Non-Technical Summary (NTS)

1000 MWh / 500 MW Nefertiti BESS Project in Egypt

REV-3

April 2026

Issue and Revision Record:

Template Code		**QF-PM-01-15**	**Template Revision No.**	**REV-0**
Version	**Date**	**Description**	**Prepared By**	**Approved by**
REV 0	28 Sep 2025	Draft NTS	ECO Consult	Ibrahim Masri / Project Manager
REV 1	29 March 2026	Draft NTS	ECO Consult	Ibrahim Masri / Project Manager
REV 2	02 April 2026	Draft NTS	ECO Consult	Ibrahim Masri / Project Manager
REV 3	28 April 2026	Draft NTS	ECO Consult	Ibrahim Masri / Project Manager

ABBREVIATIONS AND ACRONYMS

Acronym	Definition
AC	Alternating Current
BESS	Battery Energy Storage System
BFDs	Bird Flight Diverters
BMS	Battery Management System
BOO	Build-Own-Operate
COD	Commercial Operation Date
CPA	Capacity Purchase Agreement
DC	Direct Current
E&S	Environmental and Social
EEAA	Egyptian Environmental Affairs Agency
EETC	Egyptian Electricity Transmission Company
EHS	Environment, Health and Safety
EHSMP	Environment, Health and Safety Management Plan
EMF	Electromagnetic Fields
EMS	Energy Management System
EPC	Engineering, Procurement, and Construction
EPRP	Emergency Preparedness and Response Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
FACP	Fire Alarm Control Panel
FMC	Facility Management Company
GASCO	Egyptian Natural Gas Company
GBVH	Gender-Based Violence and Harassment
GDP	Gross Domestic Product
GoE	Government of Egypt
HV	High Voltage
HVAC	Heating, Ventilation, and Air Conditioning
IFI	International Financial Institution
ISES	Integrated Sustainable Energy Strategy
kV	Kilovolt
LILO	Line-In Line-Out
LRP	Livelihood Restoration Plan
LV	Low Voltage
LWCMP	Labor and Working Conditions Management Plan
MENA	Middle East and North Africa
MSB	Migratory Soaring Bird
MSDS	Material Safety Data Sheet
MW	Megawatt
MWh	Megawatt-hour
NAWWCo	National Aswan Water and Wastewater Company
NREA	New and Renewable Energy Authority
NTS	Non-Technical Summary
O&M	Operation and Maintenance
ODSs	Ozone-Depleting Substances
OEM	Original Equipment Manufacturer
OHS	Occupational Health and Safety
OHSP	Occupational Health and Safety Plan
OHTL	Overhead Transmission Line
PCS	Power Conversion System
PPE	Personal Protective Equipment

PV	Photovoltaic
SEAH	Sexual Exploitation, Abuse and Harassment
SEP	Stakeholder Engagement Plan
SESA	Strategic Environmental and Social Assessment
SMP	Security Management Plan
SOC	State of Charge
SOH	State of Health
SPV	Special Purpose Vehicle
TBT	Toolbox Talk
TLB	Tractor-Loader-Backhoe
WBG	World Bank Group
WWTP	Wastewater Treatment Plant

TABLE OF CONTENTS

Abbreviations and Acronyms ..... **ii**
Table of Contents ..... **iv**
List of Figures ..... **v**
List of Tables ..... **v**
1. Introduction **1**
2. Project Description **2**
2.1 Administrative Setup and Project Location 2
2.2 Local Communities 3
2.3 Project Components 3
2.4 Overview of Project Activities 6
2.5 Project Schedule 6
3. Summary of Environmental and Social Baseline Conditions and Impacts **6**
3.1 Introduction 6
3.2 Environmental and Social Baseline Conditions and Impacts 7
4. Environmental and Social Management and Monitoring **19**
5. Environmental and Social Management System (ESMS) **19**
6. Further Information and Contact Details **21**

LIST OF FIGURES

Figure 1: Administrative Division of Egypt ..... **Error! Bookmark not defined.**
Figure 2: Aswan Governorate..... **Error! Bookmark not defined.**
Figure 3: Project Site ..... **Error! Bookmark not defined.**
Figure 4: Project Distance from Cairo and Aswan..... **Error! Bookmark not defined.**
Figure 5: Project Site and Closest Communities 3
Figure 6: BESS key components 4
Figure 7: Nefertiti BESS Project Components and Layout..... 5
Figure 8: Typical Views from the Project Site..... 7
Figure 9: Concrete Platform and Excavation Area Within Project Site..... **Error! Bookmark not defined.**
Figure 10: OHTL Existing Infrastructure Land Use..... **Error! Bookmark not defined.**
Figure 11: Agricultural Reclamation Belt Near the Project Site 9
Figure 12: Access Roads for Benban Solar Park ..... **Error! Bookmark not defined.**
Figure 13: Wired Fence Surrounding the Project Site..... **Error! Bookmark not defined.**
Figure 14: Existing Access Roads Surrounding the Project Site ..... **Error! Bookmark not defined.**
Figure 15: Road Networks in Project Area 15
Figure 16: Natural Gas Pipeline in Relation to the Project Site..... 16
Figure 17: Existing Substations in the Project Area..... **Error! Bookmark not defined.**
Figure 18: Existing Transmission Lines in the Project Area ..... **Error! Bookmark not defined.**
Figure 19: Existing Structures in the Project Area..... **Error! Bookmark not defined.**

LIST OF TABLES

Table 1: Region Division of Egypt ..... **Error! Bookmark not defined.**

1. INTRODUCTION

The energy sector is a key driver for the socio-economic development of Egypt, representing around 13% of current Gross Domestic Product (GDP) and thus making economic growth in the country contingent upon the security and stability of energy supply.

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]

In response, the Government of Egypt (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. [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]

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 allows private companies to develop and operate renewable energy projects, such as solar and wind farms, in Egypt. Under this approach, 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.

These national efforts to expand renewable energy make the role of Battery Energy Storage Systems (BESS) increasingly important. The primary purposes of the BESS are energy shifting and grid support, both of which play a critical role in facilitating the integration of renewable energy into Egypt's power grid by shifting the energy load to peak demand periods – particularly important as the country continues to expand its renewable energy capacity.

In accordance with the above, AMEA Power has been selected to develop a 1000 MWh Battery Energy Storage System along with a 600 m Overhead Transmission Line (OHTL) (hereafter referred to as the '**Project**') located within Benban Solar Park, in Aswan Governorate. The Project is to be developed under the Build-Own-Operate (BOO) (meaning AMEA Power will build, own, and operate the Project) mechanism, under which a Capacity Purchase Agreement (CPA) (an agreement for the sale of electricity services to the national grid) has been established. AMEA Power established a Special Purpose Vehicle (SPV) known as Nefertiti (a dedicated company created for this Project) that is wholly owned by AMEA

[1] UNIDO – Low-Carbon Hydrogen Assessments in Egypt Highlights (PDF)
[2] Renewable Energy Outlook, Egypt (IRENA, 2018)
[3] Egypt - Countries & Regions - IEA

Power and that will be responsible for development of this project (hereafter referred to as the '**Developer**').

As discussed previously, the Project is located within the boundaries of the Benban Solar Park, a large-scale, multi-developer renewable energy complex in Aswan Governorate, where multiple independent power producers operate adjacent solar photovoltaic facilities under a shared infrastructure and governance framework. The Park is managed collectively through the Benban Solar Developers Association (BSDA), which coordinates common services and ensures consistent implementation of environmental, social, health, safety, and security requirements across all projects within the Park. Shared services and facilities at Benban Solar Park are provided through a centralized Facilities Management Company (FMC).

In this context, Hassan Allam (hereafter referred to as the **'FMC'**) acts as the Facilities Management Company for the Benban Solar Park on behalf of the BSDA. FMC is responsible for supervising shared facilities and services and for supporting the implementation of site-wide health and safety, environmental management, security and crisis management, contractor oversight, and community engagement and grievance handling. Through this role, FMC supports individual developers, including the Project, in ensuring compliance with applicable national regulations and international lender requirements and in maintaining consistent Environmental and Social Management System (ESMS) implementation across the Benban Solar Park[4].

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 (see "Section 6" for information on ESIA Report disclosure). 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 from affected stakeholders and communities (refer to "Section 6" in the ESIA for information on SEP disclosure).

2. PROJECT DESCRIPTION

2.1 Administrative Setup and Project Location

Administratively, Egypt is divided into 27 Governorates. Governorates are then divided into Aqsam (singular: Qism[5]) or Marakez[6] (Districts) which are then subdivided into local units, which are finally divided into cities, villages and hamlets.

[4] Green Climate Fund Independent Redress Mechanism. (2024). *Compliance Appraisal Report: Case C-0009-Egypt – FP039: GCF-EBRD Egypt Renewable Energy Financing Framework* (July 2024). Green Climate Fund.

[5] Qism. In the administrative division of Egypt, the Qism 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.

Egypt is divided into 27 Governorates. The Project site is located within Aswan Governorate around 630 km southeast of the capital city of Cairo. Aswan Governorate is divided into 7 Marakez[7] (Aswan, Daraw, Kom Ombo, Nasr Al Nuba, Edfu, Abu Simbel, and New Toshka), 12 cities, and 33 rural local units with 72 affiliated villages[8].

The Project site is located withinthe Daraw Markaz, where the closest village is Benban, located at a distance of 13 km east of the Project site, while Daraw city is located around 18 km southeast from the Project site.

Administratively, Benban Village is divided into Benban Qebly Village, Benban Bahary Village, and Al Raqaba Village. The closest village is the Benban Qebly Village and is located around 13 km to the east of the Project site.Please note that contact details for the public to submit complaints and inquiries are provided in Section 6 of this NTS below.

2.2 Local Communities

Throughout the NTS report, the term local communities will be used. This will refer to the Benban Village entirely including all of its affiliated sub-villages and Hamlets. The nearest Hamlet is Nag El-Ebada. The figure below presents the distance of the Project site from the local communities and Aswan city.

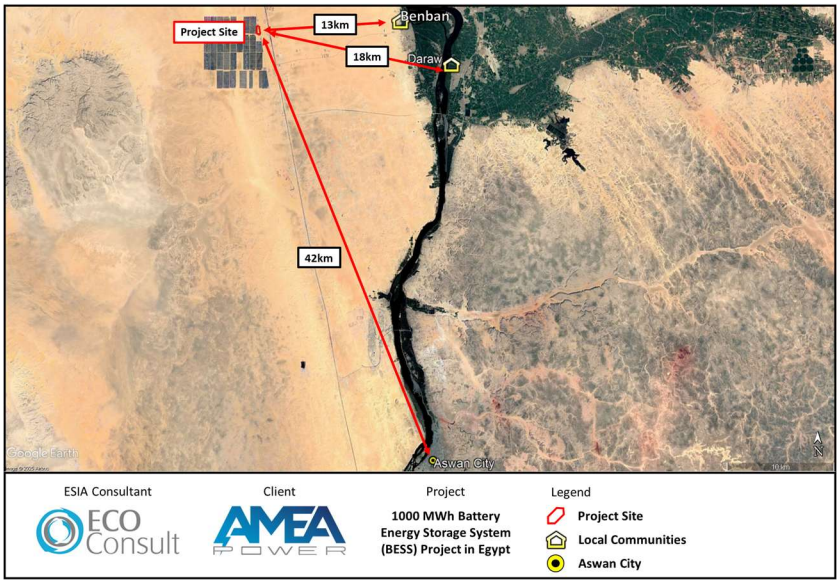

Figure 1: Project Site and Closest Communities

2.3 Project Components

2.3.1 *Outline of BESS Technology*

The Project will connect a battery storage system to the national grid to help store excess electricity and release it when needed, improving the reliability of electricity supply and supporting renewable energy.

[7] 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.

[8] Urban Planning Authority, future vision and projects supporting the development of Aswan Governorate, 2017.

The system can provide electricity for up to eight hours, depending on demand. Stored electricity is converted into a suitable form and delivered to the grid through dedicated connection equipment.

Overall, the Project will help balance electricity supply and demand and support a more stable and flexible energy system. The figure below presents the key components of a BESS:

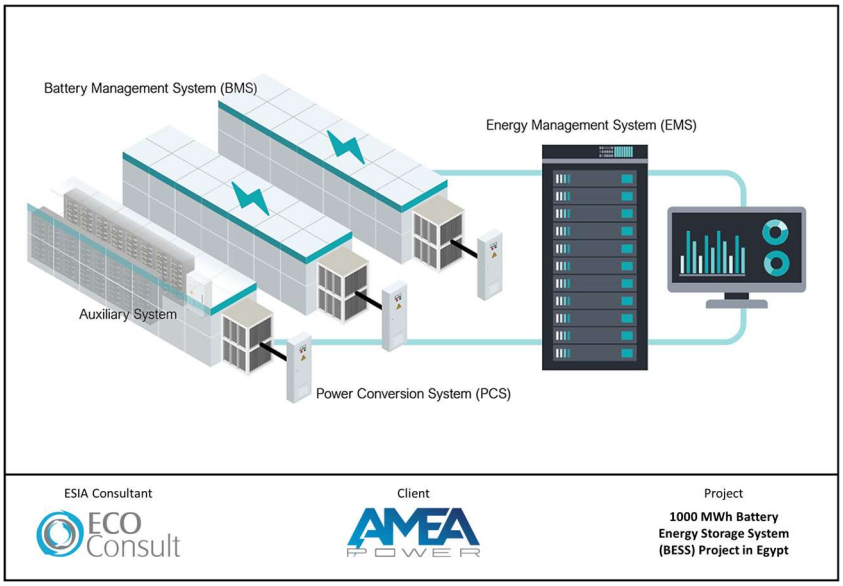

Figure 2: BESS key components

2.3.2 *Infrastructure and Utilities*

The following highlights the key infrastructure and utility elements that will be required for the Project.

- Substation (including associated civils works and buildings): A substation will be built within the Project site to manage the output from the BESS facility. It will include the necessary equipment to prepare the electricity for export to the grid.
- Grid Connection: The Egyptian Electricity Holding Company (EETC) will be responsible for offsite connection works from the onsite substation to the National Grid. This is likely to be through an Overhead Transmission Line (OHTL). EETC will be responsible for preparing the detailed design (including identification of the OHTL route), construction activities as well as operation and maintenance activities. *It is important to note that at this stage there are no details available by EETC on the OHTL specifications – other than the OHTL route as shown in the figure below (information such as height, number of electrical towers, etc.).* However, the OHTL will be connected to an existing 220 kilovolt (kV) OHTL around 600 m to the east of the Project site through a Line-in Line-out (LILO) configuration.
- Amenities Building: Utility infrastructure will be provided to meet project needs and comply with applicable standards. The building will include offices and up to three toilets and one shower.
- Access route and internal road: The Project will be accessed via a single exiting route that connects to the existing road network outside the Project boundary that is the Aswan – Luxor highway to the Project site.
- Drainage and Stormwater Management: Appropriate drainage infrastructure will be incorporated to manage surface runoff within the Project site.

- Telecommunications: Communication systems will be installed for operational control, data transfer, and emergency response, in line with utility and regulatory requirements.
- Water supply: Water will be supplied by water trucks. The water will subsequently be stored on-site in storage tanks for construction activities use.

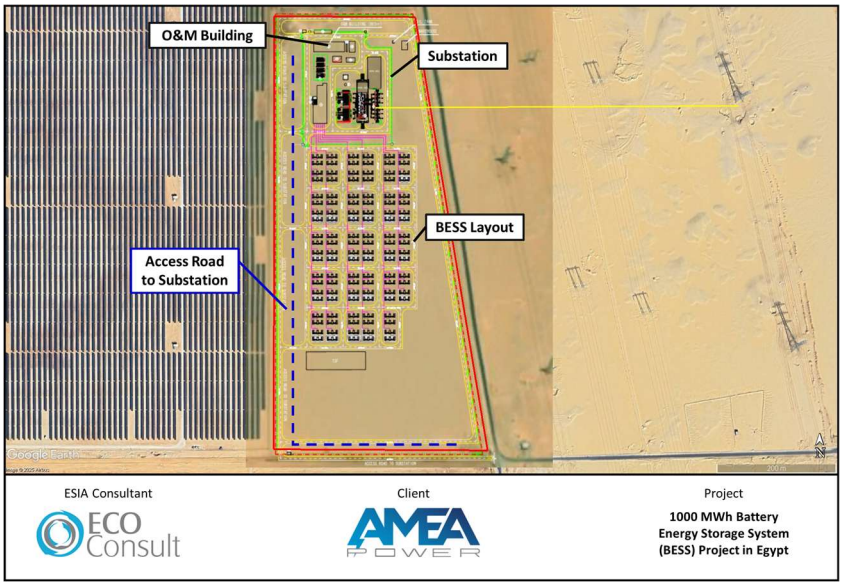

Figure 3: Nefertiti BESS Project Components and Layout

2.3.3 Other Temporary Components

There are additional Project components that will be required on a temporary basis throughout the construction phase of the Project in particular. Those are identified below. The location of such components will be within the Project footprint.

- Site Offices: temporary offices that will be used by Developer and EPC Contractor staff during the construction phase.
- Laydown areas: this is a temporary storage area where tools, materials, equipment and vehicles are stored when not in use.
- Generators: generators will be used for supply of electricity throughout the construction phase of the Project for various power supply requirements. There will be no temporary power supply lines erected before or during the construction period.
- Transport Vehicles and Machinery: During the construction phase, a fleet of machinery—including excavators, Tractor-Loader-Backhoes (TLBs), concrete mixers, concrete pumps, cranes, compaction rollers, and water trucks—will be mobilized.

The Project is expected to provide around 500 job opportunities at peak during the 15-month construction phase, including engineers, technicians, consultants, surveyors, and unskilled workers. During operation, it will provide approximately 30 jobs over a 20-year period, including skilled labor (e.g. plant manager, production manager, control engineer, plant administrator, business manager, accountant) and unskilled labor (e.g. security personnel, drivers).

2.4 Overview of Project Activities

- *Planning and Design Phase* includes completion of required studies (e.g. ESIA, topography, geotechnical), obtaining financing from IFIs, securing permits, appointment of EPC Contractor, and preparation of detailed design and layout.

- *Construction Phase* that will include: (i) Mobilization of Project team and equipment to the site and recruitment of workers; (ii) Undertake mobilization works for temporary facilities which will involve deployment of site offices and laydown areas; (iii) Shipment of the BESS components (i.e. containers) by road from the nearest port to the Project site. This will be through hauling trucks. Each container (i.e. each PCS and BESS) will require one (1) vehicle and one (1) trip to transport with no abnormal loads. It will be a heavy load, however, not an abnormal load, but inside a standard 20-foot shipping container for the BESS and 40-foot shipping container for the PCS. No more than 297 truck trips containers in total are expected to be required; (iv) Site preparation for the installation of battery container foundations, involving survey works, site clearing, grading, levelling, excavation, and cement works; (v) Excavation and backfilling activities for foundations and cable trenches; (vi) Installation of BESS components, including battery containers, associated electrical and power conversion systems, transformers, and auxiliary infrastructure, likely using onsite mobile cranes; (vii) Construction works to include civil works, electrical works and mechanical works for the development of the substation and building infrastructure, etc.; and (viii) Decommissioning of temporary facilities.

- *Operation Phase:* includes regular preventative, predictive, and corrective maintenance in line with OEM recommendations on a weekly to annual basis. The facility will remain continuously connected to the grid, charging and discharging for approximately 8 hours daily. Maintenance will be undertaken by a dedicated team, with routine maintenance estimated at approximately 40 hours per year, including system checks, servicing, inspections, software updates, and safety testing.

- *Decommissioning Phase:* after an operational period of 20 years (as per CPA with Egyptian Electricity Transmission Company, the Developer (AMEA Power), and the Ministry of Electricity and Renewable Energy), BESS components will be de-energized, dismantled, and removed. Equipment may be refurbished, recycled, or disposed of in accordance with regulations. Foundations will typically be removed, land restored, and site infrastructure such as fences and gates dismantled, while some internal roads may be retained.

2.5 Project Schedule

According to the current timeline, the Project schedule includes a Planning and Design phase during Q1 2026, followed by Construction from Q1 2026 to end of Q1 2027. The Commercial Operation Date (COD) is expected in Q2 2027. The Project is designed to operate for a period of 20 years following the start of operations.

3. SUMMARY OF ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS AND IMPACTS

3.1 Introduction

The Environmental and Social Impact Assessment (ESIA) included comprehensive environmental and social baseline studies, as well as an assessment of potential impacts. Where significant effects were identified, appropriate mitigation measures were developed and incorporated into the Environmental and Social Management Plan (ESMP), with the significance of residual effects also evaluated. The impact assessment utilized a methodology reflecting current best practices.

The ESIA provided engineers and designers with valuable insights into the sensitivities of baseline environmental and social resources that could be affected by the proposed development. As a result, the design proposal was developed to consider these sensitivities, aiming to avoid adverse environmental impacts wherever feasible. Key baseline findings and impact assessments are further detailed below.

3.2 Environmental and Social Baseline Conditions and Impacts

3.2.1 Landscape and Visual

The Project site is characterized as a flat to gently undulating desert landscape typical of the western bank of the Nile in Aswan Governorate, with minimal elevation variation. Located within the Benban Solar Park, the surroundings are dominated by solar PV panels and associated energy infrastructure, with an arid and undeveloped landscape lacking vegetation.

Within the Project site, there are no man-made features or structures observed apart from a single concrete platform of approximately 7,000 m², which was originally constructed for the Benban Solar Park inauguration ceremony and has since been abandoned. In addition, a 1.5-meter-deep excavation was noted within the Project site.

In addition, typical views from the Project site towards the north, east, south and west are mainly dominated by solar panels and electricity transmission infrastructure (OHTLs, substations, etc.) that serves Benban Solar Park and the broader Aswan energy grid.

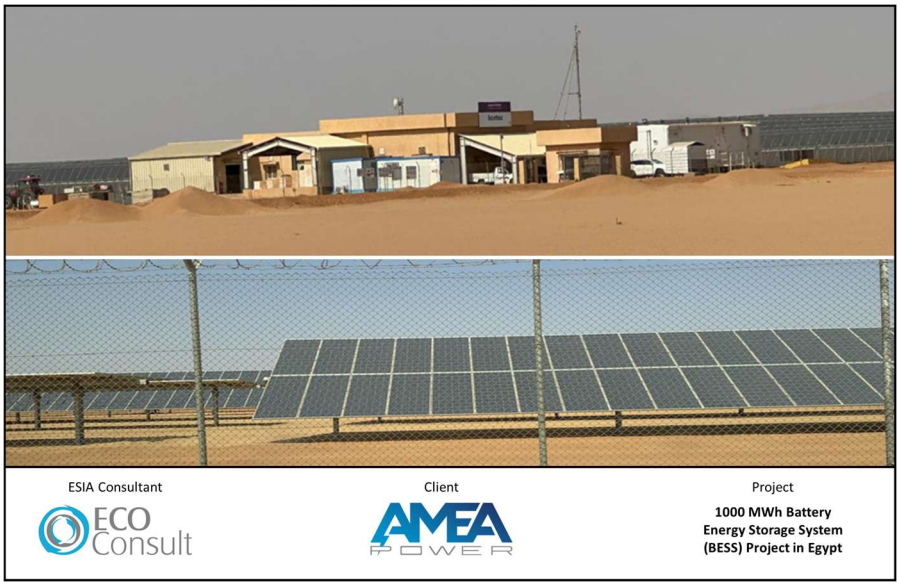

Figure 4: Typical Views from the Project Site

Key Anticipated Impacts

Visual and landscape impacts due to presence of elements typical of a construction site such as equipment and machinery.

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 not in use should be removed in a timely manner, (iii) ensure proper storage, collection, and disposal of waste streams generated.

3.2.2 Land Use

History of Land Ownership

Land tenure of the Project area, which includes both Project boundary and OHTL Route, has been under Governmental property and was allocated in 2017 to NREA for renewable energy development projects through Prime Ministerial Decree No. 466 of 2017. It is also within the vicinity of the existing Benban Solar Park. In addition, the land is under governmental ownership and is not allocated for any specific developments such as housing or agriculture. Based on the above, NREA has granted the Developer full access rights for the Project area for the development of a 500 MW BESS Project. There are no land acquisition measures considered applicable for the Project development.

Current Land Use

No key land uses were identified, including: (i) physical structures (e.g. houses, tents, structures, etc.) and/or (ii) economic activities both formal and informal (e.g. grazing, agriculture, etc.). A concrete platform was observed within the Project boundary; consultations with FMC confirmed that it was installed for the official inauguration of the Benban Solar Park to support a temporary tent, is no longer in use, and has since been abandoned.

A 1.5 m deep excavation point was also noted during the site visit. Consultations with FMC indicated that its purpose is unclear, but it is assumed to be the result of excavation activities for unrelated reasons.

Review of satellite imagery (Google Earth) from 2003 to 2022 shows no evidence of any previous physical or economic activities within the Project site. It is important to mention that the following was noted within the surrounding area of the Project:

- Multiple infrastructure components were observed within the area, including solar panel arrays, OHTLs and power stations forming part of the Benban Solar Park.
- Approximately 1.5 km east of the Benban Solar Park, agricultural reclamation activities were observed, extending northward for several kilometres. This area forms a transition zone between the Benban Solar Park and the more distant cultivated lands, characterized by scattered green patches. Consultations indicated that these farms are not permanently inhabited; they are primarily used for storage purposes, with occasional overnight stays.

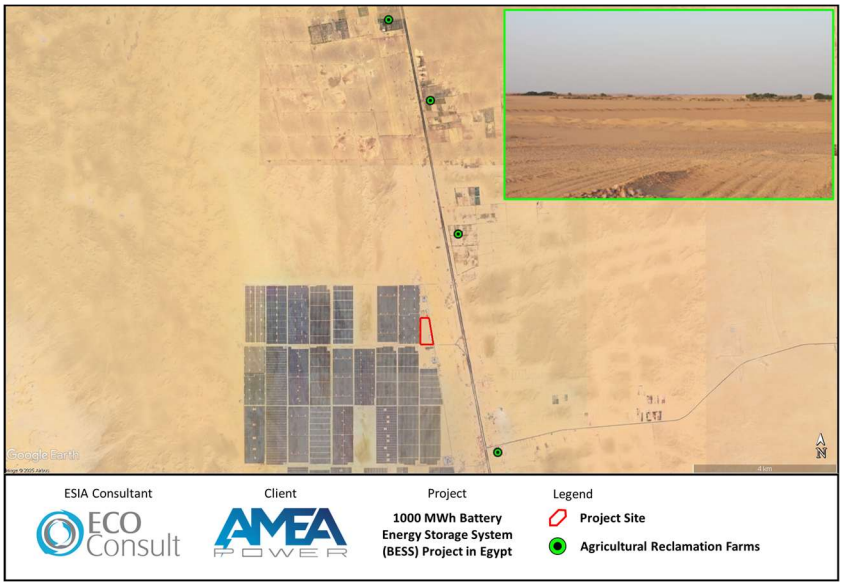

Figure 5: Agricultural Reclamation Belt Near the Project Site

- Several existing access roads originally developed for the Benban Solar Park connect the Project site to the main entrance gate (Gate No. 2), as shown in the figure below. According to the Benban SESA, these roads were still under construction in 2015 but are now fully operational.
- The Project site is surrounded on all sides by a wire fence, except for the southern side, which is located on the dirt road, as shown in the figure below.

Taking the above into account, there are no anticipated land acquisition impacts and there are no further requirements to be considered.

3.2.3 Geology, Hydrology and Hydrogeology

The Project site is underlain by Neonline Formation Upper Cretaceous consisting mainly of siltstone, rock fragments and sand of varying grain sized mixed with clay. The Project site is located west of the Nile Valley, within the Aswan Governorate of a development corridor proposed by El-Baz. The Project site falls in the Upper Nile Platform Basin, one of Egypt's major groundwater basins.

Key Anticipated Impacts

- Potential soil contamination from improper waste, wastewater and hazardous materials management during construction and operation.
- Risk of groundwater contamination from improper storage or disposal of waste streams and hazardous substances during construction and operation.
- Soil disturbance, erosion and sediment run off into nearby canals during construction.
- Risk of accidental spills and leakages during construction and operation from improper handling, storage, or transportation of hazardous substances such as fuel, lubricating oils, hydraulic fluids and cooling agents used for batteries and power conversion systems.

Mitigation Measures

The Developer will implement mitigation measures to prevent and control these risks to include but not limited to the following:

- Coordinate for the collection of waste streams from the site to approved landfills or for recycling for solid waste and hazardous waste and Wastewater Treatment Plants (WWTPs) for wastewater.
- Prohibit fly-dumping of any waste to the land (solid, wastewater, hazardous waste, etc.)
- Establish a secure, hard-surfaced onsite waste management area with proper labelling and containers for municipal and construction waste, including recycling;
- Distribute sufficient number of litter bins and containers properly marked as "Municipal Waste";
- Ensure septic tanks are well contained and impermeable to prevent leakage of wastewater into soil.
- Ensure hazardous materials are stored in proper areas and in a location where they cannot reach the land or the canal 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.
- 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 final location (landfills, WWTP, etc.).
- Salvage and separately stockpile topsoil and subsoil prior to excavation.
- Erect erosion and sediment control barriers.
- Design and maintain drainage systems to divert surface runoff and mimic natural drainage where practicable.
- Ensure that all fuels, oils, lubricants, and chemicals are stored in properly designed storage facilities constructed of hard, impermeable surfaces, with roof cover and secondary containment (bunded areas) capable of holding at least 110% of the largest container.
- Maintain an updated and accessible MSDS register for all hazardous materials.
- Prohibit any refueling or oil handling activities outside designated, hard-surfaced, and contained areas.
- Equip all relevant areas (storage, refueling, battery rooms, and maintenance zones) with spill kits and ensure that personnel are trained in their use.
- In case of accidental spillage, contain the spill immediately, recover the leaked material using non-reactive absorbents, and dispose of contaminated soil and absorbents as hazardous waste.
- Maintain emergency spill response procedures as part of the Project's Environmental, Health, and Safety Management Plan (EHSMP).
- Conduct regular inspection and maintenance of all equipment, storage containers, and transfer systems to identify early signs of leaks or deterioration.
- Ensure that BESS units are housed in sealed containers or enclosures with integrated drip trays or containment sumps to prevent leakage from reaching the ground.
- Maintain a Battery Management System (BMS) capable of real-time monitoring of temperature, voltage, and leakage current to detect early signs of failure or electrolyte loss.

- Develop and implement a BESS Fire and Spill Response Procedure that includes isolation, cooling, and safe removal of damaged battery modules.
- Collect and dispose of any spilled electrolyte, contaminated absorbents, or damaged battery cells as hazardous waste through an EEAA-approved contractor.
- Prevent the washing of spilled material or firewater runoff into soil or stormwater drains.
- Conduct specialized emergency response training for the O&M team focusing on chemical spill containment, first aid, and safe handling of battery incidents.

3.2.4 Biodiversity

Baseline biodiversity has been assessed through desktop studies and field surveys (August 2025). The Project area is largely modified habitat with limited native flora and fauna.

The biodiversity baseline assessment indicates that the Project site is of low ecological significance and sensitivity, with minimal vegetation cover. No endemic species were recorded, and one near-endemic species occurs in the wider area. No key or sensitive habitats were identified.

No mammal or reptile species were directly observed during field surveys, although indirect evidence of mammals (e.g. Red Fox and feral dogs) was recorded. The habitat remains suitable for certain species of conservation concern, including IUCN Vulnerable species such as Savigny's Agama and the Desert Monitor.

No bird species were recorded during field surveys, reflecting the site's arid conditions and lack of suitable habitat. While some species, including migratory birds of conservation concern, may pass through the wider area, the site lies outside main migration corridors and is of low ecological significance for avifauna.

Key Anticipated Impacts

The Project will involve a 600 m OHTL and therefore it is likely to have a minor impact on birds as they are a proven mortality factor via collision and electrocution. In most cases, impacts from over-head powerlines lead to severe injuries or immediate death. In case of collision incidents, birds crash at high flight speed into cables or wires. The resulting injuries vary widely and are comparable to trauma caused by collisions with cars. Electrocution harms birds perching on the live components or having ground contact, but this is less of an issue with high power OHTL such as the one proposed here due to relevant components being insulated.

It is anticipated that most birds will be at insignificant risk to collisions due to their flight behavior, i.e. smaller and more maneuverable birds (such as falcon) will actively avoid the OHTL. Any Migratory Soaring Birds (MSB) species are likely to be present in such low numbers that this in combination with the small scale of the OHTL means that risks are considered to be negligible.

Mitigation Measures

Key impacts on biodiversity are mainly from improper conduct and housekeeping practices by workers (i.e. hunting of animals, discharge of hazardous waste to land, etc.) during the construction and operation phase. The ESIA has identified adequate mitigation measures which aim to control such impacts and ensure proper conduct and housekeeping practices are implemented. In addition, Bird Flight Diverters (BFDs) are to be installed every 10 m along the entire length of the OHTLs on the shield wire. With the implementation of such measures the impact is considered not significant.

3.2.5 Archeology and Cultural Heritage

A field survey was undertaken by an archaeology and cultural heritage expert on 27 August 2025 to verify the presence of any surface archaeological or cultural heritage remains within the Project site.

The assessment concludes that there are no records of any sites of interest or significance within the Project area.

Key Anticipated Impacts

The main impact anticipated is during the construction phase from site preparation activities. As noted earlier, there are no archaeological remains on the surface of the Project site, and therefore there are no anticipated impacts.

Mitigation Measures

There is a chance that archaeological remains buried in the ground may be discovered during construction. Improper management could disturb or damage such sites; however, the ESIA identifies mitigation measures, including implementation of chance find procedures, to be applied if such remains are encountered. With these measures, the impact is considered not significant.

In addition, consultations with the Ministry of Tourism and Archaeology / Supreme Council of Antiquities also confirmed the absence of known archaeological or cultural heritage sites in the area. The nearest recognized archaeological site is located approximately 19 km east of the Project site, the Kom Ombo Temple.

3.2.6 Air Quality and Noise

An air quality and noise baseline monitoring program was undertaken in August 2025 by the E&S Team for the Project site. Air quality results show low pollutant levels, with average particulate matter (PM10) at around 22 µg/m³ and fine particles (PM2.5) at approximately 9.6 µg/m³, both well below applicable limits. Other pollutants such as nitrogen dioxide (NO_2 ~7.4 µg/m³) and sulphur dioxide (SO_2 ~2.8 µg/m³) were also low. Noise levels ranged between approximately 28 and 45 dB, with a maximum of 44.8 dB, remaining below the allowable daytime limit of 55 dB. Overall, both air quality and noise levels are within national and international standards.

Key Anticipated Impacts

Construction activities for the Project do not generate major pollutant or noise sources. Site preparation activities (land clearing, leveling, limited excavation, grading) may result in temporary increases in dust and particulate matter, affecting ambient air quality in the immediate surroundings. The use of construction machinery and equipment (e.g., generators, compressors, vehicles) is expected to generate emissions (e.g., NO_2, SO_2) and localized noise and vibration, potentially impacting nearby sensitive receptors, including the residential area to the north and the commercial and industrial area to the south.

Mitigation Measures

Regular watering of active construction areas, proper management and covering of stockpiles, adherence to speed limits for vehicles on site, use of well-maintained mufflers and noise suppressants on machinery and equipment, and ensuring workers are provided with appropriate Personal Protective Equipment (PPE)

such as masks and earmuffs. Additionally, the stakeholder grievance mechanism will be fully implemented to allow nearby communities and industries to report any concerns related to dust or noise.

Monitoring programs are also planned to ensure that mitigation measures are effective to include dust and noise monitoring.

For impacts on air quality during the operation phase, BESS systems could be associated with release of Polychlorinated Biphenyl (PCBs) or Ozone Depleting Substances (ODSs). However, Project is committed to not using such substances given that they are banned by international conventions, which Egypt is a signatory on.In terms of noise impacts during operation, BESS systems could be associated with elevated noise levels from the Power Conversation System (PCS) as well as the ventilation and cooling systems.

As part of the ESIA, an impact assessment model has been undertaken to determine noise levels within the central parts of the Project site. The noise model has considered worst-case assumptions. The model concludes that noise levels are within allowable limits during daytime and nighttime, as per local limits as well as WBG General EHS Guidelines[9]. Monitoring will be undertaken during the operational phase to verify and confirm the model outcomes.

3.2.7 Infrastructure and Utilities

Water Resources and Utilities

Water demand during construction and operation will be minimal, limited to potable use and non-potable purposes such as dust suppression, and supplied via licensed tankers. Consultations with National Aswan Water and Wastewater Company (NAWWCo) confirmed that these requirements can be met without affecting regional supply, subject to coordination with the Developer. A Water Management Plan will be implemented to promote efficiency measures, including dry-cleaning methods and water-saving fixtures.

Waste Management

Solid waste, wastewater and hazardous waste during the construction and operation phase will be minimal and expected to be easily handled by relevant entities. This will include the El Alaqi landfill for solid waste, New Aswan City Wastewater Treatment Plan (WWTP) for wastewater and authorized hazardous waste landfill. The contractor and operator are expected to coordinate with NAWWCo in regards of wastewater and Aswan Solid Waste Management Department for the collection of solid waste for disposal of such waste streams.

All waste will be transported and disposed of at licensed facilities, with full documentation and tracking (e.g., waste transfer receipts) to ensure regulatory compliance. A Waste Management Plan will be developed for both construction and operation phases, covering waste minimization, recycling/reuse, and appropriate disposal practices.

Battery Waste Management during Operation / End of Life Disposal

Battery waste during the operation and decommissioning phases could lead to environmental contamination, health risks, and resource loss if not properly managed. Key impacts include potential soil and water pollution from hazardous substances, risks to human health, and non-compliance with waste

[9] https://documents1.worldbank.org/curated/en/157871484635724258/pdf/112110-WP-Final-General-EHS-Guidelines.pdf

disposal regulations. The ESIA requires before commencement of any decommissioning activities and/or in the event of damage or defects to the batteries, that a Disposal Plan is prepared. The plan should consider the following options and compare the costs/benefits of each:

- Evaluate recycling options for E-waste, including the identification of appropriate licensed waste processing facilities for this type of waste within Egypt, if available.
- The Project will ensure that all hazardous waste, including potential battery-related waste, is managed through authorized channels. In Egypt, the Nasreya Hazardous Waste Treatment Center in Alexandria Governorate is currently the only certified government facility for the treatment and disposal of hazardous waste. Coordination will occur directly with this facility and the Aswan Solid Waste Management Department to ensure all waste streams are transported and disposed of at licensed facilities in compliance with national regulations set forth by EEAA.
- Cost estimation for recycling and collecting.
- Provide suitable proof that the recycling concept is in compliance with international conventions (Basel Convention).
- Include a written confirmation by the Original Equipment Manufacturer (OEM) of the BESS that the following works regarding the Battery System are included:
    - Check-up of the Battery System regarding safe transport.
    - Decommissioning and disassembly.
    - Safe packaging and transport to the designated recycling site.
    - Recycling and disposal according to the state of the art of technology.

Roads and Highways

The Project site is located around 1 km east of the Aswan – Luxor highway. This is the major highway in Egypt along the Nile River in Aswan Governorate and which connects with other governorates in the north. The highway has a width of 12 m and has moderate traffic of vehicles including transportation of heavy goods vehicles. From this highway, an access road will be required to connect with the Project site. This access road will be less than 1km in length. Also, fully operational access roads are located to the east and south of the Project site. These roads were originally paved for the Benban Solar Park, as confirmed during the site visit undertaken and supported by the Benban SESA.

In addition, from the Aswan – Luxor highway there are four (4) access secondary roads which connect with nearby villages and areas, and which are known as Fares road, Al Mansourieh road, El Karabla road and Benban road as noted in the figure below.

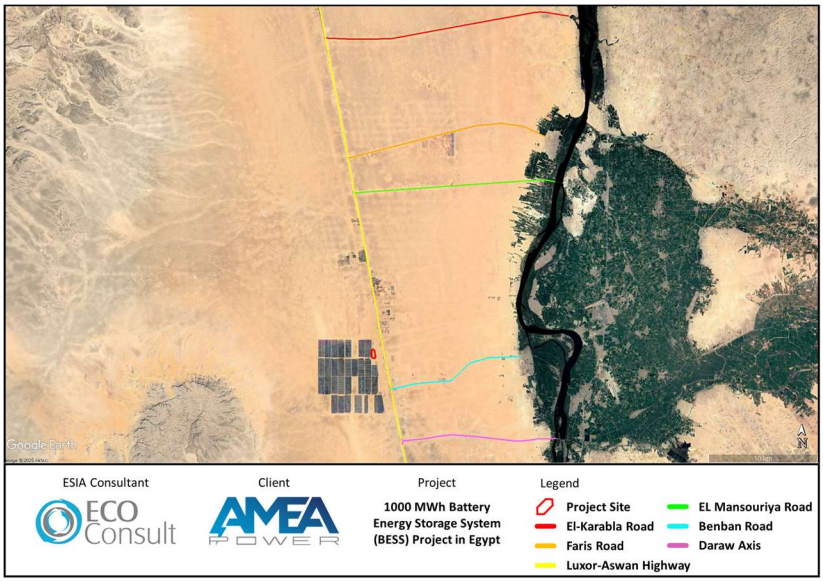

Figure 6: Road Networks in Project Area

The ESIA assessed potential impacts on road traffic and capacity. The ESIA estimates as a worst-case scenario and at peak, the generation of around 30 vehicles per day. The ESIA estimates, as a worst-case scenario, that the entire Project traffic requirements will account for minimal increase in total capacity of existing highways, which can be easily accommodated.

The ESIA identifies health and safety impacts related to traffic and transport, including the potential for accidents on roads and highways affecting road users, workers, and others. Road accidents may result from causes such as violating traffic rules (e.g. speed limits) and bad driving behavior (e.g. overtaking, sudden lane changes, misuse of indicators, and low driver awareness).

The ESIA requires preparation of a Traffic and Transport Plan prior to commencement of transportation activities to ensure proper management of all project-related transport. The plan will include traffic management procedures (onsite and offsite) and consultation with the Ministry of Transport to arrange transportation logistics.

Electricity, Gas and Telecommunication

Based on a site visit undertaken, the following infrastructure was noted:

- Natural gas pipeline (GASCO) that runs parallel to Aswan – Luxor highway at a distance of around 1 km east of the Project site.

Figure 7: Natural Gas Pipeline in Relation to the Project Site

- A total of four (4) substations for the Benban Solar Park as well as several overhead transmission and distribution lines in the vicinity of the Project. As such, the area is already subject to routine electromagnetic field (EMF) exposure associated with standard power infrastructure.

Mitigation Measures

The ESIA identified mitigation measures to be applied by the EPC Contractor during the construction phase and which include:

- Implement proper management measures to prevent damage or disturbance of nearby infrastructure and utility elements. This could include establishing a proper code of conduct and awareness raising / training of personnel to: (i) emphasize the presence of nearby infrastructure and utility elements; (ii) restricting activities to allocated construction areas only, including movement of workers and vehicles to allocated roads within the site and prohibiting off-roading to minimize disturbances.

3.2.8 Worker Welfare, Health and Safety

Key Anticipated Impacts

During the construction and operation phases, potential impacts are mainly associated with occupational health and safety risks, worker accommodation, and workforce management.

Mitigation Measures

The ESIA identified mitigation measures to be applied by the EPC Contractor during the construction phase and which include:

- Occupational health and safety risks are inherent to large-scale construction and operation activities, including those associated with working at heights, moving machinery, confined spaces, handling hazardous materials, and exposure to electric shock or fire. The ESIA requires the Contractor and Project Operator to develop and implement a project- and site-specific Occupational Health and Safety Plan (OHSP) and Emergency Preparedness and Response Plan (EPRP) to prevent accidents, protect workers, and maintain safe operations.

- Inadequate worker accommodation will negatively impact on worker welfare, through for example lack of essential services like adequate temperature control, proper food and beverage including drinking water, emergency response, gender-segregated facilities, washing facilities, and other. Additionally, accommodation that disregards social and cultural needs will affect workers' well-being. ESIA requires the development of an Accommodation Management Plan to ensure personnel welfare and safety in line with local requirements as well as international standards.

- Labor and human rights risks may arise if workforce management is not handled appropriately, including breaches of core labor standards (e.g., child labor, forced labor, excessive hours, unfair contracts, or passport retention). Risks of discrimination, harassment, and abuse (including Gender Based Violence and Harassment (GBVH) or Sexual Exploitation, Abuse and Harassment (SEAH). GBVH/SEAH may also occur within a diverse workforce. The ESIA requires the development of a Labor and Working Conditions Management Plan (LWCMP), which will include an HR Policy, fair working conditions, worker grievance mechanisms as outline in the SEP, codes of conduct, and procedures to prevent and address GBVH/SEAH.

3.2.9 Community Health, Safety and Security

Key Anticipated Impacts

- There could be potential impacts from emergency situations during operation. Potential risks include fire/thermal runaway (a condition where a battery overheats uncontrollably and may lead to fire), explosion, arc-flash (a sudden electrical discharge producing intense heat and light), electric shock, and hazardous gas release (release of potentially harmful gases if batteries are damaged or overheated). However, the BESS will incorporate multi-layer prevention and protection: cell/module propagation control (to prevent a failure in one battery unit from spreading to others), gas/smoke/heat detection (to provide early warning of abnormal conditions), clean-agent suppression (fire suppression using non-water-based systems to quickly control fires), HVAC isolation (to stop air movement and limit the spread of fire or gases), and 24/7 monitoring.

- Potential impacts from trespassing of unauthorized personnel during construction and operation, which could result in risks from hazards such as electric shocks, thermal burns, traffic accidents, or chemical exposure.

- Impacts from security guards related to inappropriate management of security issues and incidents by security personnel towards local communities, which could result in resentment, distrust and escalation of events.

- Impacts from worker influx during construction which will increase risk of diseases and social vices as well as inappropriate conduct by workers towards local communities.

- Potential impacts from Electromagnetic Fields (EMFs) from the BESS facility and associated 600 m 220 kV overhead transmission line were considered. However, given the enclosed nature of the BESS equipment, and the area being already exposed to EMF from the already existing OHTLs, Project is expected to have minimal EMF for the Project area.

Mitigation Measures

The ESIA identified mitigation measures to be applied by the EPC Contractor during the construction phase and which include:

- Develop of an Emergency Preparedness and Response Plan (EPRP) which will include measures such as trained emergency responders, emergency drills, coordination with emergency service providers (e.g. Civil Defense – Aswan Governate, and FMC), safety barriers, etc..

- Develop a Security Management Plan (SMP) which should identify site control access measures such as fencing checkpoints and also entail stakeholder engagement to raise awareness about risks from unauthorized access. The SMP should also addresses such issues. This will include requirements such as proper vetting of security guards, establishing a code of conduct for security workers and associated disciplinary measures, induction training for security personnel to include training on use of force as well as principles on security and human rights10 and others. The Project Operator will develop a similar plan as well for the operation phase.

- Develop a worker influx plan which addresses such issues. This will include requirements such as: (i) manage workers in a centralized location; (ii) medical examination programs prior to appointment and repeated routinely during construction; (iii) procedures for ensuring and maintaining hygienic conditions onsite at all times; (iv) training and self-awareness raising sessions on risks associated to the most common contagious and communicable diseases.

3.2.10 Socioeconomics

Key Anticipated Impacts

The main impact anticipated on socio-economic conditions is related to potential job opportunities from the Project. However, such impacts are limited, taking into account the nature of activities for the Project. During the construction and operation phases, the Project is expected at a minimum to provide job opportunities for local communities. The Project will create the following job opportunities as discussed earlier:

- A maximum of 500 job opportunities, at peak during the construction phase for a duration of approximately 15 months. This will mainly include 100 skilled job opportunities (to include engineers, technicians, consultants, surveyors, etc.) and 400 unskilled job opportunities (such as laborers, security personnel, housekeeping, etc.).

- A maximum of 30 job opportunities during the operation phase for a duration of 20 years. This will include around 20 skilled job opportunities (such as engineers, technicians, administrative employees, etc.) and 10 unskilled job opportunities (such as security personnel, drivers, etc.).

Mitigation Measures

A local recruitment procedure will be developed to define job opportunities for local communities, including fair and transparent announcement and selection processes with equal opportunities, including for females.

Communication with local communities will be conducted through: local platforms in Aswan (e.g. Local Unit Offices, mosques, commercial areas, CBOs, governmental entities), relevant Facebook pages, and public announcements through the Mayor of Benban village.

Recruitment will be undertaken in accordance with the Local Employment and Procurement Plan, ensuring clear hiring criteria, prioritization of local communities, and management of expectations regarding the scale and duration of employment opportunities.

[10] The Voluntary Principles on Security and Human Rights : Voluntary Principles on Security and Human Rights

In addition, the Project Environmental and Social Action Plan (ESAP) includes further specific mitigation and management measures, with defined responsibilities, timelines, and monitoring requirements. These measures are aligned with the ESIA mitigation framework and will be implemented and tracked throughout the Project lifecycle. A summary of key measures is presented below, with full details provided in the ESAP.

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING

The ESIA includes an Environmental and Social Management Plan (ESMP) that provides a structured approach for managing and monitoring environmental and social impacts during the Project's construction, operation, and decommissioning phases. The ESMP outlines mitigation measures designed to eliminate or reduce potential impacts to acceptable levels, as well as monitoring actions to ensure these measures are implemented effectively.

Throughout construction and operation, specific activities, indicators, and environmental and social receptors will be monitored. This monitoring may involve observation and recording or more detailed data gathering and sampling. Monitoring reports will be required from the Contractor and Operator during the construction and operational phases. The monitoring results will be useful for assessing the long-term cumulative effects, if any. If on-going problems occur, adaptive mitigation measures can be developed and implemented.

5. ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM (ESMS)

An Environmental and Social Management System will be prepared that is project and site specific and builds on and takes into account the requirements of the ESMP. Summarized below is the overall framework, structure and key requirements of the ESMS for the key entities involved in the Project.

Developer

- ESIA including ESMP.
- ESMS Manual that will include: (i) E&S Policy; (ii) Human Resources Policy and Procedures; (iii) Organizational Structure and Responsibilities; (iv) Monitoring and Reporting Requirements; (v) Meeting Requirements; (Vi) Training Requirements.
- Stakeholder Engagement Plan (SEP) including stakeholder grievance mechanism.
- Subcontractor and Supplier Management Plan.

EPC Contractor

The EPC Contractor will establish and maintain a Project-specific ESMS.

The ESMS shall:

- Directly address the specific risks associated with the Works and define how these risks will be managed;
- Consist, at a minimum, of the following documents:

ACRONYM	MANAGEMENT SYSTEM

	MAIN DOCUMENTS
ESMS	ESMS Manual
POL	E&S Policies
LEG	Legal Register
PER	Permits Register
ISO	ISO Certifications
SCMP	Supply Chain Management Plan
IMP	Interface Management Plan
ORG	Organisation Chart (HSSE staff Project Specific)
	HEALTH & SAFETY
MOB	Site Mobilization Plan
OHSP	Occupational Health & Safety Management Plan
EPRP	Emergency Preparedness and Response Plan
HMMP	Hazardous Material Management Plan
CHSP	Community H&S and worker influx plan
TMP	Traffic and Transportation Management Plan
TRMP	Training Management Plan
FSMP	Fire Safety Management Plan
	ENVIRONMENTAL
NMP	Noise Management Plan
AQDP	Air Quality and Dust Management Plan
SGMP	Soil and Groundwater Management Plan
WMP	Water Management Plan
WMP	Waste and Wastewater Management Plan
BMP	Biodiversity Management Plan
	SOCIAL
LWCMP	Labour and Working Conditions Management Plan
GEP	Gender Equality Plan
GBVHMP	Gender-Based Violence and Harassment Management Plan
WGM	Worker Grievance Mechanism
CGM	Community Grievance Mechanism
GBVHGM	GBVH and Modern Slavery Grievance Mechanism
ACC	Accommodation Management Plan
EPMP	Employment and Procurement Management Plan
WDMP	Workers Demobilization Management Plan
ARCH	Archaeological Chance Find and Cultural Heritage Procedure
	SECURITY
SMP	Security Management Plan

Project Operator

During the operational phase, the Project Operator will develop a Project-specific ESMS structured in line with the construction-phase framework and aligned with the ESIA, including all commitments, mitigation measures, management plans, and regulatory requirements. The operational ESMS will build on construction-phase documentation, incorporating lessons learned.

It will be progressively developed during construction to ensure a smooth transition of responsibilities from the EPC Contractor to the Project Operator and full implementation at the start of operations. Following site rehabilitation, E&S activities and ESMS documentation will be scaled down to reflect

reduced risks and impacts, while maintaining an appropriate organizational structure consistent with the construction phase.

The operational ESMS will be made available to the Developer prior to commissioning, and the updated ESMS and supporting management plans will be reviewed by the Developer and Lenders (or their Advisor) and finalized before the commencement of operations.

6. FURTHER INFORMATION AND CONTACT DETAILS

The Developer disclose all relevant information to the public and which will include but not limited to the following:

- Stakeholder Engagement Plan (SEP) – including the grievance mechanism for affected stakeholders and communities; and
- Non-Technical Summary (NTS).

The above is provided at the Developer's website at the following link: www.ameapower.com

In addition, hard copies of the above will be available at the following locations. These documents will remain in the public domain for the duration of the Project and will be updated as appropriate.

Project Office

Location: Nefertiti Site, Benban Solar Park, Benban Village, Daraw City, Aswan Governorate, Egypt.

Telephone: 01129844276

Daraw District Office

Location: Daraw City, Aswan Governorate, Egypt

Telephone: 01158407050

Benban Village Local Unit Office

Location: Benban Qebly village, Daraw City, Aswan Governorate, Egypt

Telephone: 01062448050

Contact Details for the Public

Social Manager

Name: Manal Abdelhakim Amer Mostafa Hamed

Telephone: +20 11 42284199

Email: manal.hamed@nefertitibess.com