; and
- Allow interested stakeholders to comment on the scope of work undertaken, key issues identified and any other issues of concern they might have.

Announcement and Advertisement of the Session

The public scoping session was announced around 2 weeks in advance in one of the official daily newspapers as shown in the figure below (the advertisement was published in El-Akhbar newspaper on the 10th of October, 2025). The invitation was an open session for any interested stakeholder to attend.

In addition to the public announcement, invitations were sent to key stakeholders. The invitee list included EEAA Headquarter and regional branch, New and Renewable Energy Authority (NREA), Red Sea Governorate, other governmental entities, Ras Gharib City Council, the National Council for Women, local community representatives, NGOs and Developers of Wind Energy Projects in the Gulf of Suez and Gebel El Zeit. In coordination with the E&S Team, all invitees were notified of the date and location of the public consultation session. Invitations were extended through the following channels:

- Invitations and executive summary sent by the E&S team to stakeholders in the governorate, NGOs and local community representatives by hand mail, fax, email and WhatsApp;
- Invitations sent by the RCREEE;
- Telephone calls by the E&S team;



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تتشرف

شركة سكاتيك لإنتاج الكهرباء بطاقة الرياح

والمركز الإقليمي للطاقة المتجددة وكفاءة الطاقة

بالتعاون مع

الشركات الاستشارية إكوكونسلت وسيفسور

بدعوة سيادتكم لحضور

جلسة التشاور الأولية الخاصة بتقديم المشروع وعرض منهجية إعداد دراسة تقييم الأثر البيئي والاجتماعي لمشروع محطة شادوان لطاقة الرياح بقدرة ٩٠٠ ميجاوات خليج السويس - مدينة رأس غارب - محافظة البحر الأحمر

يتم عقد جلسة التشاور يوم الأربعاء الموافق ٢٢ أكتوبر ٢٠٢٥ بقاعة الفورسيزونر بجوار نادي الفتح بمدينة رأس غارب بمحافظة البحر الأحمر

في تمام الساعة الحادية عشرة صباحا

ولمزيد من الاستفسارات يرجى الاتصال بالشركة الاستشارية

تليفون: ٠١٠٠٦٢٨١٤٥٠ / ٠١٠٦٤٦٦٦٣٩٥ / ٠١٠٤٤٣٥٠١٥١

البريد الإلكتروني: SAFESOAR@HOTMAIL.COM

ESIA Consultant: **ECO Consult** Client: **RCREEE** Project: **Scatec Shadwan 900MW Wind Farm Project in Egypt**

Figure 26: Newspaper Announcement in El-Akhbar Published on 10/10/25

Participating Parties

The total number of participants was 83, in addition to the Developer's representative. The session was moderated by representatives of the E&S Team.

The attendees comprised representatives from various government agencies within Red Sea Governorate to include EEAA branch in Red Sea, NGOs, governmental agencies in Ras Gharib, academics, wind energy projects developers and local community representatives. A summary of the participating entities is provided in the table below.

Attendance	No.
Egyptian Environmental Affairs Agency EEAA	2
EEAA - Red Sea	1
SCATEC	1
Safe Soar	5
Ministry of Environment	1
Egyptian Electricity Transmission Company EETC	2
Regional Center for Renewable Energy and Energy Efficiency RCREEE	3
New and Renewable Energy Authority NREA	2
Ras Gharib City Council	9
Members of the local community in Ras Gharib	27
Heads of Bedouin families in Ras Gharib area	3
Clergy	1
Youths from city of Ras Gharib working in bird watching	2

NGOs	12
Academic	2
Wind energy projects	2
General Petroleum Company and other oil and Gas companies	2
Directorate of Social Solidarity Red Sea	3
National Council for Women in Ras Gharib	1
Labor office in Ras Gharib city	1
Total	83

The public scoping session commenced with opening remarks delivered by the key participating entities, including the representative from the Developer, the Ras Gharib City Council Chairman, and representatives from EEAA, NREA, and EETC, in addition to RCREEE and the E&S Team.

The speakers emphasized that the purpose of the session was to present the ESIA study methodology prepared for the Project, and to provide a constructive platform for community members and stakeholders to express their concerns and recommendations. They highlighted the importance of consultation sessions as an opportunity for community dialogue on the Project details, particularly energy projects and their potential impacts on the environment.

The E&S Team and RCREEE then delivered a detailed presentation on the ESIA scoping outlines, the methodology adopted for the study, and an overview of the Project, including its location, key components, and development phases. The presentation also addressed the anticipated E&S impacts of the Projects, with particular focus on biodiversity considerations in the Gulf of Suez and Gebel El Zeit regions.

Following the above presentations, an open discussion was held, during which attendees were given the opportunity to comment and raise concerns. The table below provides a summary of the key issues raised and the corresponding responses.



Figure 27: Selected Photos from the Public Session

The table below summarizes the key issues raised during the session along with the corresponding responses.

Table 10: Key Outcomes and Responses of the Public Scoping Session

E&S Attribute	Comment	Response
Job Opportunities	Multiple attendees from Ras Gharib, including former and current directors of the Social Solidarity Department, representatives from the Educational Administration, local residents, and civil society organizations emphasized the critical importance of ensuring job opportunities for the local community. Key points raised included: ▪ Prioritizing Ras Gharib residents for both skilled and unskilled employment during construction and operation. ▪ Ensuring transparent and fair recruitment processes in coordination with the local labor office, which maintains an official database of workers and contractors. ▪ Providing long-term job opportunities rather than limiting employment to the construction phase. ▪ Ensuring inclusion of people with disabilities in future employment and CSR plans, in line with national requirements. ▪ Enhancing cooperation among energy projects in the area to collectively support local development. ▪ Offering procurement opportunities to local suppliers and contractors. ▪ Organizing capacity-building initiatives such as training sessions for local youth and contractors, and proposals such as a “Youth Day” to identify and develop local talents. ▪ Concerns from local residents (including youth and individuals affiliated with community associations) about previous negative experiences in other renewable energy projects where transparent access to job	It was clarified that the Project is currently in the scoping stage; however, all concerns and recommendations raised regarding job opportunities are fully documented and will be incorporated into the ESIA. The Developer will prepare a comprehensive Recruitment Plan that identifies labor needs (skilled and unskilled) and prioritizes hiring from Ras Gharib. Recruitment will be coordinated through official channels, including the local labor office, to ensure transparency, fairness and compliance with national labor laws and international requirements. The Developer will also consider inclusion of persons with disabilities in accordance with the national 5% employment quota. Opportunities for local contractors and suppliers will be explored, and capacity-building initiatives such as training programs and youth-focused activities will be recommended as part of the Social Development Plan. Enhanced cooperation among energy projects in the area, as well as coordination with the City Council and local stakeholders, will also be considered to maximize community benefits.

	opportunities was limited.	
General Environmental Impacts and its effect on residents	Residents requested clarification on the potential environmental impacts of the Project on Ras Gharib, including impacts on air quality, community well-being and the surrounding environment. Concerns were also raised about ensuring long-term job opportunities for youth.	It was explained that all potential environmental and social impacts – including impacts on nearby communities – will be thoroughly assessed in accordance with EEAA requirements as well as IFI requirements. No environmental approvals are granted without confirming that the Project poses no harmful impacts on the environment or local community residents. A strategic area-wide assessment is conducted prior to issuing approvals. Regarding local job opportunities, the Developer confirmed that the majority of general labor will be sourced from Ras Gharib, while specialized technical roles may be filled from outside the Governorate if skills are not available locally. The Developer is preparing community engagement and CSR plans that will be shared with the Ras Gharib City Council and local stakeholders once finalized.
Bedouin Tribe Engagement	A concern was raised by the tribal leader of the Tababna tribe regarding the perception that Bedouin tribes are marginalized in employment opportunities.	It was clearly explained that Bedouin tribes are in fact among the first groups consulted during the study and are considered key partners in the Project. Bedouin-owned security companies are already operating on site, demonstrating active engagement.
Community Engagement and Role of Local NGOs	Local NGOs requested opportunities to participate in Project related activities, highlighting that associations serve as effective channels to reach all community groups.	It was explained that community engagement and social investment activities will form part of the Developer's Social Development Plan. This plan will assess community needs and identify appropriate interventions. The recommendation to engage local NGOs from the early stages is considered valuable and will be reflected in the ESIA recommendations.
Written Comments and Recommendations	▪ Considering international standards in the construction and operation of the Project. ▪ Mitigating the environmental impacts of the Project to preserve the environment. ▪ Cooperation with the local community to raise the standard of living of citizens and pay attention to the quality of the environment. ▪ Setting procedures and conditions for the selection of subcontractors to reach the highest levels of safety, reduce rates of deaths and accidents, and create local opportunities. ▪ Youth engagement and youth representatives in such meetings and consultations. ▪ Cooperation with other existing projects and activating community CSR plans to improve community needs.	

6.2.2 NGOs and CBOs within the Local Communities

As part of the targeted interviews that were conducted on the 24th and 25th of June, two (2) focus group discussions were held in Ras Gharib city with the following entities:

- Ebad El Rahman NGO; and
- Youth Educated Females on Public Service

At the beginning of each session, a presentation on the Project was first provided along with a handout on the following key topics. These sessions were attended by all of the groups above.

- Description of the Project location along with maps;
- Description of key Project components along with figures and illustrations;
- Description of the key activities anticipated in each key phase of the Project (planning, construction and operation);
- Description of ESIA study and its key components and requirements;
- Explanation of key anticipated E&S impact under each phase of the Project; and
- Explanation of the methodology and scope of work that will be undertaken for the ESIA.

Upon completion of the above informative session, each group was separated for general discussions as well as discussion on any comments or key issues of concern on the overall Project and/or the ESIA process in particular. Key discussions were undertaken in relation to the following key aspects:

- Economic activities and livelihood strategies
- Land use activities
- Community quality of life
- Perceptions towards the Project
- Community structure (ethnic and tribal groups, religion, ethnic minorities, etc.)
- Cultural and Heritage sites

The presentation and handouts were provided in the Arabic language, as well as the delivery of the presentation.

Annex I present the handout and presentation that was provided during each of these FGDs as well as the forms used throughout the FGD.

The table below presents an overall summary of the outcomes of these FGD for each community.

Table 11: Key Outcomes of FGDs

Ras Gharib Community	Date	Key Outcomes
Vulnerable Female Heads of Household	25 June 2025	▪ Participants confirmed they have never received information about wind farm projects in Ras Gharib. To ensure continuous access to Project updates and documentation, they recommended that local NGOs:

– Ebad El Rahman NGO		- Conduct awareness raising sessions in schools, universities, and among mothers to explain the benefits of renewable energy; and - Disseminate Project information through awareness sessions and distribute non-technical summary leaflets. ■ To support women’s participation in scoping and disclosure sessions, the following approaches were proposed: - NGOs should communicate the session date and time to their beneficiaries directly - Advertisements should be posted at the Social Solidarity Department in the City Council ■ Participants raised several challenges in accessing employment or procurement opportunities, including: - Scarcity of job opportunities for women in Ras Gharib, especially for those with limited resources. - Lack of financial capacity to start small businesses, even for those who have received training. - Absence of group lending mechanisms to support women entrepreneurs. ■ To ensure opportunities reach women, job vacancies should be announced through: - Local active NGOs - The Social Solidarity Department at the City Council ■ Additional community concerns and proposed priorities included: - Rising cost of living (particularly food and rent) - Limited employment opportunities for Ras Gharib youth ■ Specific recommendations included: - Prioritize hiring sons of vulnerable women who receive government or NGO assistance. - Support the medical sector with equipment, medication, and services, especially for households with chronic illness.
Youth Educated Females on Public Service	24 June 2025	■ Participants demonstrated fair awareness of wind farm projects in Ras Gharib, with at least one member employed as a social officer with a contractor. To ensure youth have continuous access to Project information, the following dissemination channels were recommended: - Social media platforms - LinkedIn - Facebook - City Council website - Dedicated project website links - Company outreach via local NGOs ■ To encourage youth participation in scoping and disclosure sessions, participants referred to the same information channels listed above. ■ To enhance youth participation in employment and procurement opportunities, participants emphasized the need for companies (investors and contractors) to

		provide subsidized access to capacity-building programs. Priority areas include: - English language courses - Computer skills - Soft skills and personality development - Job-oriented training through internships or trainee programs within the companies ■ No major concerns were raised, but participants noted that companies often underestimate the presence and potential of well-educated young women in Ras Gharib. As a result, women are frequently excluded from employment or offered unequal salaries compared to other regions. ■ Additional community development needs highlighted include: - Establishment of recreational spaces - Sports and professional athletic training programs - Education services tailored for people with special needs
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Figure 28: FGD with Ebad El Rahman NGO



Figure 29: FGD with Youth Educated Females on Public Service

6.2.3 Public Disclosure Session

A disclosure session was held in Ras Gharib city, Red Sea Governorate at the Four Seasons Hotel (venue) on the 8th of December 2025. The objectives of the disclosure session included the following:

- Introduce the Project to stakeholders;
- Present the results, outcomes and conclusions of the ESIA study
- Allow stakeholders to raise any comments or issues of concern in relation to ESIA study to include but not limited to the baseline results, impacts, mitigation, monitoring measures, etc.
- Discuss any question, inquiries, or issues of concern raised by stakeholders

Announcement and Advertisement of the Session

The disclosure session was announced around 2-weeks in advance in one of the official daily newspapers as shown in the figure below (the advertisement was published in El-Akhbar newspaper on the 25th of November 2025). The invitation was an open session for any interested stakeholder to attend.

In addition to the public announcement, invitations were sent to key stakeholders. The invitee list included EEAA Headquarter and regional branch, New and Renewable Energy Authority (NREA), Red Sea Governorate, other governmental entities, Ras Gharib City Council, the National Council for Women, local community representatives, NGOs and Developers of Wind Energy Projects in the Gulf of Suez and Gebel El Zeit. In coordination with the E&S Team, all invitees were notified of the date and location of the public consultation session. Invitations were extended through the following channels:

- Invitations and executive summary sent by the E&S team to stakeholders in the governorate, NGOs and local community representatives by hand mail, fax, email and WhatsApp;
- Invitations sent by the RCREEE;
- Telephone calls by the E&S Team;



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والمركز الإقليمي للطاقة المتجددة وكفاءة الطاقة
بالتعاون مع

الشركات الاستشارية سيفسور وإكوكونسلت

بدعوة سيادتكم لحضور

جلسة التشاور الخاصة بتقديم المشروع وعرض نتائج
دراسة تقييم التأثيرات البيئية والاجتماعية
لمشروع محطة شدون لطاقة الرياح بقدرة ٩٠٠ ميغاوات
خليج السويس - مدينة رأس غارب - محافظة البحر الأحمر

يتم عقد جلسة التشاور يوم (الاثنين) الموافق (٨ ديسمبر ٢٠٢٥)
بقاعة الفورسيزونز بجوار نادي الفتح بمدينة رأس غارب بمحافظة البحر الأحمر

في تمام الساعة الحادية عشرة صباحاً

ولمزيد من الاستفسارات يرجى الاتصال بالشركة الاستشارية

تليفون: ٠١٠٦٢٨١٤٥٠ / ٠١٠٦٤٦٦٦٣٩٥ / ٠١٠٤٣٥٠١٥١
البريد الإلكتروني: safesoar@hotmail.com

ESIA Consultant: ECO Consult

Client: RCREEE

Project: Scatec Shadwan 900MW Wind Farm Project in Egypt

Figure 30: Newspaper Announcement in El-Akhbar Published on 25/11/25

Participating Parties

The total number of participants was 87, in addition to the Developer's representative. The session was moderated by representatives of the E&S Team.

The attendees comprised representatives from various government agencies within Red Sea Governorate to include EEAA branch in Red Sea, NGOs, governmental agencies in Ras Gharib, academics, wind energy projects developers and local community representatives. A summary of the participating entities is provided in the table below.

Attendance	No.
Egyptian Environmental Affairs Agency EEAA	1
EEAA - Red Sea	5
SCATEC	1
Safe Soar	4
Egyptian Electricity Transmission Company EETC	2
Regional Center for Renewable Energy and Energy Efficiency RCREEE	2
New and Renewable Energy Authority NREA	1
Ras Gharib City Council	8
Members of the local community in Ras Gharib	15
Heads of Bedouin families in Ras Gharib area	4
Clergy	2
Youths from city of Ras Gharib	10
NGOs	12

Wind energy projects	5
General Petroleum Company and other oil and Gas companies	5
Directorate of Social Solidarity Red Sea	7
National Council for Women in Ras Ghareb	2
Labor office in Ras Gharib city	1
Total	87

The public disclosure session commenced with opening remarks delivered by the key participating entities, including the representative from the Developer, the Ras Gharib City Council Chairman, and representatives from EEAA, NREA, and EETC, in addition to RCREEE and the E&S Team.

The speakers emphasized that the purpose of the session was to present the results of the ESIA study that was prepared for the Project, and to provide a constructive platform for community members and stakeholders to express their concerns and recommendations. They highlighted the importance of consultation sessions as an opportunity for community dialogue on the Project details, particularly energy projects and their potential impacts on the environment.

The E&S Team and RCREEE then delivered a detailed presentation on the ESIA scoping outlines, the methodology adopted for the study, and an overview of the Project, including its location, key components, and development phases. The presentation also addressed the anticipated E&S impacts of the Projects, with particular focus on biodiversity considerations in the Gulf of Suez and Gebel El Zeit regions.

Following the above presentations, an open discussion was held, during which attendees were given the opportunity to comment and raise concerns. The table below provides a summary of the key issues raised and the corresponding responses.



Figure 31: Selected Photos from the Disclosure Session

The table below summarizes the key issues raised during the session along with the corresponding responses.

Table 12: Key Outcomes and Responses of the Public Disclosure Session

E&S Attribute	Comment	Response
Job Opportunities and Community Engagement	Attendees from Ras Gharib provided recommendations and observations regarding employment opportunities and community engagement, including: - Providing job opportunities for residents at different employment levels, not limited to worker-level positions. - Requests to reduce electricity invoice costs following the increase in renewable energy production. - A proposal for the Developer to lead an initiative to establish a community Trust Fund, in cooperation with other wind energy companies, to support community infrastructure and healthcare services.	- It was clarified that the majority of the Project workforce will be sourced from Ras Gharib, while specialized technical labor may be recruited from outside the Governorate if such skills are not available locally. - The Developer is currently preparing studies and plans to identify appropriate community engagement and CSR activities throughout the Project lifecycle, which will be shared with the Ras Gharib City Council and relevant stakeholders once finalized. - The recommendation to strengthen cooperation among wind energy projects in the area to support community needs was acknowledged and will be considered as part of the ESIA and Social Development planning. - It was also noted that employment-related topics represent a significant proportion of consultation discussions in Ras Gharib, and that contractors typically conduct labor needs assessments during construction, which prioritize local labor where feasible.
General Environmental Impacts and its effect on residents	Attendees requested clarification on the potential environmental impacts of the Project on Ras Gharib, including impacts on water resources and whether desalination of seawater could be considered in light of water scarcity in the area.	- It was explained that all potential environmental and social impacts will be assessed in accordance with EEAA requirements as well as applicable international standards. - No environmental approvals are granted without confirming that the Project poses no harmful impacts on the environment or local community residents. - A strategic area-wide assessment is conducted prior to issuing approvals, and mitigation measures will be implemented to minimize and avoid adverse impacts. - The relevant environmental authority is responsible for monitoring and following up on the implementation of environmental management plans during the Project implementation phases.
Community Engagement and Social Infrastructure	Concerns and inquiries were raised regarding the role of wind projects in improving community infrastructure and services, including facilities for children and youth.	- It was explained that a Community Liaison Officer (CLO) from Ras Gharib will be appointed to support continuous engagement with the local community. - Community needs will be identified through social assessments, and CSR activities will be prioritized based on available budgets and in coordination with relevant authorities and the Ras Gharib City Council.
Community CSR Practices and Infrastructure	Examples and recommendations were shared regarding ongoing CSR practices implemented by	It was noted that CSR activities are ongoing for several wind energy projects in Ras Gharib and are updated on a regular basis.

Improvements	other wind energy projects in Ras Gharib, including school upgrades, preschool rehabilitation, youth centers, and other community facilities.	The Project will consider existing best practices and lessons learned when developing its CSR and community engagement activities.
Employment Duration and Local Services	A request was raised to prioritize long-term employment opportunities for local residents. In addition, a recommendation was made to give attention to service and infrastructure projects along the main road between Zaafarana and Gebel El Zeit.	These recommendations will be considered and evaluated through the ESMP and CSR planning for the Project, where applicable.
Youth Empowerment and Engagement	Attendees emphasized the importance of youth empowerment in Ras Gharib, including improving youth centers, supporting sports facilities, enhancing youth skills, and involving skilled local youth at different employment levels within the Project. Clarifications on the Project timeline were also requested.	- It was explained that youth empowerment initiatives will be addressed through the Project's CSR and community engagement activities, which will be based on a community needs assessment conducted by the CLO and the Developer. - A transparent recruitment system will be applied, and all job opportunities throughout the Project lifecycle will be announced through recognized online and offline community channels. - The construction phase is expected to last approximately 31 months, followed by an operational phase of approximately 25 years.
Environmental Capacity Building	The importance of enhancing youth skills through environmental capacity-building training was highlighted, including training on workplace environmental practices. It was suggested that cooperation be established with wind energy projects to provide such training opportunities.	This recommendation was acknowledged and will be considered as part of the Project's CSR and community engagement planning.
Bird Migration and Environmental Monitoring	Concerns were raised regarding the potential impacts of wind turbines on migratory birds in the Gulf of Suez region.	- It was explained that the Gulf of Suez is one of the world's major bird migration corridors. - Comprehensive bird migration studies will be undertaken to assess flight paths and altitudes, and appropriate mitigation measures, including automatic turbine shutdown systems, will be implemented to minimize collision risks.
Written Comments and Recommendations	- Considering international standards in the construction and operation of the Project. - Mitigating the environmental impacts of the Project to preserve the environment. - Cooperation with the local community to raise the standard of living of citizens and pay attention to the quality of the environment. - Setting procedures and conditions for the selection of subcontractors to reach the highest levels of safety, reduce rates of deaths and accidents, and create local opportunities. - Youth engagement and representation in consultation meetings. - Cooperation with other existing projects and activating community CSR plans to improve community needs.	

6.3 Future Stakeholder Engagement and Consultation

Future stakeholder engagement and consultations will mainly include the following, each of which is discussed in further detail.

6.3.1 Disclosure of Documentation

The below documents will be disclosed on the Developer's website to allow any stakeholder to review the studies and comment on the scope of work undertaken, key issues identified and any other issues of concern they might have. At the end of the disclosure period, all received comments will be addressed and taken into account and updated as appropriate.

- Environmental and Social Impact Assessment (ESIA);
- Climate Change Risk Assessment (CCRA)
- Human Rights and Gender Assessment
- Non-Technical Summary (NTS);
- Stakeholder Engagement Plan (SEP);
- Environmental and Social Management System (ESMS) Manual
- Flood Risk Assessment
- Biodiversity Management Plan (BMP)

The above will be disclosed in two (2) main languages to include English and Arabic language.

All disclosed documentation will be available at the following locations:

- Wadi Dara Local Unit Office
- Ras Gharib District Office
- Red Sea Governorate office

6.3.2 Implementation of the Stakeholder Engagement Plan (SEP)

Stakeholder Engagement is an on-going process that involves stakeholder analysis & planning, disclosure & dissemination of information, consultation & participation, grievance mechanism, and on-going reporting to Affected Communities. A Stakeholder Engagement Plan (SEP) is developed and implemented that is scaled to the Project risks and impacts and development stage and tailored to the characteristics and interests of the Affected Communities and key stakeholders.

- The SEP for the Project describes the planned stakeholder consultation activities and engagement process and includes the following:
- Define the Project's approach to future stakeholder engagement;

- Identify stakeholders within the area influenced by the Project;
- Profile identified stakeholders to understand their priorities;
- Propose an action plan for future engagement with identified stakeholders; and
- Set out the grievance/project complaints mechanism.

The Developer is committed to implementing the requirements of the SEP throughout the lifetime of the Project. The SEP is provided as a standalone document.

6.3.3 Disclosure of approved ESIA

The final ESIA after its approval by both EEAA and IFIs will be disclosed on the developer's website, competent authorities (Governorate of Red Sea, Ras Gharib City Council, etc.) websites and so the IFI website to allow for public revision and commenting back, if any.

7. ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN

The ESIA includes an Environmental and Social Management Plan (ESMP) which provides a high-level outline plan for managing and monitoring the environmental and social impacts during construction, operation and decommissioning of the Project. The ESMP identifies the mitigation measures which aim to eliminate and/or reduce the potential impact to acceptable levels and monitoring actions to ensure that the identified mitigation measures are implemented.

In addition, the development and implementation of an Environmental and Social Management System (ESMS) during construction and operation is considered a key requirement under EBRD and IFC requirements. Therefore, IFP also prepared an ESMS Manual which includes the following:

- Identification of the overall structure and outline for the ESMS that will be implemented for the Project during both construction and operation;
- Identification and outline of the key procedures and plans to be developed at a later stage by the Contractors and Operator that will handle the key impacts and risks during construction and operation (e.g. air quality management plan, waste management plan, etc.)
- Identification of an institutional framework to ensure that such plans and procedures are implemented effectively and efficiently. This includes identification of roles and responsibilities, training requirements, monitoring and reporting requirements, and other as applicable;
- Identify approach for periodically auditing entities involved during the construction and operation phase to ensure that ESMS requirements are implemented effectively;
- Identification of a high-level framework for labour management that should be adhered to during the construction and operation phase; and
- Identification of a strategy and commitment in relation to local hiring and community support initiatives.

Table 13: ESMP for the Planning Phase

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Infrastructure and Utilities	Inappropriate management of planning activities and site locations (e.g. siting of turbines) and construction activities (e.g. excavations) could disturb such aviation practices.	Establish coordination with NREA to ensure that the clearance that has been provided by the Ministry of Defence for the area includes in particular approvals from civil and military aviation entities. In addition, based on the that adhere to any specific navigational safety requirements (e.g. navigational lights, blade paintings, etc.)	Mitigation	Submit formal communication letters from the relevant entities.	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
	Construction activities could damage/disturb underground communication cables (if present within the area), while rotating turbines during operation could disrupt Line of Sight (LoS) connections between telecommunication transmission towers.	Establish coordination via NREA with NTRC to provide information on the at least six (6) months prior to the commencement of construction (to include location and specifications of turbines in specific) and include any specific requirements to be considered as part of the detailed design to include setback distances if required for telecommunication, infrastructure (e.g. from LoS connections)	Mitigation	Submit formal communication letters from the relevant entities.	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost

Table 14: ESMP for the Construction Phase (to be reflected in the C-ESMP)

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Landscape and Visual	Visual and landscape impacts due to presence of typical elements of a construction site such as equipment and machinery (e.g. cranes, excavators, etc.).	Ensure proper general housekeeping and personnel management measures are implemented which could include: (i) ensure the construction site is left in an orderly state at the end of each work day; (ii) to the greatest extent possible construction machinery, equipment, and vehicles that are not in use should be removed in a timely manner and kept in locations to reduce visual impacts to the area; (iii) to ensure proper storage, collection, and disposal of waste streams generated.	Mitigation	Visual inspections	At construction active areas relevant for period of construction	Daily HSE monitoring	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Implementation of restoration and rehabilitation measures to restore the site's visual quality through, for example, re-contouring the land and removing temporary structures (e.g. batching plant).	Mitigation	Visual Inspections		Weekly site inspections		Monthly reporting ESHS
Geology, Hydrology and Hydrogeology	Impacts from Flood Risks on the Project Site	(i) Construct a 1.0 m high concrete fence around critical facilities, particularly wind turbine generators and other infrastructure located within drainage mainstreams, to protect against surface runoff and unexpected flood events during extreme rainfall. (ii) Install wind turbines on elevated terrain away from drainage mainstreams where practicable to reduce flood risk; where avoidance is not possible, implement additional flood resilience measures including reinforcement of turbine foundations, elevation of turbine bases above projected flood levels, and construction of reinforced concrete fencing around turbine bases with a minimum height of 1.5 m. (iii) Design access roads crossing wide and shallow drainage lines to allow surface water flow, including installation of simple cement culverts with a maximum diameter of 1.0 m at identified crossing points to prevent obstruction and damage to road infrastructure. (iv) Bury electricity cables underground at a depth of approximately 1.0 m and provide adequate insulation and protection against subsurface water infiltration. (v) Develop and implement a Project specific Flood Management Plan, in addition to local authority early warning systems, defining rainfall monitoring, emergency response procedures, evacuation arrangements, protection of critical infrastructure, and contingency measures during flood events.	Mitigation	Visual inspections	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.).	Coordinate with Ras Gharib City Council for the collection of solid waste from the site to the municipal approved dumpsite (the closest dumpsite being Ras Gharib Public Dumpsite) or for recycling (as discussed in further details below);	Mitigation	Submit Contract	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	5,000-10,000 EGP
		Prohibit fly-dumping of any solid waste to the land	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
	Distribute appropriate number of properly contained litter bins and containers properly marked as "Municipal Waste."	15,000 EGP (cost of the bins)						
	Adhere to waste hierarchy principles with associated mitigation measures to include prevent, minimize, reuse, recycle, recover and dispose.	Contractor's cost						
	Solid waste management	Distribute a sufficient number of properly contained containers clearly marked as "Construction Waste" for the dumping and disposal of construction waste.						15,000 EGP (cost of the bins)
		Recycling measures must be implemented as follows: (i) separation and disposal of recyclables in a separate container (cardboard, paper, glass, metal, etc.); and (ii) separation and disposal of non-recyclable materials in a separate container (e.g. food waste). Each container must be clearly marked.	Contractor's cost					

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
		In addition, ways to reduce construction waste must be undertaken by reusing materials (for example through recycling of concrete for road base coarse). This is a key requirement given that with the Project’s workforce there could be huge amounts of waste that could be recycled.						
		Implement proper housekeeping practices on the construction site at all times.						
		Maintain records and manifests that indicate volume of waste generated onsite, collected by contractor, and disposed of at the landfill. The numbers within the records are to be consistent to ensure no illegal dumping at the site or other areas.	Mitigation	Submit manifests	Not applicable	Throughout entire construction period		
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Wastewater management	Coordinate with Ras Gharib Water Company to hire a private contractor for the collection of wastewater from the site to the closest WWTP (being Ras Gharib WWTP);	Mitigation	Submit contract	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer’s PIU/E&S staff	10,000-20,000 EGP monthly for private contractor
		Ensure that constructed septic tanks during construction are well contained and impermeable to prevent leakage of wastewater into soil.	Mitigation	Submit detailed design				Contractor’s cost
		Prohibit illegal disposal of wastewater to the land.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		Contractor’s cost
		Ensure that septic tanks are emptied and collected by wastewater contractor at appropriate intervals to avoid overflowing.						Contractor’s cost
		Maintain records and manifests that indicate volume of wastewater generated onsite, collected by contractor, and disposed of at the WWTP. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas.	Mitigation	Submit manifests	Not applicable	Throughout construction period		Contractor’s cost
		Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Hazardous waste management	Hire approved private contractor for the collection of hazardous waste from the site to the approved hazardous waste disposal facilities.	Mitigation	Submit contract	Not applicable		Once before commencement of construction
	Ensure that hazardous waste is disposed in a dedicated area that is enclosed, of hard surface, with proper signage and suitable containers as per hazardous waste classifications and that they are labelled for each type of hazardous waste.		Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting	Contractor’s cost	
	Ensure hazardous waste storage area is equipped with spill kit, fire extinguisher and anti-spillage trays and a hazardous waste inventory is available.						Contractor’s cost	
	Prohibit illegal disposal of hazardous waste to the land.						Contractor’s cost	
	Possibly contaminated water (e.g., runoff from paved areas) must be drained into appropriate facilities (such as sumps and pits). Contaminated drainage must be orderly disposed of as hazardous waste.						Contractor’s cost	
	Ensure that containers are emptied and collected by the contractor at appropriate intervals to prevent overflowing.		Mitigation	Submit manifests	Not applicable	Throughout construction period	Contractor’s cost	
	Maintain records and manifests that indicate volume of hazardous waste generated onsite, collected by contractor, and disposed of at the hazardous waste disposal facilities.						Contractor’s cost	
	Ensure that hazardous materials are stored in an area that is of hard impermeable surface, flame-proof, accessible to authorized personnel only, locked when not in use, and prevents incompatible materials from coming in contact with one another.		Mitigation	Visual Inspections	At construction active areas relevant for period of construction		E&S staff of the	Contractor’s cost: 400-600 EGP/drum
		Daily HSE monitoring						

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Hazardous material management	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.).	Maintain a register of all hazardous materials used and accompanying MSDS must present at all times. Spilled material should be tracked and accounted for.				Weekly site inspections	EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Incorporate dripping pans at machinery, equipment, and areas that are prone to contamination by leakage of hazardous materials (such as oil, fuel, etc.)				Monthly reporting		300-500 EGP / dripping pan depending on the material and size
		Maintenance activities and other activities that pose a risk for hazardous material spillage (such as refueling) must take place at a suitable location (hard surface) with appropriate measures for trapping spilled material						Contractor's cost
		Ensure that a minimum of 1,000 liters of general-purpose spill absorbent is available at hazardous material storage facility. Appropriate absorbents include zeolite, clay, peat and other products manufactured for this purpose.						Contractor's cost
		If spillage on soil occurs, spill must be immediately contained, cleaned-up, and contaminated soil disposed as hazardous waste						Contractor's cost
Construction activities could disturb soil, and result in erosion and runoff could result in siltation of surface water (during rain events)		Existing natural flows will be maintained where possible as part of the drainage system design and any change to the natural/pre-development surface water conditions within the site to be minimized to the extent possible.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Scheduling to avoid construction activities during heavy rainfall periods (i.e., during the wet season) to the extent practical. In addition, this will include modifying or suspending activities during extreme rainfall and high winds to the extent practical.				Weekly site inspections		Contractor's cost
		Salvage and store topsoil and subsoil before areas are excavated, with topsoil stripped and stockpiled separately.				Monthly reporting		Contractor's cost
		Place clear markers indicating stockpiling area of excavated materials to restrict equipment and personnel movement, thus limiting the physical disturbance to land and soils in adjacent areas.						Contractor's cost
		Erect erosion control barriers around work sites during site preparation and construction to prevent silt runoff where applicable. This could include but not limited to silt fences, gravel bag berms, fiber rolls, or other similar applications.						Around 50 EGP/m ² for basic materials (textiles); 200 EGP/m ² or more for specialized barriers such as gabions or riprap
		Return surfaces disturbed during construction to their original (or better) condition to the greatest extent possible.						Contractor's cost
		In terms of road design, all Project roads shall be appropriately graded and shaped, with access road gradients limited to reduce runoff-induced erosion. Effective short-term measures for slope stabilization, sediment control, and subsidence control shall be implemented, particularly during construction. On steep road sections, transverse drains (grips) shall be constructed, where appropriate, to divert surface runoff from the road surface into swales or roadside drains. In addition, the alignment, length, and width of both on-site and off-site roads shall be optimized to minimize soil disturbance and reduce the need for cut-and-fill activities, with suitable runoff and erosion control features incorporated into the road design.						Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Biodiversity	Potential impacts of Habitat Loss, Fragmentation and Degradation	All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the site will be discussed and relevant receptors highlighted to the site staff.	Mitigation	Submit Induction Training Records	At construction active areas	Throughout construction period	Developer/E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	1000 EUR
		Prior to construction works (habitat clearance, levelling or any other works), working areas will be clearly demarked so that site workers fully understand the working area. Encroachment into areas outside of agreed working areas will be prohibited and working areas will be subject to regular check by the EPC Contractor to check enforcement of working areas.	Mitigation	Submit TBT records	At construction active areas relevant for period of construction	Daily HSE monitoring		500 EUR
				Visual Inspections		Weekly site inspections		
						Monthly reporting ESHS		
	Direct Impacts on sensitive receptors (Habitats and Flora) - Non-native Species and Introduced Flora	On completion of phased construction works the EPC Contractor will be responsible for habitat rehabilitation works in all areas that have been subject to temporary disturbance.	Mitigation	Visual Inspections	At construction active areas	Once after completing construction		Contractor's cost
		An area will be enhanced using appropriate, native planting in suitable parts of the Project Area, this will ensure that no net loss of habitat as a result of the works. Any areas of additional planting will be monitored as part of the biodiversity monitoring program and any species which do not establish will be replaced.	Mitigation	Visual Inspections	At construction active areas	Once after completing construction		Contractor's cost
		Prior to construction works, working areas will be subject to a botanical walkover survey to identify areas of non-native or invasive species. Any specimens will be clearly marked, and the area avoided and if this is not possible the specimen will be removed and disposed of.	Mitigation	Visual Inspections / site walkovers	Once commencement before of construction	Daily HSE monitoring		5000 EUR
		Areas of soil removed from close proximity of these species will be stored separately and not used further on the site. It will be collected from the site and disposed of or used as deep sub-soil fill to reduce the chance of seed germinating.			At construction active areas relevant for period of construction	Weekly site inspections		Contractor's cost
		Areas of non-native or invasive species will be mapped and a programme of mechanical control will be completed over the construction period in order to remove these species from the Aol. Chemical control will be avoided as far as possible however, if necessary, will be used but in accordance with national and international guidelines as well as those applied by the Lenders (e.g. specific risk assessment and Lender agreement prior to use).				Monthly reporting ESHS		2500 EUR
		Regular site walkover surveys throughout the construction period by a suitably qualified botanist to check to the presence and abundance of non-native or invasive species.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Throughout construction period		5000 EUR
		Adequate wheel-washing facilities to be constructed at the entrance to the site and any wastewater will be disposed of correctly to prevent spread of undesirable species.	Mitigation	Visual Inspections	Once commencement before of construction	Once before commencement of construction		Contractor's cost
		Soil imports to be taken from local quarries or borrow pits to avoid importing non-native and invasive species from further afield.	Mitigation	Submission of pre-construction survey report	At construction active areas relevant for period of construction	Throughout construction period		Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
	Direct impacts on Sensitive Receptors (Nubian Ibex and Dorcas Gazelle)	(i) Schedule construction activities to avoid the peak birthing period of Dorcas Gazelle and Nubian Ibex during March and April wherever practicable to prevent disturbance to breeding individuals. (ii) Where construction activities are required during the birthing period, the Project Ecologist shall undertake pre works checks in suitable habitats to identify the presence of females with calves or pregnant females and communicate locations to the EPC Contractor to establish appropriate working buffers. (iii) Pre-construction and pre works surveys shall be conducted in the early morning from vehicles, with suitable habitats scanned from a distance of approximately 1 to 2 km to identify the presence of Dorcas Gazelle and Nubian Ibex. (iv) If females with calves less than one week old or pregnant females are recorded, no construction activities shall occur within 1 km of the identified area until cessation of breeding activity is confirmed by the Project Ecologist or Vertebrate Ecologist. (v) Surveys of suitable habitat within 1 km of active work areas shall be undertaken in April and May during each construction year, and areas where females are recorded shall be avoided until birthing is completed and calves are at least one week old. (vi) Construction activities shall only resume once all animals have naturally moved away from the construction area to suitable habitat, and no active displacement or herding of animals shall be permitted. (vii) The Project Ecologist shall coordinate with other ecological survey teams to confirm records of Dorcas Gazelle and Nubian Ibex presence and ensure that pre-construction surveys target areas where these species have been previously recorded. (viii) Records of mammal fatalities on Project roads shall be collected and entered into the Project fatality database, with results reported as supplementary information within the six monthly PCFM monitoring reports.	Mitigation	Submission of Biodiversity Management Plan	At construction active areas relevant for period of construction	Throughout construction period		10,000 EUR
	Direct Impacts on Sensitive Receptors (Vertebrates) – Site Clearance and Earthworks	All site workers will undertake a Project induction before working on site. The induction will include a comprehensive biodiversity element where the baseline ecological value and sensitivity of the receptors within the Aol will be discussed and relevant receptors highlighted to the site staff.	Mitigation	Submit Induction Training Records Submit TBT records	At construction active areas	Throughout construction period		1000 EUR
		Prior to construction works, working areas will be clearly demarked (using appropriate temporary fencing (e.g. orange netting attached to wooden posts)) so that site workers fully understand the working area. Encroachment into areas outside of agreed working areas will be prohibited and working areas will be subject to regular check by the EPC Ecologist to check enforcement of working areas.	Mitigation	Visual Inspections Submission of pre-clearance and translocation report	At construction active areas relevant for period of construction	Once before commencement of construction		1000 EUR
		Pre-construction surveys for sensitive species (i.e. those qualifying Priority Biodiversity Features) of herpetofauna will take place. The locations of known/active burrows used by Egyptian Spiny-tailed Lizard will be marked throughout the Project Area and appropriate buffers around each burrow established.	Mitigation	Visual Inspections on exclusion zones				82000 EUR
		Prior to the start of construction suitable sites for the release of relocated Egyptian Spiny-tailed Lizards will be identified and mapped. A suitable translocation receptor site must; (i) Preferably be within the project wide boundary but certainly be within 10 km of the Project site. (ii) Contain appropriate vegetation (both for food and cover). (iii) Have suitable soil types to allow animals to dig and create new burrows. (iv) Not already be close to carrying capacity for this species. (v) Not within another existing or proposed development site (or where there is likely to be a proposed site).	Mitigation					25000 EUR

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
		Capture and movement of Spiny-tailed Lizards will only be completed as a last resort. All works will aim to be completed at least 100m from active burrows. Locations where burrows are present up to 200m of construction will be monitored throughout the construction period and if significant negative impacts (i.e., abandonment of burrows or increased mortality) are observed the remaining burrows in closest proximity will be excavated and the animals captured and translocated to holding areas in accordance with the below protocols for the duration of the construction window in that location.	Mitigation					90000 EUR
		Detailed design for the final infrastructure layout will take into account the results of the pre-construction surveys and Project infrastructure will be sited to avoid the identified burrows. Where this is not possible, or where fresh burrows are identified at the commencement of clearance works, these burrows will be excavated by hand and the animals captured and translocated, details of this are provided below.	Mitigation					Included above
		If areas suitable for translocation exist within the Project Area these will be prioritized as this minimizes the impacts of transporting animals away from the Project site.	Mitigation					Included above
		Prior to work in an area containing Spiny-tailed Lizard burrows any remaining burrows within 100m of proposed works will be re-checked by the Ecologist using an endoscope and if empty dug out and destroyed. If any animal is found back in the working areas the burrow will be dug out carefully by hand and the animal captured and placed in a secure box before taking to a cool location ready for translocation to the receptor site. Once the lizard is removed from the burrow the hole will be collapsed and made unsuitable for future use.	Mitigation	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting	At construction active areas relevant for period of construction	Upon occurrence		Included above
		Where possible animals will be moved to existing, but inactive, burrow sites – as long as the site is still suitable for use, with nearby food and cover plants etc.	Mitigation					Included above
		All translocated Egyptian Spiny-tailed Lizards shall be soft-released to enhance post-release survival. Each individual shall be placed within a dedicated mesh enclosure located in suitable habitat, with a minimum size of 2 m × 2 m and covered to provide shade and protection from aerial predators. A starter burrow shall be created within each enclosure using an auger of approximately 20 cm diameter to a depth of around 30 cm to provide initial shelter. Supplementary feeding shall be provided during the acclimation period, and the enclosure shall be removed after approximately seven days to allow the lizards to disperse and forage naturally.						15000 EUR
		Working areas should avoid trees / shrubs as these are likely, due to their sporadic distribution across the AoI to be of importance to breeding birds (e.g. passerines, raptors).	Mitigation	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting	At construction active areas relevant for period of construction	Throughout the construction period		2000 EUR

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
		Capture and movement of Egyptian Spiny-tailed Lizards will only be completed as a last resort. All works will aim to be completed at least 100m from active burrows. Locations where burrows are present up to 200m of construction will be monitored throughout the construction period and if significant negative impacts (i.e., abandonment of burrows or increased mortality) are observed the remaining burrows in closest proximity will be excavated and the animals captured and translocated to holding areas in accordance with the below protocols for the duration of the construction window in that location.	Mitigation	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting	At construction active areas relevant for period of construction	Upon occurrence	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Included above
		A post-relocation report shall be prepared following completion of the relocation activities. The report shall document the survey dates and timing of capture and release, prevailing weather conditions during the survey and relocation efforts, locations of captured individuals, and the number of individuals captured during each relocation event. It shall also include a breakdown of individuals by age class and sex (juveniles, mature males, and mature females), details of the release sites used for each relocation effort, the number of males and females released at each site, and records of any mortalities occurring during the relocation process.	Mitigation	Submission of post-relocation report	At construction active areas relevant for period of construction	Post-relocation period		Included above
	Direct Impacts on Sensitive Receptors (Vertebrates) – Vehicle Collisions	Appropriate speed limits will be enforced on internal road network and working areas (20 km/h).	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		Regular signage will be installed along the site access roads and internal roads informing all drivers of the speed limit				Weekly site inspections Monthly ESHS reporting		Contractor's cost
		A ban of driving at night will be enforced and if absolutely necessary the speed limit will be reduced to 15kph	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		Ban against off-road driving at all times of the day				Weekly site inspections Monthly ESHS reporting		Contractor's cost
		Regular checks of the road for carcasses and if found these will be moved to at least 50m from the road to reduce the likelihood of hitting scavengers, including birds of prey.	Mitigation	Submission of chance find procedure	At construction active areas relevant for period of construction	Once prior commencement of construction		Contractor's cost
		A chance find procedure will be developed by the EPC Contractors so that all workers report any road collisions so that any such incident can be investigated in full.						
	Direct Impacts on Sensitive Receptors (Habitats, Vertebrates) – Poaching, Collection etc.	The Project will enforce strict controls on hunting, gathering, poaching and otherwise disturbing flora and fauna within the Project AoI. Any breaches of this ban will be strictly enforced, and any workers found in breach of this control measure will be subject to disciplinary procedures.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		Contractor's cost
		The ban on hunting etc. will be included in the site induction along with discussions about the sanctions for breaches of this control measure.	Mitigation	Submit Induction Training Records Submit TBT records	At construction active areas	Throughout construction period		Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
		A chance find procedure will be implemented should any site worker find a wild animal, especially one that has become a nuisance (e.g. scavenger in the works camp, presence of small mammals in worker accommodation, presence of snake or scorpion on the works site) and the EPC Ecologist will arrange for an appropriately qualified person to capture and relocate. Where scavengers have been identified within the works site additional housekeeping measures may be required.	Mitigation	Submission of report	Not applicable	Throughout construction period	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
	Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Disturbance	Site wide induction to include information regarding disturbance of ecological receptors.	Mitigation	Submit Induction Training Records Submit TBT records	At construction active areas	Throughout construction period		Contractor's cost
		Chance find procedure to report sightings of potentially sensitive receptor and investigation of any such sightings by the EPC Contractor in order that additional buffer areas can be agreed, where necessary.	Mitigation	Submission of report	Not applicable	Throughout construction period		Contractor's cost
	Direct and Indirect Impacts on Sensitive Receptors – Reduced Air Quality / Dust	Where necessary tracks will be damped down to reduce the risk of dust. Damping down will also include areas adjacent to roads. These measures will be implemented where necessary.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		Vehicles will be properly maintained to reduce emissions.				Weekly site inspections		Contractor's cost
		Emissions from the batching plant will be monitored in line with control plans to minimize air pollution.				Monthly ESHS reporting		Contractor's cost
	Direct Impacts on Sensitive Receptors (Vertebrates) – Noise	Vehicles will be properly maintained to reduce noise emissions.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		Use of available technology and management practices with construction methodologies to reduce noise and vibration.				Weekly site inspections Monthly ESHS reporting		Contractor's cost
		Regular monitoring of noise and vibration levels within works compounds and works areas and applying corrective measures as necessary. Quarterly noise monitoring will be undertaken.	Mitigation	Noise Monitoring Program & Submission of report	At applicable areas	Quarterly		Contractor's cost
	Direct Impacts on Sensitive Receptors (Vertebrates) – Lighting	Limit the amount of lighting, especially within the wider Aol (e.g. at turbine construction sites). Night-time working is not anticipated and will certainly not be a regular occurrence. This will be achieved by ensuring that night-time working is only undertaken with appropriate justification, e.g. emergency works	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		Where lighting is required within worker compounds, site offices, etc. Ensure that any lighting is shielded and protected to reduce light-spill and glare. Low intensity lighting should also be used, where possible, to further reduce light spill.				Weekly site inspections Monthly ESHS reporting		Contractor's cost
		For external security lights PIR trigger units will be used and these should be timed to automatically switch off after five minutes.						Contractor's cost
		No lighting will be installed along the access roads.						Contractor's cost
	Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Littering, Waste Management	Waste Management will be included in the Site Induction so that all site workers understand their responsibilities of maintaining a clean and tidy site. Where possible all materials than can be recycled will be.	Mitigation	Submit Induction Training Records Submit TBT records	At construction active areas	Throughout construction period		Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
		Zero tolerance to littering on the works site and within the worker compound. This zero-tolerance approach should also be applied to smoking and workers must use appropriate smoking areas (supplied with 'butt bins') at all times, even when on construction sites. Litter must not be thrown out of vehicle windows when driving to and from or around the site.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		Daily inspections of working areas and worker compound should be completed, and corrective actions applied, where necessary.				Weekly site inspections Monthly ESHS reporting		Contractor's cost
	Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Pest Species	Where pest species are identified the EPC Contractor / Ecologist will be notified and an appropriate course of action taken. For small mammal pest's live traps will be used, in order to reduce the risk of by-catch. Poison baits should be avoided, unless it can be certain that non-target species will be affected, and any such use should be in accordance with national and international best practice. If poison baits are to be used it must be certain that any poisoned animal cannot move out on to the wider Aol to reduce the risk of natural predators eating poisoned animals.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE Monitoring Weekly site inspections Monthly ESHS reporting		Contractor's cost
Avifauna	Direct and indirect impacts during site preparation activities	Implementation of proper housekeeping measures to reduce impacts including: - Restrict activities exclusively to the allocated construction areas, including movement of workers and vehicles to allocated roads within the site, prohibiting off-roading to minimize disturbances. - Ban hunting of birds on site at any time and under any condition to anyone, especially workers. - Implement measures, preventing bird attraction to the site. This includes measures such as prohibiting littering, dumping, and ensuring waste streams are disposed appropriately. - Avoid unnecessary elevated noise levels at all times. In addition, apply adequate noise abatement measures. This could include the use of well-maintained mufflers and suppressants for high noise generating equipment and machinery. Develop a regular maintenance schedule of vehicles, machinery, and equipment for early detection of issues to avoid unnecessary elevated noise level, etc.	Mitigation	Construction Schedule Plan Submission of an animal handling protocol, either dead or alive	At construction active areas relevant for period of construction	At commencement of construction activities	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Reduced speed limits inside the footprint to avoid road kills and dust.				Continuous		Contractor's cost
		Report any incidental finding and killing of wildlife. Develop a protocol to report dispose of any deaths and injured wildlife or animals recorded onsite.						Contractor's cost
Archaeology and Cultural Heritage	Improper management could potentially disturb or damage potential archaeological remains on the surface as well as some of which could be buried in the ground (if any).	During excavation activities, the Ministry of Tourism and Antiquities must be notified to check if they will provide any observers to oversee the process and ensure that no underground archaeological remains of importance are unearthed and/or disturbed.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		There is a chance that potential archaeological remains in the ground might be discovered. It is expected that appropriate measures for such chance find procedures are implemented. Those mainly require that construction activities be halted and the area fenced along with proper signage, while immediately notifying the Ministry of Tourism and Antiquities/Red Sea and Suez Antiquities Inspection Office. No additional work will be allowed before the Ministry/Inspection Office assesses the found potential archaeological site and grants a clearance to resume the work. Construction activities can continue at other parts of the site if no potential archaeological remains were found. If found, same procedures above apply.	Mitigation	Submission of chance-find procedure		Weekly site inspections Monthly ESHS reporting		Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Air Quality and Noise	Construction activities will likely result in an increased level of dust and particulate matter emissions as well as noise emission to surrounding environment which in turn will directly impact ambient air quality. This could entail indirect impacts on workers' health and safety.	If dust or pollutant emissions were found to be excessive due to construction activities, the source of such emissions should be identified and adequate control measures must be implemented;	Mitigation	Dust and Noise monitoring program	This will include at least one (1) monitoring point which represents activities undertaken. The monitoring should include TSP, PM10 and PM2.5 and noise levels. Results should be compared with national limits or IFC standards as included within the General EHS Guidelines or EU limits, whichever is more stringent	Quarterly	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Comply with the Occupational Safety and Health Administration (OSHA) requirements and the Egyptian Codes	Mitigation	Dust and Noise monitoring report				50,000 – 60,000 LE/monitoring round
		Basic dust control and suppression measures will be applied throughout the construction period to minimize dust generation and dispersion. These measures will include regular watering of access roads and active work areas, careful planning and scheduling of dust-generating activities to avoid their simultaneous occurrence where possible, and proper management of stockpiles and excavated materials through practices such as watering, containment, covering, or bundling. In addition, all trucks transporting aggregates and fine materials will be adequately covered, for example using tarpaulins, and a maximum speed limit of 15 km/h will be strictly enforced for construction vehicles within the site.	Mitigation	Visual Inspections				Contractor's cost
		Develop a regular inspection and scheduled maintenance program for vehicles, machinery, and equipment to be used throughout the construction phase for early detection of issue to avoid unnecessary pollutant and noise emissions.	Mitigation	Visual Inspections	At construction active areas relevant for period of construction	Daily HSE monitoring		Contractor's cost
		Based on inspections and visual monitoring undertaken, if noise levels were found to be excessive from construction activities, the source of such excessive noise levels should be identified and adequate control measures must be implemented;				Weekly site inspections		Contractor's cost
		Apply adequate general noise suppressing measures. This could include the use of well-maintained mufflers and noise suppressants for high noise generating equipment and machinery, developing a regular maintenance schedule of all vehicles, machinery, and equipment for early detection of issues to avoid unnecessary elevated noise level, etc.				Monthly ESHS reporting		Contractor's cost
Infrastructure and Utilities	Waste handling requirements generated from the Project could entail constraints on existing users	Coordinate with the RSWWC and Sanitation Authority in Ras Gharib and obtain list of authorized contractors for collection of wastewaters from the site to the Ras Gharib WWTP.	Additional Requirement	Submit formal communication letters from the relevant entities.	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Coordinate with the RSWWC and Sanitation Authority in Ras Gharib to hire a competent private contractor for the collection of solid waste from the site to the Ras Gharib Public Dumpsite.						Contractor's cost
		Coordinate with Environmental Management at RSWWC and Sanitation Authority in Ras Gharib to obtain list of authorized contractors for collection of hazardous waste from the site to the closest approved facility for final disposal.						Contractor's cost
	Water requirements of the Project could entail constraints on existing users such as local communities or industrial establishments.	Coordinate with the Ras Gharib Water Company to sector the water requirements of the Project.	Additional Requirement	Submit formal communication letters from the relevant entities.	Not applicable	Once before commencement of construction		Contractor's cost
	Inappropriate management of planning activities and site locations (e.g. siting of turbines) and construction activities (e.g. excavations) could disturb such aviation practices.	Establish coordination with NREA to ensure that the clearance that has been provided by the Ministry of Defence for the area includes in particular approvals from civil and military aviation entities. In addition, based on the that adhere to any specific navigational safety requirements (e.g. navigational lights, blade paintings, etc.	Mitigation	Submit formal communication letters from the relevant entities.	Not applicable	Once before commencement of construction		Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
	Construction activities could damage/disturb underground communication cables (if present within the area), while rotating turbines during operation could disrupt Line of Sight (LoS) connections between telecommunication transmission towers.	Establish coordination via NREA with NTRC to provide information on the at least six (6) months prior to the commencement of construction (to include location and specifications of turbines in specific) and include any specific requirements to be considered as part of the detailed design to include setback distances if required for telecommunication, infrastructure (e.g. from LoS connections)	Mitigation	Submit formal communication letters from the relevant entities.	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
Occupational Health and Safety and Worker Accommodation	Generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents	Prepare an Occupational Health and Safety Plan (OHSP). Adopt and implement the recommendations/provisions of the OHSP which includes: (i) Risk assessment and job safety planning procedure, (ii) PTW system procedure, (iii) LOTO procedure, (iv) Site control occupational health and safety procedure to include requirements for personal Protective Equipment (PPE), requirements for site risks (fall protection, powered and hand tools, compressed air / gas cylinders, fire prevention, hot works, electrical works, material handling, machinery use and safety, excavation/concrete works/civil works, confined space activity, storage, medical requirements, and communicable disease management),, (v) Occupational health and safety signage requirements, (vii) Identification of OHS training requirements, (viii) Identification of monitoring and reporting requirements, (ix) Identification of roles and responsibilities, and (x) Identification of measures to reduce the risk of COVID-19 exposure and transmission.	Mitigation	Submit OHSP	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Prepare an Emergency Preparedness and Response Plan (EPRP) which should include: (i) communication and management process, (ii) emergency procedure and an onsite notification process (iii) emergency response procedure, (iv) emergency control measures to include but not limited to fire, accidents, spillage, traffic accidents, natural disasters and other. In addition, of particular importance within the Project area are also risks related to remoteness of the Project site (e.g. in case of a medical emergency), risks from sand and salt storms including windy conditions, risks from extreme hot and cold weather and conditions and low/high temperatures, (v) requirements for emergency kits, (vi) onsite assembly points, (vii) emergency signs, (viii) training requirements, (ix) monitoring and reporting requirements, and (x) roles and responsibilities of the personnel involved in implementation of the plan		Submit EPRP				Contractor's cost
		Prepare and establish and implement a worker grievance mechanism to ensure that all worker complaints are properly received, documented, addressed, and closed out in a timely and transparent manner. The mechanism will provide multiple channels for submitting grievances, including anonymous options, ensure formal registration and assignment of a case handler, define clear timelines for acknowledgement, response, resolution, and monitoring, and require documented verification and reporting upon grievance close-out.		Submit Worker grievance mechanism				Contractor's cost
		Follow the Workers' accommodation: process and standards" (EBRD/IFC Guidance Note, 2009). In case there is an accommodation onsite. The document provides guidance notes on general living facilities, room facilities, medical facilities, management of accommodation units, etc.		Submit Worker Accommodation document				Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Public Health and Safety	Trespassing of unauthorized personnel into construction active areas could result in health and safety impacts	Develop a Security Risk Assessment to identify and manage potential security risks. The assessment will ensure that each turbine is fitted with locked doors to prevent unauthorized access, that the substation area is fully enclosed with concrete fencing to restrict entry, and that trained onsite security guards are present across the Project site at all times to safeguard assets and prevent trespassing. In addition, clear and visible safety signage will be installed on turbines and at the substation, providing warnings on public safety hazards and emergency contact information, with signs presented in both pictorial and written formats to ensure they are understood by all individuals, including those who are unable to read.	Mitigation	Submit Security Risk Assessment	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		All workers must be subject to a preliminary medical examination before commencement of any job tasks in accordance with local applicable requirements. In addition, routine medical examination for workers (bi-annually) must be undertaken. Such medical examinations must be undertaken at certified centres. Copies of medical examination results of all workers must be retained onsite.	Mitigation	Submission of medical examination records	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Ensure and maintain hygienic conditions onsite at all times specifically related to toilet and washing facilities, eating areas, etc.		Visual Inspections				Contractor's cost
		Develop a code of conduct for workers which takes into account appropriate behaviour by workers at all times, religious customs, traditional cultures and social norms in the area. In addition, it must include specifically requirements for social vices including gender-based violence, sexual harassment, alcoholism, drug abuse, etc.		Submission of signed code of conduct and associated disciplinary measures				Contractor's cost
		Induction training and awareness raising sessions on risks associated to the most common contagious diseases (e.g. influenza virus), communicable diseases, general measures for hygiene, code of conduct expected to be implemented and other as appropriate		Submit induction training modules and Toolbox Talks on hygiene and code of conduct.				Contractor's cost
	Inappropriate management of security issues and incidents by security personnel towards local communities (e.g. overreaction, mistreatment, use of excessive force) could result in potential for conflict, resentment, distrust and escalation of events.	Develop a Security Management Plan (SMP) plan to identify appropriate measures for hiring, rules of conduct, training, equipping, and monitoring of security personnel to control and manage such issues. The plan must adhere to: (i) IFC PS 4 (Community Health, Safety and Security); and (ii) EBRD PR 2 (Labour and Working Conditions), all of which identify requirements for security personnel. This includes in specific requirements to ensure security personnel are guided by the Voluntary Principles on Security and Human Rights in terms of hiring, rules of conduct, training, equipping and monitoring of such personnel. They also require reasonable inquiries that those providing security measures are not implicated in past abuses, will ensure they are trained adequately in the use of force (and firearms if applicable) and appropriate conduct towards the workers and the local community. Force should only be used when strictly necessary, and to an extent proportional to the threat.	Mitigation	Submit SMP	Not applicable	Once before commencement of construction	E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Socioeconomics	It is expected to have positive impacts through direct and indirect employment and local economic stimulation. Additional indirect benefits are expected through local procurement and increased demand for local services and businesses. Although detailed employment figures are not yet available, the Developer is committed to prioritising local communities where feasible.	Develop a Local Recruitment Procedure to prioritize employment opportunities for local communities, including Bedouin groups, by identifying targeted numbers of skilled and unskilled positions such as fresh graduate engineers, technicians, and labourers from the surrounding area. The Procedure will define clear and transparent mechanisms for announcing vacancies and implementing a fair, non-discriminatory selection process that ensures equal opportunities, including for females. It will also assess the potential for joint implementation with other wind farm developers in the area to maximize local employment benefits, with local hiring priorities formally reflected in the EPC Contract and all subsequent subcontracts.	Additional Requirement	Submit Local Recruitment Procedure	Not applicable	Once before commencement of construction	Developer / E&S staff of the EPC Contractor under the supervision of the developer's PIU/E&S staff	Contractor's cost
		Develop a Local Procurement Procedure to prioritize procurement opportunities for local communities, including Bedouin groups, by identifying eligible local subcontractors and locally sourced goods and services such as supplies, equipment, cleaning, and support services. The Procedure will define clear and transparent mechanisms for announcing procurement opportunities and establish a fair, competitive, and non-discriminatory selection process that ensures equal opportunities for all qualified local suppliers. It will also assess the potential for joint implementation with other wind farm developers in the area to enhance local participation and efficiency, with local procurement priorities formally embedded in the EPC Contract and all subsequent		Submit Local Procurement Procedure				Contractor's cost
		Implement a social responsibility program which aims to benefit the local communities to the greatest extent possible. In this case, a structured approach must be developed which must identify priority development projects which could benefit local communities (e.g. based on a needs assessment if available). Based on that the social responsibility program can prioritize projects for local communities based on available budget, vision, timeline for implementation and other factors.		Submit Social Responsibility Program				Contractor's cost

Table 15: ESMP for the Operation Phase

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Landscape and Visual	Impacts related to interaction of wind turbines within the overall landscape and visual character of the area including any potential sensitive visual receptors.	Coordinate with the Traffic and Transport Authority, install clear and informative signage in Arabic and English language at Hurghada – Cairo Highway and on the road leaving the highway and into Wadi Dara Village to alert drivers of the wind farm ahead and provide guidance on safe driving practices.	Mitigation	Visual Inspections	Not applicable	Throughout entire operational period	E&S staff of the Project Operator	To be included in operator budget
Geology, Hydrology, and Hydrogeology	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Solid waste management	Coordinate with Ras Gharib City Council for the collection of solid waste from the site to the municipal approved dumpsite (the closest dumpsite being Ras Gharib Public Dumpsite) or for recycling (as discussed in further details below);	Mitigation	Submit contract	Not applicable	Once commencement before of operation	E&S staff of the Project Operator	To be included in operator budget
		Prohibit fly-dumping of any solid waste to the land	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		To be included in operator budget
		Distribute appropriate number of properly contained litter bins and containers properly marked as "Municipal Waste"						To be included in operator budget
		Adhere to waste hierarchy principles with associated mitigation measures to include prevent, minimize, reuse, recycle, recover and dispose						To be included in operator budget
		Implement proper housekeeping practices onsite at all times						To be included in operator budget
		Maintain records and manifests that indicate volume of waste generated onsite, collected by contractor, and disposed of at the landfill. The numbers within the records are to be consistent to ensure no illegal dumping at the site or other areas	Mitigation	Submit manifests	Not applicable	Throughout operational period		To be included in operator budget
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Wastewater management	Coordinate with Ras Gharib Water Company to hire a private contractor for the collection of wastewater from the site to the closest WWTP (being Ras Gharib WWTP);	Mitigation	Submit contract	Not applicable	Once commencement before of operation		To be included in operator budget
		Maintain records and manifests that indicate volume of wastewater generated onsite, collected by contractor, and disposed of at the WWTP. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas	Mitigation	Submit manifests	Not applicable	Throughout operational period		To be included in operator budget
		Prohibit illegal disposal of wastewater to the land	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		To be included in operator budget
		Ensure that septic tanks are emptied and collected by wastewater contractor at appropriate intervals to avoid overflowing.						To be included in operator budget
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Hazardous waste management	Coordinate and hire a private contractor for the collection of hazardous waste from the site to the approved hazardous waste disposal facilities	Mitigation	Submit contract	Not applicable	Once commencement before of operation		To be included in operator budget
		Ensure that hazardous waste is disposed in a dedicated area that is enclosed; roofed and of hard surface; with proper signage and suitable containers as per hazardous waste classifications and that they are labelled for each type of hazardous waste	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		To be included in operator budget
		Ensure hazardous waste storage area is equipped with spill kit, fire extinguisher and anti-spillage trays and a hazardous waste inventory is available						To be included in operator budget
		Prohibit illegal disposal of hazardous waste to the land						To be included in operator budget

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
		Possibly contaminated water (e.g. runoff from paved areas) must be drained into appropriate facilities (such as sumps and pits). Contaminated drainage must be orderly disposed of as hazardous waste						To be included in operator budget
		Ensure that containers are emptied and collected by the contractor at appropriate intervals to prevent overflowing						To be included in operator budget
		Maintain records and manifests that indicate volume of hazardous waste generated onsite, collected by contractor, and disposed of at the hazardous waste disposal facilities. The numbers within the records are to be consistent to ensure no illegal discharge at the site or other areas						To be included in operator budget
	Risk of soil and groundwater contamination during the various construction activities from improper housekeeping activities (e.g. spillage of hazardous material, random discharge of waste and wastewater to surrounding environment, etc.). Hazardous Material Management	Ensure that hazardous materials are stored in proper areas and in a location where they cannot reach the land in case of accidental spillage. This includes storage facilities that are of hard impermeable surface, with a hard roof, flame-proof, accessible to authorized personnel only, locked when not in use, and prevents incompatible materials from coming in contact with one another.	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		To be included in operator budget
		Maintain a register of all hazardous materials used and accompanying Material Safety Data Sheet (MSDS) must present at all times. Spilled material should be tracked and accounted for						To be included in operator budget
		Incorporate dripping pans at machinery, equipment, and areas that are prone to contamination by leakage of hazardous materials (such as oil, fuel, etc.)						To be included in operator budget
		Maintenance of all equipment and machinery used onsite. Maintenance activities and other activities that pose a risk for hazardous material spillage (such as refueling) must take place at a suitable location (hard surface) with appropriate measures for trapping spilled material						To be included in operator budget
		Ensure that a minimum of 1,000 liters of general-purpose spill absorbent is available at hazardous material storage facility. Appropriate absorbents include zeolite, clay, peat and other products manufactured for this purpose						To be included in operator budget
		If spillage on soil occurs, spill must be immediately contained, cleaned-up, and contaminated soil disposed as hazardous waste						To be included in operator budget
Biodiversity	Indirect Impacts on Sensitive Receptors (Vertebrates) – Disturbance	Speed limits of 20 kph will be enforced	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting	E&S staff of the Project Operator	To be included in operator budget
		Sensitive species are to be included in the site induction for all operational staff where additional control measures will be discussed including allowing animals to move around the site, not chasing after them in vehicles or approaching them on foot	Mitigation	Submit Induction training record				To be included in operator budget
		Speed limits of 20 kph will be enforced by the O&M Contractor	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring		To be included in operator budget

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
	Direct Impacts on Sensitive Receptors (Vertebrates) – Vehicle Collisions	Regular signage will be installed along the site access roads and internal roads informing all drivers of the speed limit.				Weekly site inspections Monthly ESHS reporting		To be included in operator budget
		The site entrance will be staffed and any visitors or locals using the site roads will be informed of the speed limits and that there are regular checks of vehicle speeds.						To be included in operator budget
		A ban on driving at night will be enforced and if absolutely necessary the speed limit will be reduced to 15kph						To be included in operator budget
		Ban against off-road driving at all times of the day, and if necessary, the works area will be subject to a walkover by the Project Ecologist.						To be included in operator budget
		Regular checks of the road for carcasses and if found these will be moved to at least 50m from the road to reduce the likelihood of hitting scavengers, including birds of prey.						To be included in operator budget
		A chance find procedure will be developed by the O&M Contractors so that all workers report any road collisions so that any such incident can be investigated in full and included in ongoing mortality monitoring at the site.						To be included in operator budget
	Direct Impacts on Sensitive Receptors (Vertebrates) – Lighting	Site-wide lighting is not being implemented so any lighting impacts during operation will be very limited. Night-time working is not anticipated and will certainly not be a regular occurrence.	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		To be included in operator budget
		Where lighting is required within worker compounds, site offices etc. ensure that any lighting is shielded and protected to reduce light-spill and glare. Low intensity lighting should also be used, where possible, to further reduce light spill.						To be included in operator budget
		For external security lights PIR trigger units should be used and these should be timed to automatically switch off after five minutes.						To be included in operator budget
		No lighting will be installed along access road						To be included in operator budget
	Direct Impacts on Sensitive Receptors (Habitats and Flora) – Non-native Species and Introduced Flora	Post-construction monitoring will be completed across the Aol to record the presence and distribution of non-native and invasive plant species and a programme of mechanical control will be completed over the operational period to remove these species from the Aol. Chemical control will be avoided however, if necessary, will be used but in accordance with national and international guidelines and will also be subject to risk assessment and approval from the Lenders. The programme of control will continue until the species are absent from the Project Aol.	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		To be included in operator budget
		A programme of regular monitoring will be completed with surveys completed in Years 1, 2, 5, 10, 15 to survey for the presence of non-native and / or invasive species and relevant control of these species will be completed, where necessary	Mitigation	Submission of survey report	Entire project footprint	Years 1, 2, 5, 10, 15		To be included in operator budget

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
	Direct and Indirect Impacts on Sensitive Receptors (Vertebrates) – Pest Species	Where pest species are identified, the O&M Contractor / Ecologist will be notified, and an appropriate course of action taken. For small mammal pest's live traps will be used, to reduce the risk of by-catch. Poison baits should be avoided, unless it can be certain that non-target species will be affected, and any such use should be in accordance with national and international best practice. If poison baits are to be used it must be certain that any poisoned animal cannot move out on to the wider Aol to reduce the risk of natural predators eating poisoned animals.	Mitigation	Visual Inspections	Entire project footprint	Daily HSE monitoring Weekly site inspections Monthly ESHS reporting		To be included in operator budget
Avifauna	Direct and indirect collision impact on birds from risks of collision and electrocution for any kind of bird.	(i) Apply site specific turbine design and layout requirements to reduce avifauna collision risk, including avoidance of continuous turbine lighting, use of the minimum number of intermittent flashing lights in accordance with civil aviation requirements, compliance with minimum turbine spacing of 2.5 times rotor diameter and 7 times rotor diameter between turbine rows, and implementation of upfront mitigation measures including observer led Shut Down on Demand based on migration intensity and CRM results, subject to regulatory approval. (ii) Implement Shut Down on Demand procedures during operation, ensuring continuous observer coverage of turbines and buffer areas, adequate buffer distances to allow timely turbine shutdown, deployment of trained observers working in pairs and shifts, effective communication between observers and shutdown operators, and periodic review of shutdown protocols in coordination with regional projects and best practice. (iii) Design and implement an Active Turbine Management Plan during operation in line with Good International Industry Practice, including bird monitoring and observer led shutdown on demand during migration seasons, with continuous daily monitoring during spring migration from 20 February to 15 May and autumn migration from 10 August to 15 November, in accordance with the RCREEE ATMP protocol and Technical Committee guidance. (iv) Undertake targeted monitoring and mitigation measures for resident Golden Eagle, including cliff nesting raptor monitoring during the breeding season, assessment of breeding and fledgling success, and implementation of additional studies such as satellite tracking where required to identify foraging areas and inform year round mitigation, with the potential for year round shutdown on demand if necessary to achieve no net loss of the breeding pair.	Mitigation	(i) Conduct regular visual inspections and design compliance checks to confirm implementation of approved turbine lighting, layout, and spacing requirements, with records maintained by the Project Environmental Team. (ii) Maintain logs of Shut Down on Demand events and bird observations, and include summaries within periodic avifauna monitoring and environmental compliance reports. (iii) Implement visual bird monitoring during migration seasons in accordance with the approved Active Turbine Management Plan, with monitoring results summarized in seasonal monitoring reports. (iv) Undertake targeted visual monitoring of resident raptor activity during the breeding season, and document observations and findings in dedicated raptor monitoring reports. (v) Conduct Post Construction Fatality Monitoring surveys during operation, record carcass findings, and report results within six monthly and annual environmental monitoring reports.	Entire project footprint	Daily HSE monitoring and visual inspections; weekly site inspections; monthly ESHS reporting; daily avifauna monitoring during migration seasons; six monthly and annual biodiversity monitoring reporting.	E&S staff of the Project Operator	To be included in operator budget

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
		(v) Design and implement a Post Construction Fatality Monitoring program during operation to assess vertebrate mortality and the effectiveness of mitigation measures, with fatality rate estimates reported every six months by migration season, annual CRM updates, comparison against ESIA predictions, and application of adaptive management measures where higher than predicted mortality is recorded. (vi) Implement a chance find procedure for vertebrate carcasses during operation, requiring site personnel to report findings to the Project Ecologist, and remove prey species carcasses from roads and on site areas to reduce the attraction of scavenging birds.		(vi) Record all chance finds of vertebrate carcasses by site personnel and report findings to the Project Ecologist, with outcomes documented in monitoring records and included in periodic reporting.				
Infrastructure and Utilities	Waste handling requirements generated from the Project could entail constraints on existing users	Coordinate with the RSWWC and Sanitation Authority in Ras Gharib and obtain list of authorized contractors for collection of wastewaters from the site to the Ras Gharib WWTP.	Additional Requirement	Submit formal communication letters from the relevant entities.	Not applicable	Once commencement before of operation	E&S staff of the Project Operator	To be included in operator budget
		Coordinate with the RSWWC and Sanitation Authority in Ras Gharib to hire a competent private contractor for the collection of solid waste from the site to the Ras Gharib Public Dumpsite.						To be included in operator budget
		Coordinate with Environmental Management at RSWWC and Sanitation Authority in Ras Gharib to obtain list of authorized contractors for collection of hazardous waste from the site to the closest approved facility for final disposal.						To be included in operator budget
	Water requirements of the Project could entail constraints on existing users such as local communities or industrial establishments.	Coordinate with the Ras Gharib Water Company to sector the water requirements of the Project.	Additional Requirement	Submit formal communication letters from the relevant entities.	Not applicable	Once commencement before of operation		To be included in operator budget
	Inappropriate management of planning activities (e.g. siting of turbines and proper buffer distance) could affect such nearby wind farms.	Further follow up/communication with NREA to ensure if buffer distance of the Project from other nearby wind farm projects is considered sufficient and appropriate from a technical perspective	Mitigation	Submit formal communication letters from the relevant entities.	Not applicable	Once commencement before of operation		To be included in operator budget

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Occupational Health and Safety and Worker Accommodation	Generic occupational health and safety risks to workers, as working onsite increases the risk of injury or death due to accidents	Prepare an Occupational Health and Safety Plan (OHSP). Adopt and implement the recommendations/provisions of the OHSP which includes: (i) Risk assessment and job safety planning procedure, (ii) PTW system procedure, (iii) LOTO procedure, (iv) Site control occupational health and safety procedure to include requirements for personal Protective Equipment (PPE), requirements for site risks (fall protection, powered and hand tools, compressed air / gas cylinders, fire prevention, hot works, electrical works, material handling, machinery use and safety, excavation/concrete works/civil works, confined space activity, storage, medical requirements, and communicable disease management),,, (v) Occupational health and safety signage requirements, (vii) Identification of OHS training requirements, (viii) Identification of monitoring and reporting requirements, (ix) Identification of roles and responsibilities, and (x) Identification of measures to reduce the risk of COVID-19 exposure and transmission.	Mitigation	Submit OHSP	Not applicable	Once commencement before of operation	E&S staff of the Project Operator	To be included in operator budget
		Prepare an Emergency Preparedness and Response Plan (EPRP) which should include: (i) communication and management process, (ii) emergency procedure and an onsite notification process (iii) emergency response procedure, (iv) emergency control measures to include but not limited to fire, accidents, spillage, traffic accidents, natural disasters and other. In addition, of particular importance within the Project area are also risks related to remoteness of the Project site (e.g. in case of a medical emergency), risks from sand and salt storms including windy conditions, risks from extreme hot and cold weather and conditions and low/high temperatures, (v) requirements for emergency kits, (vi) onsite assembly points, (vii) emergency signs, (viii) training requirements, (ix) monitoring and reporting requirements, and (x) roles and responsibilities of the personnel involved in implementation of the plan		Submit EPRP				To be included in operator budget
		Prepare and establish and implement a worker grievance mechanism to ensure that all worker complaints are properly received, documented, addressed, and closed out in a timely and transparent manner. The mechanism will provide multiple channels for submitting grievances, including anonymous options, ensure formal registration and assignment of a case handler, define clear timelines for acknowledgement, response, resolution, and monitoring, and require documented verification and reporting upon grievance close-out.		Submit Worker grievance mechanism				To be included in operator budget
		Follow the Workers' accommodation: process and standards" (EBRD/IFC Guidance Note, 2009). In case there is an accommodation onsite. The document provides guidance notes on general living facilities, room facilities, medical facilities, management of accommodation units, etc.		Submit Worker Accommodation document				To be included in operator budget

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Public Health and Safety	Trespassing of unauthorized personnel into construction active areas could result in health and safety impacts	Develop a Security Risk Assessment to identify and manage potential security risks. The assessment will ensure that each turbine is fitted with locked doors to prevent unauthorized access, that the substation area is fully enclosed with concrete fencing to restrict entry, and that trained onsite security guards are present across the Project site at all times to safeguard assets and prevent trespassing. In addition, clear and visible safety signage will be installed on turbines and at the substation, providing warnings on public safety hazards and emergency contact information, with signs presented in both pictorial and written formats to ensure they are understood by all individuals, including those who are unable to read.	Mitigation	Submit Security Risk Assessment	Not applicable	Once commencement before of operation	E&S staff of the Project Operator	To be included in operator budget
	Inappropriate management of security issues and incidents by security personnel towards local communities (e.g. overreaction, mistreatment, use of excessive force) could result in potential for conflict, resentment, distrust and escalation of events.	Develop a Security Management Plan (SMP) plan to identify appropriate measures for hiring, rules of conduct, training, equipping, and monitoring of security personnel to control and manage such issues. The plan must adhere to: (i) IFC PS 4 (Community Health, Safety and Security); and (ii) EBRD PR 2 (Labour and Working Conditions), all of which identify requirements for security personnel. This includes in specific requirements to ensure security personnel are guided by the Voluntary Principles on Security and Human Rights in terms of hiring, rules of conduct, training, equipping and monitoring of such personnel. They also require reasonable inquiries that those providing security measures are not implicated in past abuses, will ensure they are trained adequately in the use of force (and firearms if applicable) and appropriate conduct towards the workers and the local community. Force should only be used when strictly necessary, and to an extent proportional to the threat.	Mitigation	Submit SMP	Not applicable	Once commencement before of operation	E&S staff of the Project Operator	To be included in operator budget

Environmental Attribute	Potential Impact	Management Action (mitigations, additional requirements, additional studies, compensation measures, etc.)	Type of Action	Monitoring & Reporting Action	Parameters to be monitored / location	Frequency	Responsible Entity	Estimated cost
Socioeconomics	It is expected to have positive impacts through direct and indirect employment and local economic stimulation. Additional indirect benefits are expected through local procurement and increased demand for local services and businesses. Although detailed employment figures are not yet available, the Developer is committed to prioritising local communities where feasible.	Develop a Local Recruitment Procedure to prioritize employment opportunities for local communities, including Bedouin groups, by identifying targeted numbers of skilled and unskilled positions such as fresh graduate engineers, technicians, and labourers from the surrounding area. The Procedure will define clear and transparent mechanisms for announcing vacancies and implementing a fair, non-discriminatory selection process that ensures equal opportunities, including for females. It will also assess the potential for joint implementation with other wind farm developers in the area to maximize local employment benefits, with local hiring priorities formally reflected in the EPC Contract and all subsequent subcontracts.	Additional Requirement	Submit Local Recruitment Procedure	Not applicable	Once commencement before of operation	E&S staff of the Project Operator	To be included in operator budget
		Develop a Local Procurement Procedure to prioritize procurement opportunities for local communities, including Bedouin groups, by identifying eligible local subcontractors and locally sourced goods and services such as supplies, equipment, cleaning, and support services. The Procedure will define clear and transparent mechanisms for announcing procurement opportunities and establish a fair, competitive, and non-discriminatory selection process that ensures equal opportunities for all qualified local suppliers. It will also assess the potential for joint implementation with other wind farm developers in the area to enhance local participation and efficiency, with local procurement priorities formally embedded in the EPC Contract and all subsequent		Submit Local Procurement Procedure		Once commencement before of operation		To be included in operator budget
		Implement a social responsibility program which aims to benefit the local communities to the greatest extent possible. In this case, a structured approach must be developed which must identify priority development projects which could benefit local communities (e.g. based on a needs assessment if available). Based on that the social responsibility program can prioritize projects for local communities based on available budget, vision, timeline for implementation and other factors.		Submit Social Responsibility Program		Once commencement before of operation		To be included in operator budget