سلطة الطاقة والموارد الطبيعية

Palestinian Energy & Natural Resources Authority

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

For

Advancing Sustainability in Performance, Infrastructure, and Reliability of the Energy (ASPIRE) Sector in the West Bank and Gaza

Project ID: P170928

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Annexes

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List of Acronyms	
DISCO	Distribution Company
COGAT	Coordination of Government Activities in the Territories
CP	Connection point
EQA	Environmental Quality Authority
ESIA	Environmental and Social Impact Assessment
ESSs	Environmental and Social Standards
DISCOs	Electricity Distribution Companies
E & S	Environmental and Social
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESO	Environmental and Social Officer
ESPIP	Electricity Sector Performance Improvement Project
GHG	Green House Gases
GoI	Government of Israel
GRM	Grievance redress mechanism
HEPCO	Hebron Electricity Power Company
HSE	Heath safety and Environment
IEC	Israeli Electricity Company
IEE	Initial Environmental Evaluation
ISO	International Standards Organization
JDECO	Jerusalem District Electricity Company
EQA	Environmental Quality Authority
LMP	Labor Management Procedures
MoH	Ministry of Health
MoLG	Ministry of Local Governorate
MPA	Multiphase Programmatic Approach
MVC	Municipalities and Village Councils
NEDCO	Northern Electricity Distribution Company
NGO	Non-Governmental Organization
OHL	Overhead Line
OHS	Occupational Health and Safety

PA	Palestinian Authority
PEAP	Palestinian Environmental Assessment Policy
PEL	Palestinian Environment Law
PENRA	Palestinian Energy and Natural Resources Authority
PERC	Palestinian Electricity Regulatory Council
PETL	Palestinian Electricity Transmission Company Ltd
PMU	Project Management Unit
PPA	Power Purchase Agreement
PESIA	Preliminary Environmental and Social Impact Assessment
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
RF	Resettlement Framework
ROW	Right of Way
PV	Photovoltaic
RE	Renewable Energy
RPP	Revenue Protection Program
SELCO	Southern Electric Company
SEF	Stakeholder Engagement Framework
SEP	Stakeholder Engagement Plan
TDECO	Tubas District Electricity Company
TOR	Terms of Reference
TSO	Transmission System Operator
WB	World Bank

EXECUTIVE SUMMARY

The Advancing Sustainability in Performance, Infrastructure and Reliability in Energy project aims to improve: (i) The sector performances in terms of electricity supply, distribution and collection of the service provider with higher efficiency & lower losses, (ii) the regional integration in terms of diversification of sources and energy exchange with neighboring countries, (iii) the Private sector participation in terms of better environment for investments in domestic generation usage of local resources, and (iv) the Environmental footprint by replacing the traditional energy with clean energy from renewable resources. The project components are the following:

Component 1 – Improving Infrastructure for Regional Electricity Interconnections

This will include the rehabilitation of 170+ (PETL-IEC) connection points based on 4 categories according to the Voltage level and source of medium voltage lines. The low voltage connection points will be upgraded to Medium Voltage. The scope will include the supply of outdoor disconnector switches, Auto re-closure and Metering Panel. In some cases, the metering room will be rehabilitated or will be newly built. PETL is expected to execute part of the work by their own technical staff and by a contractor.
This component includes also the rehabilitation of Tarqumia Substation and the Design and Build of MV lines and infrastructure works between Jericho and Ramallah to evacuate imported energy from Jordan and & between Tubas and Nablus to reduce the shortage of electricity in Nablus..

Component 2 – Improving Sustainability of Service Delivery

This component focuses on the sustained improvement of operational performance of the five DISCOs in the West Bank and one in Gaza. It extends the first phase of revenue protection launched in the west bank and Gaza under the Electricity Sector Performance Improvement Project (ESPIP) project, designed to improve the efficiency of the Palestinian electricity sector and energy security in Palestine by applying a set of measures along the energy supply chain. Component 2 also includes a “Revenue Protection Program” (RPP) with improved metering and billing systems. The RPP will reduce commercial losses by installing smart meters in high-end costumers and Advanced Metering Infrastructure (AMI).

Component 3 – Enabling Private Sector Engagement in Renewable Energy

This component focuses on the reinforcement of infrastructure to enable the evacuation of utility scale projects (sub component 3.1) and a scale up of rooftop solar PV systems for health, SMEs and residential sector (sub component 3.2).

These sub components will extend the first phase of the revolving fund currently on execution in Gaza by extending the mechanism also to the West Bank for SMEs and will open to poor and vulnerable householders by partial grant of 40-60 % of the system cost. The project will also include shared solar systems for residential buildings and multi-family buildings.

A subcomponent will also scale up the grant support for renewable energy and energy efficiency in health facilities.

Component 4: Technical Assistance, Capacity Building, and Project Management

This component will focus on engaging energy sector institutions in defining the potential pipeline and training needs. The technical assistance will enable PENRA to organize workshops, support feasibility studies and ensure dialogue and knowledge sharing within the sector in coordination with other line ministries. This subcomponent will also support a pilot improved battery recycling in Gaza by assisting in the identification of best practices to support small scale battery recycling and retooling the operation equipment of 2-3 small workshops. Due to the hazardous waste from recycling battery, this subcomponent is likely to have a substantial risk. Based or technologies identified, relevant ESMP will be created.

Of these four components, components 1 and 4 are expected to have a significant environmental and social impact while components 2 and 3 is likely to have a moderate environmental and social impact. These are addressed in this Environmental and Social Framework.

Legal Framework

A number of national policies, legislations, and instruments are available to support environmental management and the Environmental Impact Assessment process in Palestine. The Palestinian Environmental Law (PEL) and the Palestinian Environmental Assessment Policy (PEAP), and other sectoral sections in other legislations are the key instruments that cover environmental management in sectors of development. The PEAP prescribe the process, procedures and practices for conducting an environmental assessment and preparing the environmental assessment reports.

Despite the presence of national Environmental Law and Environmental Assessment Policy, yet it lacks specific industrial standards and mechanisms for monitoring and enforcement of environmental regulations. To close this gap between national legislation and the Bank's ESF and standards gap analysis was carried out and based on

that, this ESMF and the other Environmental and Social ESF documents are being prepared.

Institutional and Implementation Arrangements

PENRA is the implementing agency of all subcomponents included under ASPIRE project. Each subcomponent will include a number of projects tendered and awarded to a contractor/ supplier according to the World Banks Procurement Guidelines. The contract will be PENRA's responsibility and will be awarded to contractor/supplier. PETL and the DISCOs will have a technical role in the Bidding process including technical supervision during implementation. All bidding documents will include E&S management measures and that all contracts will include sub-project specific management plans to be implemented by contractors and sub-contractors.

The role of PETL and the DISCOs will in some cases perform implementation of subprojects, e.g. PETL will mobilize its own staff for the installation of part of the equipment contained in the Connection Points and the DISCOs will directly install the smart or prepaid meters and will contribute to some electrical works for that components where 33 kV lines will be installed.

For the PENRA's Environmental and Social capacity, currently, PENRA has no Environmental and Social Officer (ESO) responsible for environmental and social management. ESO will be assigned to be part of the PENRA's PMU. He/She will be updating the drafted documents as soon as the components will be determined. He/She will supervise the implementation of the ESMF and monitor the compliance of contractors to the provisions of the ESMPs, SEP, RF, and LMP. Along the course of Project implementation, the need to assign ESOs at the level of PETL and DISCOs will be assessed. The EQA will be fully informed and any additional requirements will be followed between the ESO and the EQA.

Environmental and Social Risk Screening

Based on project activities and the analysis and evaluation of the environmental and social risks of the project , this ESMF: (i) defines the screening process to be followed to determine the gaps to be addressed under the Environmental and Social instruments; (ii) identifies potential environmental and social risks and impacts; (ii) determines the appropriate environmental and social risk classification for each component (iii) identifies, mitigates and monitors indicator measures. This is essential as subproject activities entails risks and requirements as identified in World Bank ESSs.

Risk assessment and adverse impacts

The potential negative impacts during construction are generally short-term, temporary and reversible which can be reduced or eliminated by known mitigation measures. The Project is not likely to cause significant environmental impacts. The environmental risk will involve: (i) occupational health and safety (OHS) risks during construction and maintenance of transmission and distribution lines (Component 1), the occurrence OHS incidents has low probability (possible but not likely) and could be minimized through abiding to tailored OHS plans for each activity; (ii) risks associated with handling hazardous wastes, such as waste oil from transformers during maintenance (Component 1), and (iii) risks of handling hazardous substances and wastes during the upgrading of small-scale battery recycling factories to improve their operations as part of the TA (Component 4). The probability of contaminating disposal sites (as per points ii and iii above). Noise, dust and waste handling during construction (Components 1, 2 and 3) exposure to electromagnetic fields (EMF) (Component 1), possible risks to birds (Component 1), handling of wasted old electricity meters (Component 2), handling of waste batteries and solar panels (Component 3) and heat and sunlight reflection from solar panels (Component 3).

Most activities will follow the existing right of way (ROW). However, some project activities might require temporary and/or permanent land acquiring. Some external factors, such as movement restrictions might increase the construction and operation risks in the context of West Bank and Gaza, as restrictions on access and movement is a major concern for the implementation of activities that are related to Area C in the West Bank and close to the security fence in Gaza. Risk classifications were carried out for each subcomponent and are outlined in this report.

The environmental and social risk for this project is classified as follows:

- Substantial for component 1 and 4
- Moderate for component 2
- Low for component 3.

All essential environmental and social instruments needed to mitigate the assigned risk of each project component are listed below.

- For Comonent 1: ESMPs will be prepared for the interconection points between PETL and IEC, the voltage regulators, replacement of existing medium voltage lines and transformers and the energization of Tarqumia substation. The new 33 kv line between Jericho and Ramallah will require

and ESIA (upgrade of the existing PESIA).

- For Components 2 and 4: A waste management plan needs to be developed by each DISCO for the different wastes that will be generated within their geographical areas. The plan will include management procedures for wasted electricity meters, solar panels and batteries.
- For Component 3: An installation guide for solar systems will be prepared addressing the related health and safety aspects, heat/light refelcting issues on buildings.
- For Component 4: Environmental and Social Audit will be prepared for the selected battery recycling factories that will be improved and the recommendations of those audits will be considered in the upgrade plans of those factories. Feasibility Studies for future investments will include ToRs for preparing the appropriate E&S instrument for the correspondent investment.

Labor management procedure (LMP) is prepared to set out the Project's approach to meeting national requirements as well as the objectives of the Bank's ESF, specifically objectives of Environmental and Socials Standard 2: Labor and Working Conditions (ESS2) and Standard 4: Community Health and Safety (ESS4). Stakeholder Engagement Framework (SEP) is prepared for the sites of the project that are tentatively identified. As the interconnector line will cross private agricultural land, PENRA will have to purchase/compensate for land to locate the towers/poles, as well as the plot where the substation will be located. For this purpose, Resettlement Framework (RF) is prepared including a description of the screening of sub-projects for land acquisition and Grievance redress mechanism (GRM).

Generic ESMP matrices were prepared for project's subcomponents. Each ESMP includes mitigation measures, responsibilities for Planning, implementation, supervision and monitoring. Mitigation measure were chosen carefully to be SMART, i.e simple, measurable, achievable and can be achieved in a timely manner. The table below summarizes the negative impact of the project components and the respective mitigation measures.

Table 0-1: Summary of Negative Impacts and Mitigation Measures

Environmental	
Terrestrial Habitat Alteration	**Mitigation Measures**

Construction Right of Way	▪ Site transmission and distribution rights-of-way, access roads, lines, towers, and substations through use of existing utility and transport corridors for transmission and distribution, and existing roads and tracks for access roads, whenever possible; ▪ Installation of transmission lines above existing vegetation to avoid land clearing; ▪ Revegetation of disturbed areas with native plant species; ▪ Management of construction site activities as described in relevant sections of the General EHS Guidelines.
Right-of-way maintenance	▪ Implementation of an integrated vegetation management approach (IVM). The selective removal of tall-growing tree species and the encouragement of low-growing grasses and shrubs is the common approach to vegetation management in transmission line rights-of-way. Alternative vegetation management techniques should be selected based on environmental and site considerations including potential impacts to non-target, endangered and threatened species; ▪ Removal of invasive plant species, whenever possible, cultivating native plant species; ▪ Observing manufacturer machinery and equipment guidelines, procedures with regard to noise, and oil spill prevention and emergency response;
Avian collisions and electrocution	▪ Maintaining 1.5 meter (60-inch) spacing between energized components and grounded hardware or, where spacing is not feasible, covering energized parts and hardware; ▪ Retrofitting existing transmission or distribution systems by installing elevated perches, insulating jumper loops, placing obstructive perch deterrents (e.g. insulated" V's"), changing the location of conductors, and / or using raptor hoods; ▪ Installing visibility enhancement objects such as marker balls, bird deterrents, or diverters.

Electric and Magnetic Fields (EMF)	▪ Evaluate potential exposure to the public against the reference levels developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Average and peak exposure levels should remain below the ICNIRP recommendation for General Public Exposure; ▪ Consider siting new facilities so as to avoid or minimize exposure to the public. Installation of transmission lines or high voltage equipment above or adjacent to residential properties or other locations intended for highly frequent human occupancy, (e.g. schools or offices), should be avoided; ▪ If EMF levels are confirmed or expected to be above the recommended exposure limits, application of engineering techniques should be considered to reduce the EMF produced by power lines, substations, or transformers. Examples of these techniques include: - Shielding with specific metal alloys - Burying transmission lines - Increasing height of transmission towers - Modifications to size, spacing, and configuration of conductors
Hazardous Materials	**Mitigation Measures**
Insulating Oils and Fuels	▪ Disposal of hazardous materials in accordance with the waste management plan to be developed by each DISCO for the different wastes that will be generated within their geographical areas.
Occupational Health and Safety	
Live Power Lines	▪ Only allow trained and certified workers to install, maintain, or repair electrical equipment; ▪ Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines; ▪ Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following:

	- Distinguish live parts from other parts of the electrical system - Determine the voltage of live parts - Understand the minimum approach distances outlined for specific live line voltages - Ensure proper use of special safety equipment and procedures when working near or on exposed energized parts of an electrical system ▪ Workers should not approach an exposed energized or conductive part even if properly trained unless: - The worker is properly insulated from the energized part with gloves or other approved insulation; or, - The energized part is properly insulated from the worker and any other conductive object; or, - The worker is properly isolated and insulated from any other conductive object (live-line work). ▪ Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan; ▪ Workers not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, and other activities; ▪ Minimum hot stick distances may only be reduced provided that the distance remaining is greater than the distance between the energized part and a grounded surface.
Working at height	▪ Test structures for integrity prior to undertaking work; ▪ Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others; ▪ Establishment of criteria for use of 100 percent fall protection (typically when working over 2 meters above the

	working surface, but sometimes extended to 7 meters, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point; ▪ Installation of fixtures on tower components to facilitate the use of fall protection systems; ▪ Provision of an adequate work-positioning device system for workers. Connectors on positioning systems should be compatible with the tower components to which they are attached; ▪ Hoisting equipment should be properly rated and maintained and hoist operators properly trained; ▪ Safety belts should be of not less than 16 millimeters (mm) (5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident; ▪ When operating power tools at height, workers should use a second (backup) safety strap; ▪ Signs and other obstructions should be removed from poles or structures prior to undertaking work; ▪ An approved tool bag should be used for raising or lowering tools or materials to workers on structures.
Electric and Magnetic Fields	▪ Identify potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities; ▪ Train workers in the identification of occupational EMF levels and hazards; ▪ Establish and identify safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers; ▪ Implement action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE). Personal exposure monitoring equipment should be set to warn

	of exposure levels that are below occupational exposure reference levels (e.g. 50 percent). Action plans to address occupational exposure may include limiting exposure time through work rotation, increasing the distance between the source and the worker, when feasible, or the use of shielding materials.
Community Health and Safety	▪ Use signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment; ▪ Surround conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock.
Electromagnetic Interference	▪ Create emission line rights-of- way and conductor bundles to ensure radio reception at the outside limits remains normal.
Visual Amenity	▪ Extensive public consultation as indicated in the SEP during the planning of power line and power line right-of-way locations; ▪ Accurate assessment of changes in property values due to power line proximity; ▪ Siting power lines, and designing substations, with due consideration to landscape views and important environmental and community features; ▪ Burying transmission or distribution lines when power must be transported through dense residential or commercial areas.
Noise	▪ Project planning stages to locate rights-of-way away from human receptors, to the extent possible. Use of noise barriers or noise canceling acoustic devices should be considered as necessary.
Social Impacts and Risks	

Labor Conditions and community health and safety	▪ GBV, HIV/AIDS, Child protection training/awareness campaign for contractor, sub-contractors and communities (and HIV/health); ▪ Provisions for handling of GBV in the GRM ▪ Update and implement the stakeholder engagement plan (SEP) ▪ Communication through contractor environmental and social specialist when stringing activities will take place to ensure children are not playing in the work area; ▪ Project sites to be marked off with fencing and signage to prevent people from entering the dangerous sites;
Land Acquisition, Involuntary Displacement and Restrictions on land use	▪ Update the Resettlement Framework (RF) to Resettlement Action Plan(s) (RAP) and implement it ▪ Development of subsequent and/or Livelihood Restoration Plans (LRP)

Generic Environmental and Social Management Plans (ESMPs) are prepared to provide a logical framework within which identified negative environmental and social impacts can be mitigated and monitored. In addition, the ESMPs assign responsibilities of actions to various actors and provides a timeframe within which mitigation measures and monitoring can be done. All bidding documents will include E&S management measures and that all contracts will include sub-project specific management plans to be implemented by contractors and sub-contractors.

Environmental and Social Management Procedure

The environmental and social management procedure of the proposed project will start with the identification of sub-projects followed by social and environmental baseline screening of the sub-projects. Based on the environmental and social screening, the generic ESMP will be updated to include relevant environmental and social issues. If a sub-project is found to have no significant social safeguard issues including loss of land, assets or source of income, only a social safeguard report will be prepared summarizing the findings of the screening. However, if the screening identifies social safeguard issues, the RF will be updated to resettlement action plan (RAP).

Environmental and social screening (Annex 2) of each sub-project and ESIA/RAP wherever required, are to be subject to review and clearance by the Bank. Whenever requested. PENRA will provide the Bank with copies of the filled out environmental and social screening forms for all sub-projects to be implemented by PENRA.

For an effective integration of environmental and social standards into the project implementation, the Contractor will need to adopt this ESMP and prepare a comprehensive Construction Environment and Social Management Plan (C-ESMP) that will provide the key reference point for compliance. The environmental supervision will also adopt the C-ESMP.

PENRA will be responsible for monitoring the overall implementation of the ESMP for all Subprojects. In particular, ESO will (i) monitor the implementation of mitigation measures and the environmental and social performance of contractors, (ii) Monitor training of project staff, implementing partners, and contractors (list of persons, dates and places).

ESO will also prepare (i) quarterly reports summarizing monitoring results, to be included in the Project's Quarterly Reports to the World Bank, (ii) reports that aggregate and analyze monitoring results ahead of regular World Bank implementation support missions with PENRA, (iii) an annual evaluation of all environmental and social monitoring results, which will be submitted to the World Bank as part of overall project implementation reporting.

Staff from PENRA's PMU, PETL, and DISCOs will be trained on awareness issues related to environmental management, policies, regulation, environmental assessment and monitoring activities that are related to energy projects as well as recording and resolving any grievance matters related to the implementation of the project.

The cost is estimated for ESMF implementation related to hiring and training of ESO, beneficiaries and stakeholder trainings, Environmental orientation Seminars for contractors, remuneration of external local consultant to conduct an external monitoring of the resettlement process to support PENRA in the implementation of the ESMF. The indicative budget associated with implementing the ESMF and monitoring of environmental and social risks associated with the project is estimated at US$550,000.00. Other indicative cost related to implementation of stakeholder engagement and anticipated resettlements is available in the SEP and RF documents.

Public Consultations and Stakeholder Engagement Plan

PENRA has prepared a Stakeholder Engagement Plan proportional to the nature and scale of the project impacts and risks and will be updating the same from time to time. Main stakeholders have been identified in the SEP and need for their engagement throughout

the project cycle has been outlined. The SEP details out the enhanced requirement to engage with the project affected during preparation and implementation of ESIA/ESMP and RAP. The project specific Grievance Mechanism has also been detailed out, see also the section on GRM below.

Several consultations have been undertaken during September and October 2019 for the preparation of the ESF documents, including this ESMF and the SEP. The stakeholder engagement activities were conducted in different regions, municipalities and with variety of stakeholders. Consultations and engagement with Yasid and Al-Muarajat and other four communities including Qalqilya, Fandoqomiya, Sarra, and Awarta were conducted and reported in the SEP separate document. During consultation, the communities were informed during the meetings that a GRM system will be available to them prior to the implementation phase to file complaints and concerns related to the project activities. A summary of the different stakeholder engagement activities that have taken place to date and detailed description of the stakeholder engagement activities for each component are available in the SEP document.

The SEP will be updated once the exact locations of subprojects are identified and the ESO shall be engaged by the project to liaison with the local stakeholders and project affected community.

Resettlement FrameworkResettlement Framework (RF) has been prepared by PENRA to identify the Project Affected Persons (PAPs), types of impacts, strategies for compensation and/or restoration of potential losses for individual and business. It is prepared in a separate document and it will be used as a basis for the preparation of the specific resettlement action plan, RAP, once the designs are completed and exact locations are identified. The RF sets out the policies, principles, institutional arrangements, schedules and indicative budgets that will take care of anticipated resettlements for various project components. These arrangements ensure that there is a systematic process for ASPIRE's implementation that assures continuous beneficiary participation, involvement of relevant institutions and stakeholders, adherence to World Bank ESSs requirements, in particular ESS5 and ESS10, and the national procedures and requirements, and outline entitlement and compensation for affected persons.

For the purpose of this ESMF the term "Associated Facilities" means facilities or activities that are not funded as part of the project and are: (a) directly and significantly related to the project; (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.

There were no identified associated facilities at the time of preparation of this ESMF. If any associated facility will be identified during the progressive definition of the program components the same will be subjected to screening in order to determine the gaps to be addressed under the Environmental and Social instruments.

The screening process will include site visits and interviews with operators to discuss the monitoring activities performed by the operation staff and their compliance to the monitoring program stated in the project ESMP. The screening process will also involve direct consultation with the PAP(s) who will work with the PENRA and officials from District Administration on-site to verify the affected assets and discuss their socio-economic situation. Before the process begins, the PAP(s) will be advised in writing and verbally of their rights and will be consulted throughout the resettlement process. This will include sharing a copy of the grievance redress procedure and the entitlement matrix.

Grievance Redress Mechanism (GRM)

In compliance with the World Bank's ESS10 requirement and in order to ensure disadvantaged or vulnerable needs are taken into consideration, and that they are reached, PENRA will adopt several mechanisms; such as, publishing all information about the project in Arabic, holding workshops or meetings at suitable location that women can easily access, provide needed facilities in public meetings for handicap or people with disabilities and conduct visits to the Bedouin families. In addition, when designing the grievance mechanism, PENRA will take into account the availability of needed recourse for vulnerable groups to give feedback, or send a complaint; for example, if internet option are not available to women at villages, the Project Management Units at PENRA will provide them with alternative options such as a telephone number for GRM. It will be publically announced through portals known to all PAPs allowing them to file their grievances and ensuring fair, appropriate and comprehensive solution to their problems.

In addition to that, PENRA will be responsible for any grievance reported from communities and workers related to the environmental and social issues from the implementation of project activities. The GRM will also be used for complaints in relation to resettlement aspects as well.

1. Introduction

Background

Over the last two decades, the electricity sector reform process has improved in the West Bank and Gaza. This has consolidated the energy sector from a fragmented municipal-based system to a more efficient sector model. The Palestinian Energy and Natural Resources Authority (PENRA) was established in 1995, and while efforts to consolidate the sector into distribution companies (DISCOs) began as early as 1997, the Palestine Electricity Regulatory Commission (PERC) was created in 2009. The Palestine Electricity Transmission Limited (PETL) was created in 2013, as 'single buyer and transmission system operator (TSO)' to bring cohesion in the sector. As relatively new institutions, there is a continued need for sustained support to help them provide more coherent, reliable and efficient services. The Palestinian and Israeli electricity sectors remain deeply intertwined with Israeli imports accounting for approximately 95 percent of electricity supply in West Bank and more than half in Gaza.

The proposed Multiphase Programmatic Approach (MPA) is strategically aligned with the current World Bank Group's Assistance Strategy for West Bank and Gaza (FY18-21), which highlights the promotion of an environment for dynamic, inclusive private sector growth for job creation, and strengthening of institutions' accountability and capability. This MPA directly supports the three proposed outcomes, with a particular focus on creating conditions that incentivize the private sector and simultaneously mitigate the risks faced while investing in a fragile and uncertain environment. The Assistance Strategy initiated the establishment of the Private Sector Enhancement Facility (PSEF), which will be utilized to provide guarantee support to small and large Independent Power Producers (IPPs).

The MPA aligns with the MENA Regional Strategy Update 2019 in three important aspects. First, the MPA seeks to build a modern and efficient electricity sector and enable private-sector led growth. Second, the MPA contributes to enhanced regional cooperation, by supporting regional interconnections and improved power trade between West Bank & Gaza and Israel and Jordan, with the possibility of also supporting resumption of power trade with Egypt. Third, the MPA directly results in an increased share of renewable energy and thus contributes to MENA and WBG Climate Change Strategies.

1.1.1 Sectorial and institutional context

Over the past two decades, the Palestinian Energy Sector was improved and consolidated from a fragmented municipal-based system to a more efficient single-buyer model. The reform consolidated the electricity distribution services of numerous fragmented municipalities and village councils (MVC) into larger distribution companies (DISCOs) to benefit from economies of scale. Currently there are 6 DISCOs (5 in West Bank and 1 in Gaza). However, 150 MVCs have yet to transfer their electricity services to the DISCOs because they use the revenues from electricity bills to subsidize other municipal services. In 2009 the Palestinian Electricity Regulatory Council (PERC) was established with a mandate of regulating and monitoring the energy sector. Established in 2013, the mandate of the Palestinian Electricity Transmission Company Ltd (PETL) was founded to be the single buyer and Transmission System Operator (TSO) for the Palestinian energy sector.

Financial sustainability is crucial for the energy sector to invest in continual improvement in service delivery and become creditworthy to attract private sector interest. This requires payment discipline across the sector. For years, non-payers of electricity were subsidized through a mechanism known as 'net lending', which allows Israel Electric Company (IEC) to recover unpaid dues from the tax revenues collected by the GoI on behalf of the PA. In September 2016, the PA and GoI entered into an agreement to resolve past electricity sector debt. This set the stage for an interim Power Purchase Agreement (PPA) in July 2017 that strengthened the role of PETL. This was expected to be followed by a long-term PPA between IEC and PETL that would provide much-needed coherence and economies of scale to the sector. The overarching PPA framework was initialed in May 2018. The Power Purchase Agreement (PPA) between IEC and PETL continues to be negotiated and several new issues, such as the requirement for an operating framework agreement between PETL and Israeli Authorities, have emerged. These are expected to cause further delays. Nonetheless, PETL is preparing to take over the responsibilities, as soon as the PPA is signed.

Given this background, the proposed **Advancing Sustainability in Performance, Infrastructure, And Reliability of the Energy (ASPIRE) Sector (P170928)** seeks to improve the efficiency of the Palestinian electricity sector and improve energy security through a carefully selected set of measures along the Palestinian energy supply chain, from generation, distribution, transmission to regulation. As the World Bank provides core financing for the project implementation, therefore, this ESMF will explain the necessity of preparing Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Framework (ESMF), Environmental and Social Management Plan (ESMP), Labor Management Procedures (LMP), Stakeholder Engagement Plan

(SEP), and Resettlement Framework/Action Plan RF/RAP) in accordance with the new ESF of the World Bank for each component of the project (http://pubdocs.worldbank.org/en/837721522762050108/Enviromental-and-Social-Framework.pdf).

The ESMF

This Environmental Social and Environmental Framework (ESMF) provides technical day-to-day guide for making sure that the ASPIRE sub-components are implemented in an environmentally and socially responsible manner. It provides guidance for screening the installations against environmental and social risks. Based on the outcome of the risk identification and appraisal
The main objectives of this ESMF are twofold:

- Develop the necessary protocol for assessing potential environmental impacts prior to and during subproject implementation; and
- Incorporate a system for monitoring environmental and social impacts, protect against involuntary resettlement.

2. Policy Legal and Administrative Framework

National Environmental Policies, Laws and Regulation

The PA since its establishment in 1994 has worked to improve the Palestinian environment and strive towards sustainable development. Laws and legislations were also developed and endorsed to organize and manage the various sectors such as environment, water, wastewater, land use planning, etc. In this direction, the Palestinian constitution stressed the value that the environment is a basic human right and approved the following laws and regulations.

2.1.1 The Palestinian Environmental Law (PEL)

The PEL No. 7 of 1999 has the following objectives:

- To protect the environment from all sorts and types of pollution;
- To protect public health and social welfare;
- To incorporate environmental resources protection in all social and economic development plans and promote sustainable development to protect the rights of future generations;
- To conserve ecologically sensitive areas, protecting biodiversity, and to rehabilitate environmentally damaged areas;

- To promote the collection and publication of environmental information and to raise public awareness of environmental issues.

Articles 12 and 13 of the PEL provide for the disposal of hazardous materials, such as solar panels and storage batteries, only under the umbrella of the Ministry's approval, in coordination with the specialized agencies. Furthermore, a special license is required from the Ministry to import hazardous materials, these could be contained in solar panels and batteries. Article 45 empowers the Environmental Quality Authority (EQA) to set standards for environmental impact assessment studies and to prepare the relevant rules and procedures for such studies.

The PEL further requires the EQA to cooperate with the competent authorities to follow up on the implementation of decisions that are issued concerning the environmental impact. The EQA is also required to monitor compliance with approved specifications, standards and instructions for the protection of environment and vital resources. The law further empowers EQA inspectors and other appointed inspectors to record the environmental violations and crimes that may take place and violate this law. The EQA inspectors shall also have, in cooperation with the competent departments and authorities, right of entry into the installations for the purpose of: inspecting them, taking samples, carrying out measurements, and ascertaining the application of the standards and conditions of the environment protection and prevention of pollution.

The Ministry is also empowered to stop, for a period not exceeding two weeks, any project works that could constitute a serious hazard to the environment. The stoppage can only be extended by a judicial order from the competent court.

2.1.2 The Palestinian Environmental Assessment Policy

The Palestinian Environmental Assessment Policy (PEAP), approved through resolution No: 27-23/4/2000 has the following goals:

- Ensuring that development activities improve the standard of life, without negatively affecting the social, cultural and historical values of people;
- Preserving and sustaining the natural environment;
- Conserving biodiversity, landscapes and the sustainable use of natural resources;
- Avoiding irreversible environmental damage and minimizing reversible environmental damage from development activities.

The Environmental Quality Authority applies the following PEAP-defined screening process based on the requirements of relevant land use plans, to determine whether an Initial Environmental Assessment (IEA) Report or an Environmental Impact Assessment (EIA) Report is required. The screening process determines whether the project is likely to:

- Use a natural resource in a way that pre-empts other uses of that resource;
- Displace people or communities;
- Locate them in or near environmentally sensitive areas such as natural reserves, wetlands, or registered archeological and cultural sites;
- Generate unacceptable levels of environmental impact;
- Create a state of public concern; or
- Require further, related development activities that may cause significant environmental impacts.

The IEE is for projects where significant environmental impacts are uncertain, or where compliance with environmental regulations must be ensured. An EIA is required for projects, which are likely to have significant environmental impacts. An IEE may determine whether to carry out an EIA.

2.1.3 Public Health Law

The two documents comprising the legal framework of PNA health care are the 2003 Palestinian Constitution and the 2004 Public Health Law. The Public Health Law requires the MoH to offer certain types of health services to Palestinians including: ensuring water, environmental safety, and public health infrastructure.

2.1.4 Laws and Regulations related to Resettlement, Land Expropriation and Involuntary Resettlement

According to Law No.24 of year 1943 modified by Law No. 2 of year 1953 on “Land Expropriation for Public Projects” and its articles (3) and (21), the Government can expropriate up to 25% of any privately-owned land for public interest reasons - without compensating the owners. Exceptions are made to owners who prove to be largely damaged by this land expropriation. However, owners are entitled to compensation for all crops and trees, buildings and fixed structures on the expropriated 25% area of the land.

In case the Government needs the whole plot of land, negotiations are made to reach an agreement with owners. However, in case of pressing time demands to expropriate land to a specific project serving public interest, the Government is entitled to seize the

land immediately and then to initiate compensation negotiations with owners/users (Law 2/1953, Article (12)).

World Bank Environmental and Social Framework/ESSs

The World Bank Environmental and Social Framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. There are ten Environmental and social standards (ESS's), these are

I. ESS1: Assessment and Management of Environmental and Social Risks and Impacts.
II. ESS2: Labor and Working Conditions.
III. ESS3: Resource Efficiency and Pollution Prevention and Management.
IV. ESS4: Community Health and Safety.
V. ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement.
VI. ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.
VII. ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.
VIII. ESS8: Cultural Heritage.
IX. ESS9: Financial Intermediaries.
X. ESS10: Stakeholder Engagement and Information Disclosure.

For full list and details of World Bank environmental and social standards can be found in the following link:
(http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf).

A comparison between the Environmental and Social standards of the World Bank and the Palestinian National Laws is shown in Annex 1.

The Palestine National laws provide less comprehensive requirements and guidance on the environmental and social aspects than the World Bank's environmental and social standards. Thus, the Bank's Environmental and Social standards (EESs) will apply to the project in order to ensure the environmental and social soundness of the projects, in addition to integrating the project's environmental and social aspects into the decision-making process.

3. Project Components and Major Subproject Activities

Projects Components

The project comprises of the following four (4) components.

3.1.1 Component 1: Improving infrastructure for regional electricity interconnections in West Bank & Gaza.

The activities under this component will be led by PENRA in coordination with PETL and focus on transmission and interconnection infrastructure.

Subcomponent 1.1: Rehabilitation of PETL-IEC connection points

The rehabilitation of 170+ (PETL-IEC) connection points based on 4 categories according to the Voltage level and source of medium voltage lines. The low voltage connection points will be upgraded to Medium Voltage. The scope will include the supply of outdoor disconnector switches, Auto re-closure and Metering Panel. In some cases, the metering room will be rehabilitated or will be newly built. PETL is expected to execute part of the work by their own technical staff and by a contractor.
This component includes also the rehabilitation of Tarqumia Substation and the Design and Build of MV lines and infrastructure works between Jericho and Ramallah to evacuate imported energy from Jordan and & between Tubas and Nablus to reduce the shortage of electricity in Nablus..

Due to the previously mentioned situation of these connection points, there is about 18% of additional costs resulting from technical losses. The lists of connection points to be rehabilitated are divided into 4 categories based on order of magnitude of the required interventions. These categories can be listed as below:

- Category 1: MV connection point that is supplied directly from PETL substation.
- Category 2: LV connection Point will be upgraded to MV connection point that is supplied directly from PETL substation. An outdoor Disconnector Switch (Isolator), Autorecloser and Metering Panel (current & Voltage Transformers and Energy Meters) are needed for this point.
- Category 3: MV connection point that is supplied through PETL from IEC Network.
- Category 4: LV connection Point will be upgraded to MV connection point and is supplied through PETL from IEC Network. Needs outdoor Disconnector Switch and building contain (IEC metering room, PETL metering room and customer Switchgear room) as per IEC requirements and outdoor Disconnector

Switch & Autorecloser. Figures 1 and 2 show illustration of the categories 1-4.

Figure 1: Illustration of the Categories 1-2

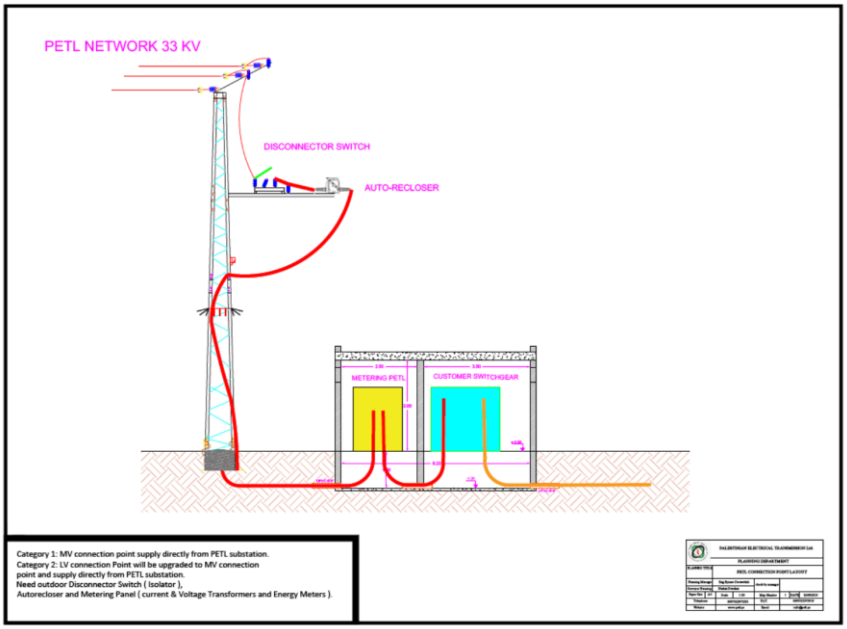
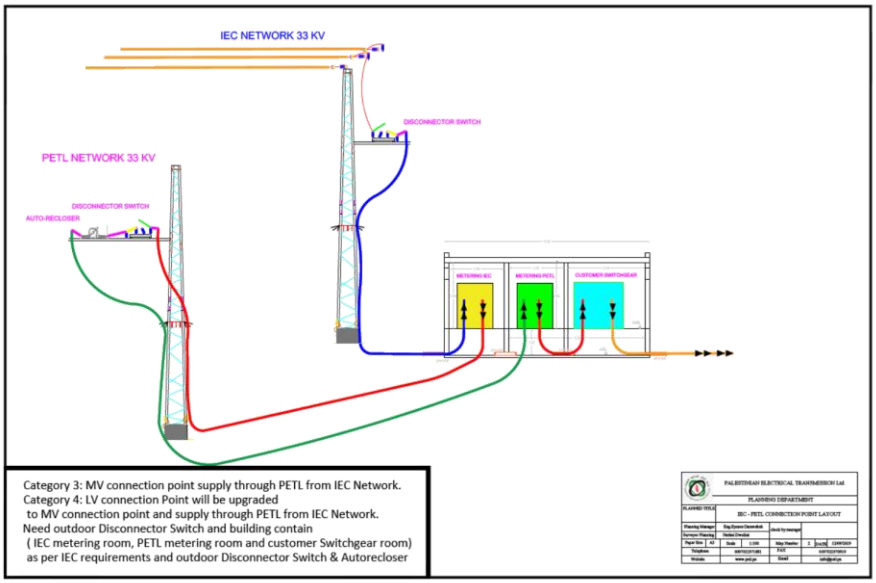


Figure 1: Illustration of the Categories 3-4



Subcomponent 1.2: Upgrade of Medium voltage lines in Nablus, Jenin & Hebron and Gaza to enable additional electricity supply

The distribution companies covering the mentioned areas are NEDCO, TEDCO, SELCO, HEPCO & GEDCO. The main source of electricity is supplied by IEC via distributed connection points (50+) comprehensive of medium and low voltage connections. The 5 distribution companies are facing shortage in the supply which is reflected in rationed schedules for end users. Diesel generators are used to cover the shortages with high operation costs partially subsidized by the Palestinian Authority. The scope of this subcomponent is to cover the urgent imminent needs of the distribution companies in order to face the shortage of electricity supply. Based on a first screening the possible interventions are:

- Replacement of overhead lines with underground cable in residential areas.
- Installation of voltage regulations on connection points with unstable voltages.
- Increment imports by upgrading some low voltage connection points to medium voltage and merge of small grids into one.
- Replacement of medium voltage lines with bigger sections for higher capacity
- Replacement of transformers having higher capacities

However, up to now only an installation of an overhead lines (MV overhead line) will be implemented.

The proposed line are being designed based on the needs of NEDCO and TEDCO. The companies have first proposed that the line should pass alongside the road that connects Sirees village with Yasid village, however inspection of the road revealed that its poor infrastructure is unfit for the project. The companies have later proposed to extend the transmission line alongside al- Faria- Yasid road. However, the RoW for the road is six meters with a proposed plan to expand it to 20 meters wide which has not been approved yet. TEDCO's consultant who designed the transmission line provided the consultant with a tentative line path shown in Figure 3. As much as 33% of the area surrounding the transmission line is of medium agricultural value while the remaining area is of low agricultural value. The entire area is located in Area A of the West Bank which falls under the full administration of the Palestinian Authority. The land plots alongside the transmission line are mainly owned by al- Mashaqi and al-Dhaher clans from Yasid village.

The images below show the land plots alongside the proposed transmission line with a list of their owners

Figure 2: The proposed Transmission Line.

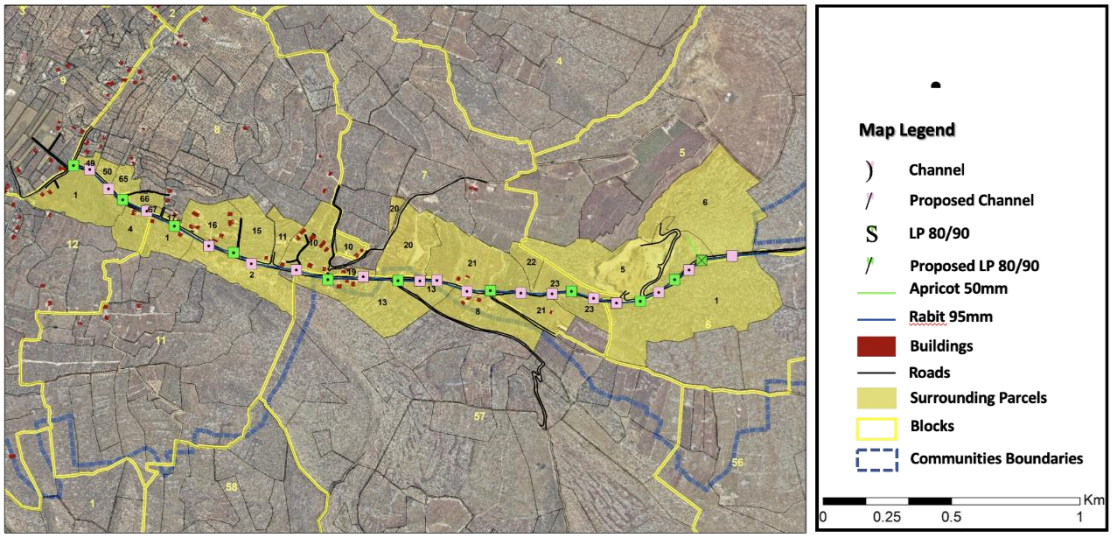


Figure 3: Land Plots alongside the Proposed Transmission Line

Yasid village is located 15 kilometers northeast of Nablus. According to the Palestinian Central Bureau of Statistics (PCBS), the town had a population of 2,580 in mid- year 2019. The population is expected to reach 2,681 inhabitants in mid-year 2021. The

public consultation session with the village residents and members of the village council revealed that it lacks a number of essential services and infrastructure projects that include but not limited to education and health care services.

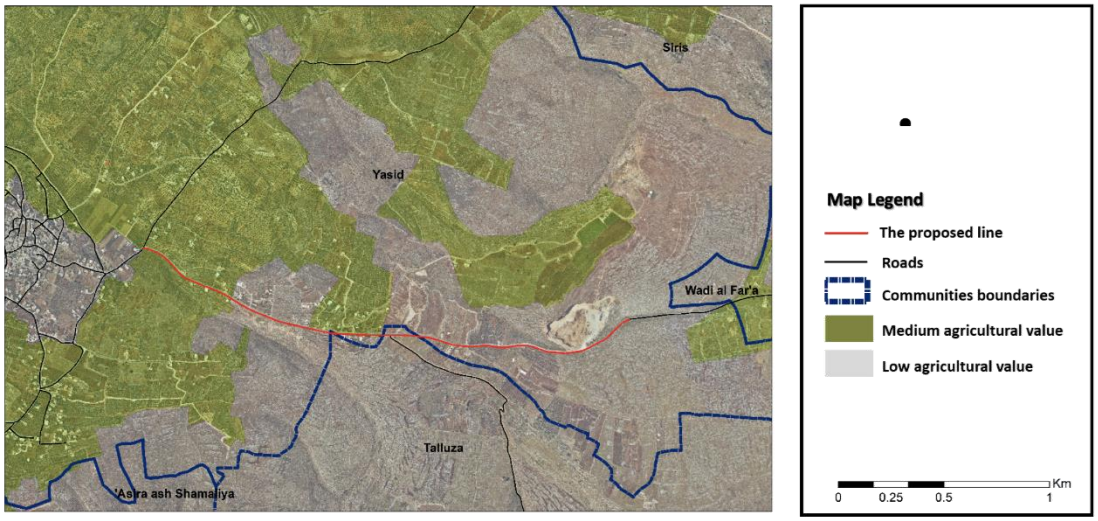


Figure 4: Yasid Village

Subcomponent 1.3: Rehabilitation of Tarqumia substation

Tarqumia substation is one of four 161/33 electrical substations under PENRA-IEC Turnkey Contract. Having these stations under PETL authority will help PETL to start operating properly. Where it can provide the Palestinian localities with adequate, high-quality, and reasonable-cost electricity. Since the Long Term Commercial Agreement between PENRA and IEC is not signed yet, this sub-station still under IEC responsibility under the Contract's conditions. However, when IEC employees are not on site, the security of this sub-station will be under PENRA's responsibility. Unfortunately, the substation had been subjected this year to a vandalism act by unknown. As the LTCA is about to be closed, the need to cover the resulted damages from the aforementioned vandalism act is an urgent necessity. Noteworthy, the southern region of the West Bank is suffering from electricity shortage due to the old transmission lines by IEC and inability to increase the capacity supplied by IEC due to their old and weak infrastructure, not to mention their incapability to supply more capacity of 33 kV. This had caused lack of electricity along with the increase of the needed electricity by the Palestinian communities.

PETL is currently gathering the full set of information including the exact intervention that is required to be performed by IEC who has performed the original scope. The

Tarqumia substation is only for replacement of equipment inside the premises, with no other works required. The rehabilitation will have to be done by IEC. (**No additional E&S requirement as it is assumed that requirements are already granted by original construction).**

Subcomponent 1.4: Design and Build of MV line and infrastructure between Jericho and Ramallah

The "Jericho-Ramallah medium voltage single circuit overhead line" is the subcomponent 1.4 of the ASPIRE project, which is aimed to strengthen the electricity network infrastructure in key areas of the West Bank. The 33kV overhead line (OHL) is planned to deliver 80 MW of electric power from Jericho city to Ramallah district and neighboring areas in the West Bank. As per agreement reached between Palestine Authority and Government of Jordan, the Governorate of Jericho situated in the north eastern part of the West Bank, will be able to import additional electricity of around 80 MW from Jordan. The capacity of the existing interconnection with Jordan is 20 MW provided through medium voltage underground cables. The plan is to enhance the capacity by laying and installing additional medium voltage underground cables between Jordan and Jericho. The project (i.e. subcomponent 1.4) will be implemented on a design-build contract arrangement, which will enable the completion of the sub-component in an expeditious manner together with the assumption of contract responsibility by a single partner. Given that the proposed right of way (ROW) is under review of civil administration authorities of Israel (COGAT), the ROW remains un-finalized, therefore it has been agreed to undertake a preliminary ESIA for this subcomponent. This preliminary ESIA will be finalized into a full scale ESIA once the ROW has been agreed by COGAT.

The proposed OHL is located primarily in Jericho Governorate, and secondarily in Ramallah and Al Bireh Governorate. The project area starts at Nuwaimeh northwest of the Jericho city and ends at Al Taybeh east of Ramallah and Al Bireh cities. The communities that would be served by the proposed project include Al Taybeh, Ramun, Deir Jarir, and Ramallah and Al-Bireh cities. The project area is located in the eastern part of Ramallah and Al Bireh Governorate and in Jericho Governorate in the eastern slopes. The topography of the project area shows continuous decrease in the elevation from about 630 meter above sea level in the West to 120 meter below sea level in the East.

3.1.2 Component 2: Improving Sustainability of Service Delivery (Operational performance of Palestinian Electricity Distribution Companies) DISCOs

The activities under this component will be led by PENRA and each of the six DISCOs in West Bank and Gaza. The sub-component related to health facilities will be implemented by PENRA in coordination with the Ministry of Health.

Subcomponent 2.1: Revenue Protection Program (Phase 2) in West Bank
Subcomponent 2.2: Revenue Protection Program (stage 2) in Gaza

The activities under these 2 sub-components will be led by PENRA and the respective DISCOs in West Bank and Gaza. This component aims toward sustained improvement of operational performance of the DISCOs. The RPP includes smart meters to improve billing and collection for the high-value segment of consumers, which represent the largest electricity consumption and sales. Under ESPIP, RPP stage 1 is covering the top 15,000 customers responsible for 23 percent of the total electricity consumption across the six DISCOs. Under ASPIRE Phase 1, RPP stage 2 will be implemented that will expand the target to 30 percent of largest consumption. This may include a focus on public sector customers. This phase will also identify solutions to (i) address poorer communities, which form the bottom 30 percent of consumption with wide-spread non-payment, (ii) reduce non-technical losses (theft and undocumented customers) and; (ii) improve payments and encourage conservation among public sector customers, which are expected to be implemented in future phases.

3.1.3 Component 3: Enabling Private Sector Engagement in Renewable Energy

The activities under this component will be led by PENRA, in coordination with the DISCOs, relevant line ministries and local commercial banks.

Subcomponent 3.1: Grid reinforcement and upgrade to enable evacuation of utility-scale and small-scale RE in West Bank and Gaza

(i) Utility-scale Solar: PENRA, with support of the international community and the private sector, has been actively promoting utility-scale solar. PENRA/PETL are preparing a prioritization/selection criterion to identify the solar installations, which require immediate support.

Bani Naim Future 30 MW PV plant requires the construction of 4 outgoing 33 kV feeders. The 4 determined routes are drafted and are waiting for approvals from the Israeli civil administration as some sections are crossing area C. This is out of scope of this study as it is not in phase 1.

(ii) Small-scale solar: In recent years, rooftop solar PV has seen an unprecedented boom in some parts of the West Bank. This has resulted in saturation in some areas within select DISCOs causing potential stability concerns, which requires the networks to be upgraded and secured. PENRA, in coordination with the DISCOs, is currently defining prioritization criteria for this activity.

Subcomponent 3.2: Scale-up Rooftop Solar PV systems for Health, MSMEs and Residential Sector

(i) Expansion of Revolving fund for Rooftop PV systems for small businesses (MSMEs) in West Bank & Gaza. This activity will expand the revolving fund that is currently operating in Gaza to also support small businesses in West Bank.
(ii) Pilot expansion of the Gaza solar revolving fund for Rooftop PV systems to poor and vulnerable households, in coordination with Ministry of Social Development.
(iii) Scale-up grant Support for Renewable Energy and Energy Efficiency in Health Facilities.

Component 3.3: Design and Pilot PETL Liquidity Support Account and Payment system
The project aims to design and develop a liquidity support account and payment system ('payment system') enabling PETL to support utility-scale solar PV projects, who are competitively procured in WB&G conditioned upon the ability of PENRA/PETL to establish this payment system within a pre-defined period. During this pilot phase, the payment system will be required to focus on competitively procured solar IPPs in West Bank and Gaza. This account can be designed to enable expansion for other IPPs in the future.

The PA provides ad hoc liquidity support to cover power sector cash shortfalls by allowing costly set-offs against the Net-Lending. Instead of IEC electricity bills being deducted by Israeli MOF from the Net Lending, which is PA's largest source of income, PA seeks to proactively pay PETL/DISCOs, which can then settle IEC's bills directly, in a timely manner. This is crucial to reduce, and ultimately stop, the continued accrual of debt.

3.1.4 Component 4: Technical Assistance, Capacity Building and Project Management

The technical assistance will enable PENRA to organize workshops, support feasibility studies and ensure adequate dialogue and knowledge-sharing within the sector and in

coordination with other line ministries. This component will also support project Management including M&E activities.

Pilot improved battery recycling in Gaza

Currently, Gaza strip is estimated to have half a million batteries, of various types (primarily, lead-acid and gel), 6 in circulation. Given the excellent solar potential, solar PV market is active in Gaza and continues to grow. As the Israeli border controls forbid the transport of batteries from Gaza to any external location, the management of this battery waste is an urgent environment and public health concern. Gaza strip has approximately 15 small factories (workshops) that recycle batteries. However, they also face import restrictions and typically utilize very basic processes, with no environmental quality or safety considerations. This activity will support 2-3 small factories (workshops) to upgrade and retool their operations.

Institutional and Implementation Arrangements

Palestinian Energy and Natural Recourses Authority (PENRA) is the Executing Agency for the implementing the ASPIRE Project through the existing Project Management Unit (PMU) within PENRA, which was established solely to implement the projects funded by the Word Bank. PENRA will be responsible for following up the implementation of the environmental and social considerations stated in the Environmental and Social Management Framework (ESMF), Preliminary Environmental and Social Impact Assessment (PESIA), Resettlement Framework (RF) and Resettlement Action Plan (RAP), and Stakeholder Engagement Plan (SEP). Other involved parties include; Palestinian Electricity Transmission Ltd. Company (PETL); Distribution Companies (DISCOs), namely Northern Electricity Distribution Company (NEDCO), Jerusalem Distribution Electricity Company (JDECO), Tubas District Electricity Company (TDECO), Hebron Electricity Distribution Company (HEPCO), South Distribution Company (SELCO) who will have an active role during the implementation, and the contractors for the main scope of supply and installation. PETL, created as 'single buyer and transmission system operator', is the first national government Company overseeing the construction and operation of the national system and represents the only authority to purchase electricity and transfer it to the Palestinian market. DISCOs are responsible for distribution of Palestinian's electricity and balancing electricity supply and demand in the different geographical areas in the West Bank and Gaza. PETL is also responsible for developing and improving electricity transmission at regional level by reconstructing and maintaining existing transmission lines and constructing new lines.

Based on the size of the contract and required qualification to carry out design and construction activities of the subproject, PENRA will implement and execute subprojects mainly through awarding contracts through competitive bidding process which will select contractor(s) for Supply, Installation and Commissioning of the medium voltage lines, the connection points, and solar systems and meters. Portion of the installation might also be executed by PETL and the DISCO's Technical Staff from their own budget or through internal bidding procedures. PENRA will implement and execute subprojects either through the technical departments in PETL and DISCOs or through bidding procedures, which will select contractor(s) for Supply, Installation and Commissioning.

An Environmental and Social Officer (ESO) will be hired at the PMU at PENRA within three months after appraisal and no later than by Project effectiveness to follow up the implementation and monitoring of environmental and social measures of the Project in compliance with the ESSs in coordination with the nominated personnel at PETL, the DISCOs and the contractors. He/She will be updating the drafted documents as soon as the components will be more specifically determined. Given the importance of the ESO role in revising documents it is critical that the person is mobilized as soon as possible.

Applicability of the World Banks ESSs on the proposed project.

Until the preparation of this ESMF, the exact locations of subprojects are still not determined. Hence screening and scoping of the project's subcomponents environmental and social impact were determined by a collaborative approach from a wide cross section of stakeholders and from the authorities of PENRA, PETL, service ministries, municipalities, electrical distribution companies (DISCOs), IEC, users, and others.

This was supported by physical site visits to Yasid and Bani Naeem. In addition GIS photos (Figures 6 and 7) were taken from TEDCO that shows the proposed transmission line path in Yasid.

World Bank standards require that the proposed project screens early for potential negative impacts and selects appropriate instruments to assess, minimize and mitigate potentially adverse impacts. It further requires early consultations with the affected groups and relevant stakeholders. All these standards were investigated below.

ESS1 Assessment and Management of Environmental and Social Risks and Impacts

Analysis and assessment of the environmental and social risks and risk classification for each subproject will be carried out. Quantitative/qualitative analysis is carried out as much as possible to identify all project impacts, including direct and indirect, short-term and long-term, cumulative, reversible and irreversible, for the construction and operation phases of the project. Set of mitigation, monitoring, and institutional measures to be taken during the implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable levels is prepared. Hence, a generic environmental and social management plan (ESMP) is prepared for each subproject which includes the measures and actions needed to implement these measures. PENRA will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

ESS2 Labor and Working Conditions

Each project subcomponent is expected to employ a different number of labor workers during peak construction and during operation. The labor workers will be contracted through project contractor, Portion of the installation might also be executed by PETL and the DISCO's Technical Staff from their own budget or through internal bidding procedures. Labor management procedure (LMP) is prepared to set out the Project's approach to meeting national requirements as well as the objectives of the Bank's ESF concerning labor and working conditions. It is more practical to hire labors from the target area.

***Human Resources Policies and Procedures*:** Existing human resources policies and procedures used in previous projects constructed and managed by PENRA and PETL are in line with the Palestinian Labor law. For this purpose, working management procedure is prepared.

A training plan will also be put in place for employees and contractors. Induction training on the HR policy and procedures and basic safety awareness training will be provided to all newly hired workers. Other types of technical skills training will be identified for staff on an as-need basis. This includes training of technicians and laborers on how to install, operate and maintain a PV solar plant and electrical transmission lines.

***Working Conditions and Terms of Employment*:** The project's HR policies and procedures will specify the terms of employment (wages and benefits, hours of work, overtime arrangements and overtime compensation, annual and sick leave, vacation and holiday, health insurance and end of service benefits) and will also include provisions

on restrictions to child labor and prevention of forced labor as well as commitment to non-discrimination and equal opportunities for employees and contractors and will be shared with all new hires. Nondiscrimination and equal opportunity will be adopted for all workers.

***Grievance Mechanism*:** A workers' grievance mechanism will be developed and made available to all workers including contractors and sub-contractors. The grievance mechanism will among others clearly define the response timeframes to grievances and incorporate a grievance log as part of the grievance redress mechanism process.

***Occupational Health and Safety*:** Key Occupational Health and Safety (OHS) risks for all project's subcomponents include slips and falls, potential hazards from on-site moving machinery, heavy load lifting, exposure to electric shocks and burns, exposure to high voltage lines, and safety issues related to PV module assembly. In addition to weather condition such as the relatively hot project location, construction workers might be at risk of dehydration, heat exhaustion and heat stroke if not properly hydrated.
Prior to the start of construction activities, PENRA will ensure that Occupational Health and Safety procedures do exist and will cover the following issues: hazard identification and assessment; construction site safety (barricades, safety nets, access control, clear demarcation of areas and provision of safety information to visitors); specific procedures for hazardous works; workers' safety and training plan; personal protective equipment needs; site supervision and audit procedures; incident intervention measures and reporting. The procedure will be designed to be specific to different project components including electrical transmission line connections, PV installation and battery recycling factories. OHS procedures will be revised and updated for operations where the risk is reduced.

ESS3 Resource Efficiency and Pollution Prevention and Management:

***Resource Efficiency*:** Resource consumption on all project's components is expected to be minimal, with the main resource utilized during construction being water for dust suppression, concrete production, and domestic usage. During operations, the main water use will be cleaning the PV modules and domestic usage.

***Water Consumption*:** Considering the aforementioned described components that include photovoltaic system installation including roof top systems and photovoltaic system plants, the estimated water consumption for the estimated photovoltaic system capacity during the construction phase varies from component to component, for the PV panel construction component, it is not expected to be more than 20 m^3/day. This

includes water for drinking, site activities and civil activities (concrete production, equipment cleaning, and dust suppression). During operations, water consumption is estimated to be 100 m^3/year for modules cleaning and 100 m^3/year for general sanitarian use for the project. Wet cleaning technology will be used to ensure that dust and other particles accumulated on the panels do not compromise the efficiency of the PV facility and the cleaning cycle is estimated to be 12 cleanings every year. A water management plan will be developed for the project which will include provision of the required water quantity and reporting of water use and sanitation. This will be implemented by PENRA.

***Greenhouse Gases*:** Greenhouse gas emissions from the project during construction are expected to be predominantly associated with the use of fuels such as in generators, transport, on-site equipment, and machinery. Although the emissions have not been calculated. For the PV construction components then this is expected to be low and significantly less than 800 tons CO_2 per year. These estimations are done considering the estimated size of photovoltaic system installation based on project components that have been described before.

***Wastes*:** Solid waste generated during construction mainly consists of municipal and construction wastes that will be collected by local Joint Service Council to be disposed of in an authorized landfill. The overall volumes of both solid and hazardous waste generated by the project during construction are expected to be low. It is anticipated that solid waste will comprise of paper, wood, plastic, scrap metals, and glass. Hazardous waste will be likely to comprise of fuel, oils, lubricants, hydraulic/insulating fluids and batteries, tires, metal drums and empty chemical containers. Scrap metals, plastic, batteries, metal drums, old meters and glass waste will be rewarded to small factories that recycle them. Waste management plan should be prepared by DISCO's and implemented for safe management of these waste. Wood wastes will be given to factories that re-shape them and make them usable for fireplaces for residential purposes. A limited number of waste PV modules are expected to require disposal during the construction phase. During operations, waste generated will be largely limited to domestic waste, and waste generated from maintenance. These waste streams will be segregated as per the Waste Management Plan to be developed for construction. Waste management procedures will be revised to be aligned with the Palestinian National solid waste management strategy. When the plant is decommissioned, the priority option of disposal of the PV panels will be according to EQA hazardous waste management regulations that meet Basel convention requirements.

***Wastewater Treatment*:** During construction phase, wastewater from sanitary facilities will be stored in suitable septic tanks and transported off-site. PENRA and the contractor will have the overall responsibility for management and assignment of proper firms for the management, collection and disposal contracts for sewage and other wastewater from sites.

***Pollution Prevention*:** During project construction, power needs will be met via 100 kilo-volt- ampere (KVA) diesel generators. These will locally impact air quality and require fuel management and containment. These impacts, however, will be short in duration (maximum 6 months) and vary from component to component. During operations, electricity will be back-fed from the grid. Plans and procedures that manage pollution related aspects of the project's component will be in line with the requirements of relevant national regulations. Aspects should cover air quality/ dust, spills, occupational noise, among others.

ESS4 Community Health and Safety:

The safety of communities will be examined. The prepared ESMPs aim at minimizing the risks during construction phases. Wherever a construction activity requires route detours, safety measures for nearby communities, and road users from traffic then construction activities will be put in place in accordance with acceptable norms and as per the World Bank's EHS guidelines and enforced. It is essentaial that communities are not exposed to hazardous materials during construction phase. There is a need to ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities. The design will also consider the health and safety of the communities close to the line after project implementation.

ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement:

Some of the project's components may require land acquisition and restrictions on land use which can have adverse impacts on communities and people. Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land or loss of shelter), economic displacement (loss of land, assets or access to assets, leading to loss of income sources or other means of livelihood) or both. Therefore, Resettlement Framework (RF) is prepared.

Once the design is complete and impacts on the known site is identified, specific resettlement action plans RAPs, if the number of affected are less than 200 per each subproject, will be prepared by the ESO based on the RF. There are number of Bedouin communities, who are considered vulnerable, along the Jericho line. ESIA for that line

will document their numbers and exact locations and if they will be affected they will be included in the site specific RAPs with special consideration to ensure their full participation throughout the process. Specific measure that considered their situation to ensure they will not be negatively impacted will be carried out. Hence an RAP is prepared for Jericho line in a separate document.

ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources:

Investigation of the relevance of ESS6 to the project activities indicates little relevance. Even though, site-specific environmental impact assessment will be carried out to assess the impacts on natural resources once exact locations of project's componets are available.

ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities:

A provision of this standard does not apply to the proposed project's components since there are no indigenous communities in the area. The vulnerable communities such as refugees and Bedouins, if any will be affected are covered under ESS4, ESS5 and ESS10 and PENRA will ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource based livelihoods and the tradition of local communities.

ESS8 Cultural Heritage: No cultural heritage components are expected, moreover, there are no registered archeological sites within or in close proximity to the proposed project location. This will be confirmed by the site specific safeguard instruments and chance-fined procedures will apply to all construction works that will comprise evacuation, demolition or land movement.

ESS9 Financial Intermediaries

There are no actions under the Project related to Financial Intermediaries, therefore there are no mitigation measures to be undertaken under ESS9.

ESS10 Stakeholder Engagement and Information Disclosure:

Stakeholders Identification and Consultation:

Project stakeholders of this project were identified as direct and indirect.

Direct stakeholders of the project are:

- Palestinian National Authority with its Ministries and institutions, mainly

PENRA, MoLG, MoNE, MoH, EQA, where all these governmental institutions are involved in the planning, licensure, permits issuance and later on the monitoring of all power plants and associated companies. Ministry of Labor also manages and advocates the labor rights and follows on grievances and injuries of labor.

- Palestinian Electricity Regulatory Council (PERC), being an independent governmental council with a main task to license electricity service providers, and to monitor the performance of electricity sources and service providers.
- Palestine Electricity Transmission Ltd. (PETL), a governmental Co. for transmitting electricity in Palestine from sources to service providers, and acts here as client of this project.
- Municipalities of Bani Naim, Saeer an Shyoukh for licensing and monitoring the construction works of the project, and the provision of basic services; water, wastewater and solid waste, in addition to management of claims concerning the project activities during construction and operation phases.

Beneficiaries are:

Considering project's components and the type of prescribed activities, the beneficiaries of project can be classified as direct and indirect beneficiaries. Direct beneficiaries are defined as entities that will be directly benefited from the project as Tubas Electricity Distribution company, North electricity distribution company, Jerusalem Electricity district electricity company, Hebron electricity distribution company, south electricity distribution company and almost 170 local councils and residents of the municipalities that are located in Palestinian villages and municipalities including municipality of Qalqilia, Sarra, Jeet, Awarta, Jeet, Fandoqomiya, Yaseed villages council an, Municipalities of Ramallah, Jericho, Bani Naeem, Bedouin communities who live near the road between Ramallah and Jericho (Muarrajat).

Direct beneficiaries can be also end users who will be the consumers after installing photovoltaic systems at their proprieties rooftops. In the meanwhile, , MSMEs, Palestine electricity transmission Line Company and PENRA are considered indirect beneficiaries of the project. Moreover, ministry of health, local investors in the field of renewable energy and industry will be indirectly benefited from the project as the project will support the power grid and enlarge its capacity which will therefore, boost the investment in renewable energy and industry in general.

Indirect stakeholders are:

In general there are a number of stakeholders of this project depending on project components. A summary of stakeholders that are related to this project is listed below based on project's components and subcomponents:

A separate stakeholder engagement plan is prepared for each subprojects as was done for Sarra, Alfondoqomia, Qalqelia, Awarta, Yasid, and Al-Muarajat and provided as a separated file. The different activities and the results of the public consultation and stakeholder engagement are discussed in section 9, below.

Information Disclosure

The PENRA will disclose on its website (http://www.penra.pna.ps), project information and all key documentation, including this Environmental and Social Management Framework, to allow stakeholders to understand the risks and impacts of the project, and potential opportunities. The information will be disclosed in relevant local languages and in a manner that is accessible and culturally appropriate, taking into account any specific needs of groups that may be differentially or disproportionately affected by the project or groups of the population with specific information needs (such as, disability, literacy, gender, mobility, differences in language or accessibility).
The disclosure should include information on: (i) stakeholder engagement process, highlighting the ways in which stakeholders can participate; (ii) time and venue of any proposed public consultation meetings, and the process by which meetings will be notified, summarized, and reported and; (iii) the process and means by which grievances can be raised and will be addressed.

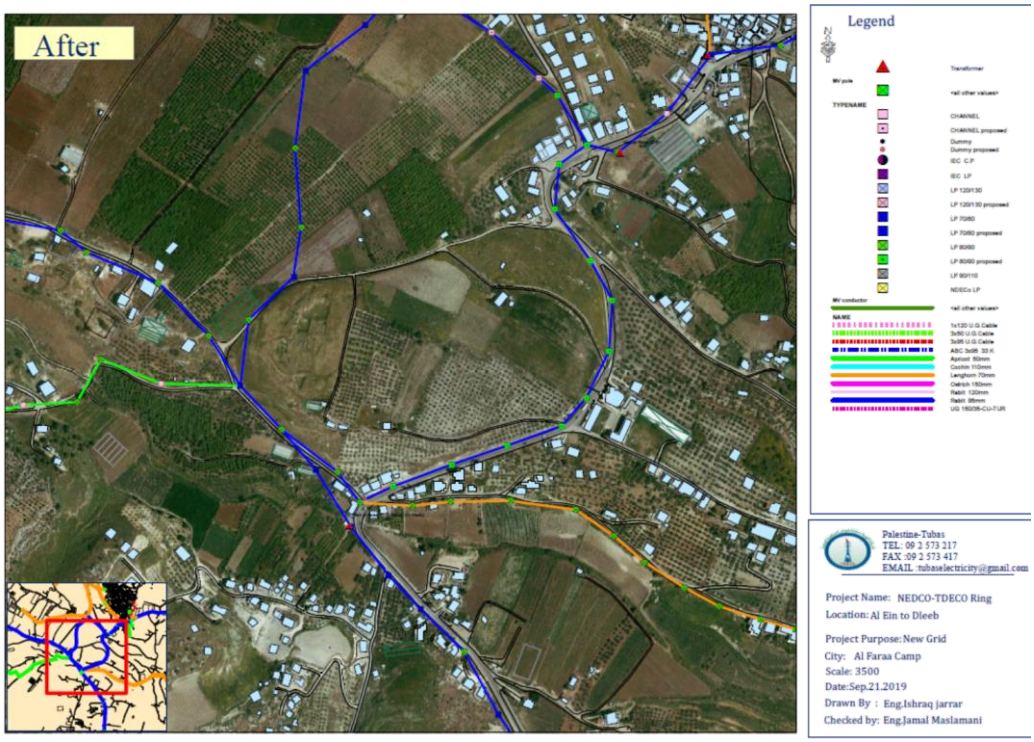


Figure 5: Part of Transmission Line in Yasid

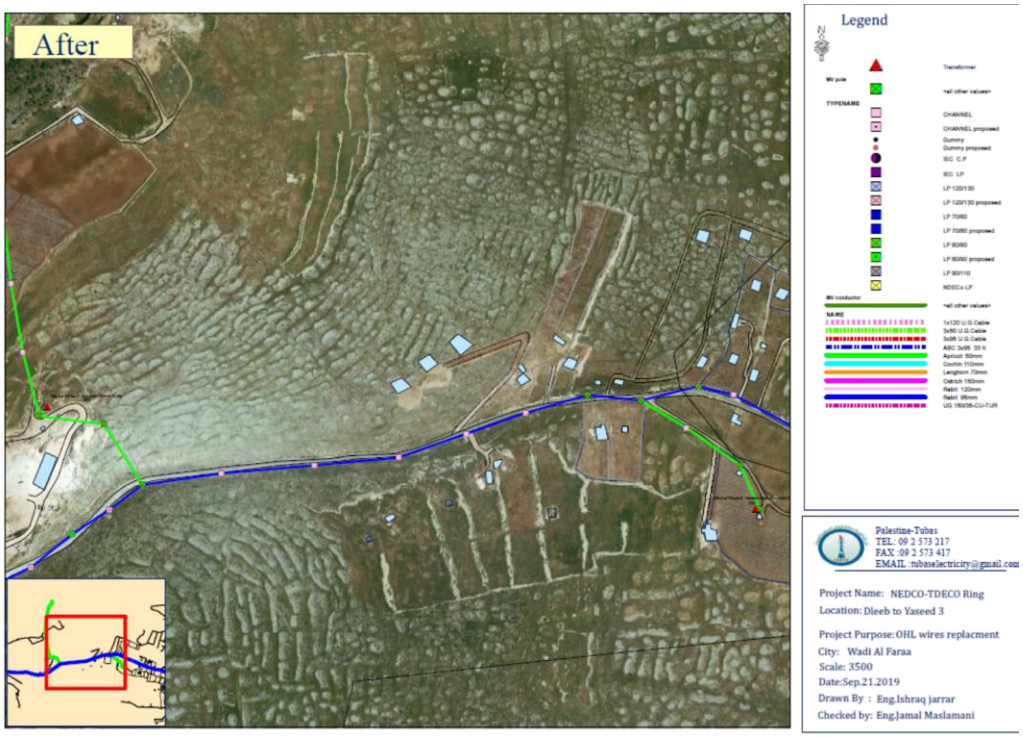


Figure 6: Part of the transmission Line in Yasid

4. Environmental and Social Risk and Impacts

Some project locations have been tentatively identified such as the Medium voltage line between Jericho and Ramallah and rehabilitation of PETL-IEC connection points. Locations for the other project interventions will be determined in the course of project implementation including the locations for upgrading the distribution networks, meters on the supply points from IEC, locations for installation of other equipment and meters, and locations for utility and roof tops solar system.

The project component and subprojects will be available in stages. Following is an indicative timeframe:

- Component 1 to be available around effectiveness (March/April 2020).
- Component 2 to be available by August 2020.
- Component 3 will be in many parts and stages, much of 3.1 will be known by effectiveness, some by end of 2020.
- For revolving fund, a new strategy will be known by effectiveness but locations will be known as beneficiaries are selected. For example in component 1.1, the locations of all the connection points are tentatively known but PENRA needs to prioritize and categorize, which is underway. The procurement packages will be split between supply only and supply & install. This will be finalized by project effectiveness.

All environmental and social parameters to be assessed for each component were prepared. In addition, a site visit was carried out to Yasid with NEDCO and TEDCO. Data collected helps the environmental and social experts of the study to apply the environmental and social impacts for each component of the project.

Environmental and Social Risk Classification of Subprojects

The Environmental and Social Risk classification are prepared for the subprojects envisaged under the project to ensure compliance with the World Bank ESF and environmental and social standards. The guidelines include parameters for environmental assessment, public consultations and measures to enhance project benefits to communities and women. Together, these guidelines provide the methods to identify the environmental and social impacts associated with the implementation of subprojects and include measures to mitigate such problems as well as enhance environmental and social performance. The environmental and social assessment of the subprojects is to:

- Define the specific environmental and social instruments;
- Identify potential environmental and social impacts;

- Determine appropriate environmental risk category, according to Bank's Environmental and Social standards (EESs);
- Review and approve subprojects; and
- Identify and mitigation and monitoring indicator measures.
- Stakeholder engagement framework, stakeholder engagement plan for site specific, labor management procedure, ESCP, and resettlement framework are prepared.

The Project is not likely to cause significant environmental impacts. The environmental risk is rated as substantial as some of the project activities will involve: (i) occupational health and safety (OHS) risks during construction and maintenance of transmission and distribution lines (Component 1), the occurrence OHS incidents has low probability (possible but not likely) and could be minimized through abiding to tailored OHS plans for each activity; (ii) risks associated with handling hazardous wastes, such as waste oil from transformers during maintenance (Component 1), and (iii) risks of handling hazardous substances and wastes during the upgrading of small-scale battery recycling factories to improve their operations as part of the TA (Component 4). The probability of contaminating disposal sites (as per points ii and iii above) is also low (possible but not likely) and could be minimized by employing adequate waste management procedures. Other environmental risks are mainly moderate and low including noise, dust and waste handling during construction (Components 1, 2 and 3) exposure to electromagnetic fields (EMF) (Component 1), possible risks to birds (Component 1), handling of wasted old electricity meters (Component 2), handling of waste batteries and solar panels (Component 3) and heat and sunlight reflection from solar panels (Component 3). It is worth noting that as an MPA this initial rating would help improve overall environmental and social risk management practices within PENRA, and, with close supervision by the team, the capacity of the clients for handling the environmental and social risks will be boosted.

Guidelines on Environmental and Social Risk Classifications

The applicability of ESS's to the subproject will results in recommending the appropriate needed environmental and social management documents/instruments such as ESIA, ESMP, SEP, and RAP in compliance with the Bank ESF and ESSs, these are more clarified in section 4.3. If the risk rating of a subproject increases to a higher risk rating, the Bank will require PENRA to apply relevant requirements of the ESSs in a manner agreed with the Bank. The measures and actions agreed will be included in the ESCP, and will be monitored by the Bank.

Below are more details of World Bank Environmental classifications of which the sub-projects will be classified accordingly are presented.

(a) High Risk classification: A proposed project is classified as of High Risk if it is likely to have significantly adverse environmental impacts. These impacts may affect an area broader than the sites or facilities subject to physical works. A full EIA is required. The EIA examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives, including a no-action i.e. no-project alternative and also incorporates public consultations as per the national EIA regulation requirements. The EIA will recommend needed measures to prevent, minimize, mitigate or compensate for adverse impacts and help improve environmental performance.

(b) Substantial Risk classification: A proposed project is classified as of Substantial Risk, if its potential adverse environmental impacts on human populations and environment are less adverse than those of High Risk Category. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed and implemented more readily than for high risk category projects.

(c) Moderate or low risk classification: A proposed project is classified as of moderate or Low Risk if it is likely to have minimal or no adverse environmental impacts. For projects with moderate impacts and limited scale/footprint, an ESMP will be required. Projects of low risks, simple mitigation measures in place such as checklist or no further environmental action are required for this classification.

Assessment of Environmental and Social Impacts

Based on the social and environmental baseline, the following likely environmental and social impacts and their risk classifications can be drawn:

4.1.1 Likely Environmental and Social Impacts of Subcomponent 1.1: Rehabilitation of PETL-IEC Connection points

The rehabilitation actions may include the upgrading, merging, and/or addition of new connection points. It will have substantial environmental impacts as the component is based on the rehabilitation of 170+ PETL-IEC connection points where the intervention

might require the reconstruction or building of new connection points on more appropriate locations. During construction and operation, working activities will have impact on the following environmental parameters.

Noise emissions: Construction and installation phase could generate increased noise and disturbance to the surrounding properties and neighbors. Allowed level in dB of the used equipment on operations will be according to vicinity to residential area.

Electromagnetic fields (EMF): During the operation phase, the public may be exposed to electric and electromagnetic fields.

Hazardous Chemicals: Any chemical used in the switchgear power such as SF6 is expected to represent a health threat for working personnel. In the event of exposure, it should be handled carefully to protect both workers and the environment. Hazardous chemicals such as PCB should be avoided by suitable means. Once the exact location of the subject is determined, the site-specific environmental and social instruments should assess the GHG emissions and its impacts.

Impacts on biodiversity: Generally, the rehabilitation of the connection points do not have adverse impacts on biodiversity. If the construction of a new connection point requires tree trimming or cutting, and it is determined that the tree is not a protected species, it might warrant cutting the tree. A mitigation measure for such issue is to plant replacement trees in an agreed upon site with the tree owner. When trees are removed they must be planted in same type of soil in order to ensure their continuous growth.

Cultural Heritage: Proposed intervention should not affect any buildings or places in the West Bank and Gaza that are deemed to have significant cultural values. However, in the course of project implementation a chance find may occur whereby historical and cultural property is inadvertently found. Chance Find Procedures clauses for avoiding potential impacts will be inserted into the civil works contracts to ensure that the necessary measures are in place during construction phase of subproject.

Occupational Health and Safety: This subproject is associated with considerable risks to occupational health and safety during construction and maintenance. Each contractor should present an OSH plan including risk assessment and mitigation measure.

Waste disposal: All waste generated from the project, before, during and after installation must be disposed of at designated disposal site in coordination with relevant Authority. Any hazardous materials must be disposed under the guidance of the EQA.

This component requires a Resettlement Framework (RF). In case of land is involved the possibly site specific resettlement action plan (RAP) is needed. Site specific RAPs if needed will be disclosed before the commencement of work with possible exception of livelihood initiatives. SEP will be updated to include site specific information and consultation. LMP is required for this subproject. The contractor will include particular provisions on occupational health and safety measures, child labor and work conditions including forced labor, following occupational health and safety guidelines. It should be dealt in accordance with the national laws and the ESSs.

Social impacts: The subproject includes small and medium-scale construction, involving possible land acquisition, and labor management risks as well as risks related to restriction of land use, and community health and safety.

Component 1.1 may require acquisition of small pieces of land for some of the new towers as for some of the connection points and sub stations. In some places private land could be needed for new towers. As a result, a Resettlement Framework (RF) is prepared that will be the basis for preparation of the sites specific RAPs in case land needs to be acquired for any of the activities under this subproject.

4.1.2 Likely environmental and social impacts of Subcomponent 1.2: Upgrade of Medium voltage lines in Nablus, Jenin & Hebron and Gaza to enable additional electricity supply

This subproject is associated with considerable risk associated to civil works, occupational health and safety, community health and safety, possible land acquisition and resettlement of residents. Therefore, this subcomponent is classified as substantial and will require full ESIA in addition to Resettlement Framework (RF), a Resettlement Action Plan (RAP), a stakeholder engagement plan (SEP), a labor management procedure (LMP) and occupational health and safety (OHS) guidelines. It should be dealt with in accordance with national laws and World Bank ESSs. This subproject is associated with similar impacts on the physical environment as described in the previous section.

4.1.3 Likely environmental and social impacts of Subcomponent 1.3: Rehabilitation of Tarqumia substation

PENRA and PETL will directly contract IEC to replace the stolen equipment to expedite energization. Specific distribution lines for upgrading are being jointly identified by PENRA and each DISCO. This would include: (a) installation of voltage regulation equipment; (b) replacement of medium voltage lines with higher capacity lines, including construction of connectors or replacement of overhead lines with underground cables and; (c) replacement of power transformers with higher capacities. The rehabilitation will have to be done by IEC. (No additional E&S requirement as it is assumed that requirements are already granted by original construction).

4.1.4 Likely Environmental and Social Impacts of Subcomponent 1.4: Medium Voltage Line between Jericho and Ramallah

This will include the installation of medium voltage between Jericho and Ramallah. The proposed overhead transmission line (OHTL) will mainly transverse through inhabited and hilly areas over a stretch of 14 km. The OHTL will be built on steel lattice towers, which are extensively used in the West Bank areas by IEC and DISCOs. The OHTL will be using ASCR (Aluminum Conductor Steel Reinforced) type of conductors, which are in common use by electricity companies in the West Bank and adjoining areas. The width of the ROW will be 5.5 meters, which means 2.75 meters each side from the central point of the transmission line. In addition, there is a need to carry out preconstruction activities and construction activities including excavation for towers, foundation of the towers, tower materials delivery, erection of towers and stringing between towers.

Project Components 1 is associated with considerable risks, including risks to occupational health and safety during construction and maintenance of transmission and distribution lines and risks associated with handling hazardous wastes, such as waste oil from transformers. Other environmental risks include, noise, dust and waste handling during construction, exposure to electromagnetic fields (EMF), and possible risks to birds.

There are a number of Bedouins communities that exist along the proposed 33 kV medium voltage line and the Israeli existing line. In general there are about 14 Bedouin communities, 11 of them are small communities represented by one or two families while two communities are large with about 50 families. These communities are living close to the road (about 100 – 150 meter). However, one of these communities are present at few tens of meters away from the Israeli and proposed Palestinian line. These people were interviewed regarding the proposed transmission line and showed different attitudes whereas the majority of them showed no objection to the project

as long as it does not affect their living and does not force them to resettle. Meanwhile, one community has shown an objection to the project even if it does not affect them following concerns of having many activities following this project that will force them to resettle. For the Bedouin communities, PENRA and prior to finalization of the ESIA needs to document their location, numbers, and livelihood means in case they will be affected. These communities should be meaningfully consulted. According to the RF prepared for the project as a stand-alone document, there will be no physical displacement so PENRA needs to make sure this will not happen.

The likely environmental and social impacts for this subproject is the same as for the previous subprojects. A preliminary ESIA has been prepared for this subproject in a separate document.

4.1.5 Likely environmental and social impacts of Subcomponent 2.1: Revenue Protection Program (Phase 2) in West Bank

4.1.6 Likely environmental and social impacts of Subcomponent 2.2: Revenue Protection Program (stage 2) in Gaza

A waste management plan needs to be developed for subcomponent 2.1 and 2.2 by each DISCO for the the different wastes that will be generated within their geographical areas. The plan will include management procedures for wasted electricity meters, solar panels, and bateries.

4.1.7 Likely environmental and social impacts of Subcomponent 3.1: Grid reinforcement and upgrade to enable evacuation of utility-scale and small-scale RE in West Bank and Gaza.

This subcomponent is mainly in Bani Naim- Hebron. Future 30 MW PV plant requires the construction of four 33 kV feeders, the routes and drafts are waiting for approvals from the Israeli civil administration since some sections cross area C.
The upgrade of the grid might require the construction of new lines consisting in underground and overhead power transmission lines. In some cases, the power transmission lines might cross residential areas and possibly private properties. The likely environmental and social impacts for his subproject is the same as for subcomponent 1.4.

As the permission from the IEC is still bending, therefore ESIA for this subcomponent will be postponed to phase 2 of the Project.

4.1.8 Likely environmental and social impacts of Subcomponent 3.2: Scale-up Rooftop Solar PV systems for Health, MSMEs and Residential Sector

This component aims to reduce the barrier for House holders and SMEs to entry for all income levels, including the poor, thereby creating a model that can be easily replicated and rapidly scaled up.
Activities include the installation of Photovoltaic modules, Hybrid inverters, and use of Lead Acid batteries, Cables, Protections, steel structures and other accessories.
The following are the likely environmental and social impacts of activities involved in this subcomponent.

Air emissions: GHG emissions, caused by fossil fuel sources used in the production, manufacturing, waste disposal and recycling are embodied in renewable technologies. These are however significantly lower than those emitted from the diesel generators currently used by the Palestinian authorities to generate electricity. GHG reduction will be evaluated once implementation is commissioned.

Noise Emissions: Construction and installation phases could generate increased noise and disturbance to surrounding properties and neighbors. However, the roof top solar panel installations will not emit noise during the operational phase.

Hazardous Chemicals: Hazardous chemicals such as boron and phosphorus are often used in the production of solar modules. However, these do not pose danger during the operational phase and only become dangerous during disposal, hence waste management plan is required.

Heat or Light Reflection: Neighboring properties could be affected by the reflection of sunlight from the panels, especially if angled towards neighboring windows, doors or balconies. Contractor should follow proper standards for installation. If this reflection is sustained for a prolonged period, it may become a source of grievance. PENRA should prepare PV installation guide for different types of buildings

Impacts on Biodiversity: Generally, roof top solar installations do not have adverse impacts on biodiversity. If adjoining properties have trees that could obstruct the use of solar panels in beneficiary buildings, and it is determined that the tree is not a protected species, it might warrant cutting the tree. A mitigation measure for such issues is to plant replacement trees in an agreed upon site with the tree owner.

For PV ground mounted systems removal of trees could be required in order to create open un-shaded area for PV panel installation. When trees are removed they must be planted in the same type of soil in order to ensure their continuous growth.

Cultural Heritage: Proposed solar systems should not affect any buildings or places in the West Bank and Gaza that are deemed to have significant cultural values. Care must be taken by the ESO at PMU to ensure that reflections off solar panels do not affect the historic setting of such cultural properties.

Employment: The installation of the domestic solar systems will help address the high youth unemployment in the area by providing temporary employment for technical and unskilled labor. Contractors will be bound, in contract documents, to hire at least 50% of their installation crews from within the Gaza area.

Economic Impact and livelihoods: The roof top solar installations will help to stabilize electricity supply to beneficiary households, while making use of an abundant raw material -sunlight. This could result in cost savings, improved standard of living, and increased household income. It could also contribute to increasing business operations and thus revitalize businesses that depend on electricity to function.

Social Conflicts: The likelihood for social conflicts is minimal, and manageable. Potential conflicts could arise from: fairness and equity in decision-making, the use of non-local manpower during project implementation (installation). To the extent possible, local manpower should be employed to deploy the installations. To this end, contract documents will require contractors to hire at least 50% of their installation crews from within the Gaza area. Poor maintenance by beneficiaries may lower intended impacts.

Health and Occupational Safety: Each contractor should present an OSH plan including risk assessment and mitigation measure. Contractors should sanction workers who refuse to comply with the OSH plan.

A Labor Management Procedure (LMP) is prepared for this project. Site specific LMPs will be disclosed before the commencement of work. The contract will include particular provisions on occupational health and safety measures, child labor and work conditions, following occupational health and safety guidelines.

Waste Disposal: All waste generated from the project, before, during and after installation must be disposed of at designated disposal site in agreement with the concerned Authority. The storage batteries are estimated for replacement every three years.

These hazardous materials must be disposed under the guidance of the EQA and concerned Authorities. Decommissioned solar panels have a significant negative impact on the environment due to the presence of heavy metals used in their manufacture. Thus they constitute hazardous waste and must also be disposed properly.

The environmental and social risk of this component is substantial due to potential risks from the hazardous wastes. Hence it is required to prepare an environmental management plan according to national laws and the Bank regulations and follow the installation standards.

4.1.9 Likely environmental and social impacts of Subcomponent 3.3: Design and Pilot PETL Liquidity Support Account and Payment system

No environmental and social measures are required.

4.1.10 Likely environmental and social impacts of component 4: Technical Assistance, Capacity Building and Project Management

The technical assistance will enable PENRA to organize workshops, support feasibility studies and ensure adequate dialogue and knowledge-sharing within the sector and in coordination with other line ministries. This component will also support project Management including environmental and social activities. To achieve an outstanding project management, there is a need to prepare an environmental and social commitment plan. This component includes also the following subcomponent:

Pilot improved battery recycling in Gaza: This subcomponent has potential ES risks, depending on the content of the activities.

Currently, Gaza strip is estimated to have half a million batteries, of various types (primarily, lead-acid and gel), in circulation. Given the excellent solar potential, solar PV market is active in Gaza and continues to grow. As the Israeli border controls forbid the transport of batteries from Gaza to any external location, management of this battery waste is an urgent environment and public health concern. There are no environmental quality and safety considerations in practice. Therefore, the likely environmental and social impacts of this are mainly affecting human health, labor workers' rights.
This subcomponent includes a Know-how transfer and tooling of 2-3 workshops. A generic ESMP related to the Battery recycling workshop is prepared

Noise emissions: Using trucks and vehicles to collect used batteries to the recycling facility and the noise resulted from the crushing machine at recycling site could generate increased noise and disturbance to surrounding properties and neighbors. Allowed level in dB of the used equipment on operations will be according to vicinity to residential area.

Hazardous Chemicals: during the process of extracting lead and other heavy metals from the battery residue will have a significant risk on workers' occupational health and safety. All safety measures should be applied for chemicals used during extraction and safe storage for the extracted heavy metals should be created.

Cultural Heritage: Proposed site for the battery recycling facility should not affect any buildings or places that are deemed to have significant cultural values.

Health and Occupational Safety: Each contractor should present an OSH plan including risk assessment and mitigation measure. Contractors should sanction workers who refuse to comply with the OHS plan.

Waste disposal: All waste generated from the battery recycling facility must be disposed of at the EQA-designated disposal site. All acid/alkaline liquid waste must be stored in suitable containers for reuse or final disposal according to EQA regulations. The separated Polypropylene pieces should be washed, stored and can be sold for manufacturing new battery casings.

This subcomponent is classified as substantial. It requires the implementation of an audit for the factories that would be rehabilitated in addition for the preparation hazardous waste management plan. LMP is required as well. Based on technologies identified for recycling batteries, relevant environmental instruments will be prepared.

Project Components 4 are associated with considerable risks, including risks to occupational health and safety during construction and operation and risks associated with handling hazardous wastes requiring management of hazardous materials. Other environmental risks include, noise, dust and handling of waste batteries.

In summary, Project Components 1 and 4 are associated with considerable risks, including risks to occupational health and safety during construction and maintenance of transmission and distribution lines and risks associated with handling hazardous wastes, such as waste oil from transformers, while Component 4 will include, as part of the TA, identifying potential solutions for small-scale battery recycling and assist 2-

3 factories to improve their operations requiring management of hazardous materials. Other environmental risks include, noise, dust and waste handling during construction (Components 1, 2 and 3) exposure to electromagnetic fields (EMF) (Component 1), possible risks to birds (Component 1), handling of wasted old electricity meters (Component 2), handling of waste batteries and solar panels (Component 3 and 4), and heat and sunlight reflection from solar panels (Component 3).

5. Environmental and Social Instruments

Because most of the subprojects locations are not known yet, this ESMF is prepared. The ESMF has identified the applicability of different ESSs to the Project activities as clarified above.

Because the route of the 33 kv line between Jirecho and Ramallah is preliminary identifed, though not confirmed by the Israeli Authorities given that it is located in Area C, a Preliminary Environmental and Social Impact Assessment (PESIA) was prepared for this subproject. The PESIA assessed the different risks and impacts related to this subproject (rated as of substantial risk due to the OHS risks and possible handling of hazardous substances during construction and operation. The PESIA presented the baseline conditons along the identified route, and concluded that are no environemtnally senstive areas, especially in terms of biodiversity and avian fauna. The PESIA identified mitigation measures to the identified risks and indicated areas where the full ESIA would expand on once the Right of Way of the line is confirmed after the approval from the Israeli civil administration as some sections cross area C.

The ESMF identified that the following instruments to be used for different Project interventions:

- For Comonent 1: ESMPs will be prepared for the interconection points between PETL and IEC, the voltage regulators, replacement of existing medium voltage lines and transformers and the energization of Tarqumia substation. The new 33 kv line between Jirecho and Ramallah will require and ESIA (upgrade of the existing PESIA).
- For Components 2 and 3: A waste management plan needs to be developed by each DISCO for the the different wastes that will be generated within their geographical areas. The plan will include management procedures for wasted electricity meters, solar panels and batteries.
- For Component 3: An installation guide for solar systems will be prepared addressing the related health and safety aspects, heat/light refelcting issues

and protecting facads of historic buildings.

- For Component 4: Environemntal and Social Audits will be prepared for the 2-3 battery recycling factories that will be improved and the recommendations of those audits will be considered in the upgrade plans of those factories. Feasibility Studies for future investments will include ToRs for preparing the appropriate E&S instrument for the correspondent investment.

Labor management procedure (LMP) is prepared to set out the Project's approach to meeting national requirements as well as the objectives of the Bank's ESF, specifically objectives of Environmental and Socials Standard 2: Labor and Working Conditions (ESS2) and Standard 4: Community Health and Safety (ESS4).

Stakeholder Engagement Framework (SEF) has been prepared. For subprojects that their locations are unknown, Stakeholder Engagement Framework (SEF) has been pre-pared, which will be the bases for the future packages SEPs once the packages are identified. Stakeholder Engagement Plans (SEP) for four IEC connection points at Sarra, Alfondoqomia, Qalqelia, and Awarta that represents the four categories of connection points as identified by PENRA are taken as a sample have been conducted

Resettlement Framework (RF) for Tubas-Nablus medium voltage line in Yasid and for the connection points and the medium voltage line between Jericho and Ramallah passing through the Bedouin communities in Al-Muarajat has been prepared, which will be the bases for the future packages RAPs once the packages are identified.

Table 1 summarizes the expected Environmental and Social Instruments for Each sub-project.

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Table 1: Environmental and Social Instruments for Each subproject

ESMF, RF, LMP & SEP are prepared for all components.
Based on progressive assessment the below matrix describes the expected ES instruments that applies to the project subcomponents. Following to further definition of the sub-components additional specific instruments will be put in place. The expected required ES instruments are:

Component No.	Subproject	ESMP	ESIA	Site specific SEP	RAP	Notes
1.1	Rehabilitation of PETL-IEC Connection points	x		x	x	
1.2	Upgrade of Medium voltage lines in Nablus, Jenin & Hebron	x		x	x	
1.3	Rehabilitation of Tarqumia substation					No requirement
1.4	Medium Voltage Line Between Jericho and Ramallah		x	x	x	
2.1	Revenue Protection Program					A waste management plan needs to be developed by each DISCO for the different wastes that will be generated within their geographical areas. The plan will include management procedures for wasted electricity meters, solar panels and batteries.
2.2	Smart metering program in Gaza					

3.1	Grid reinforcement and up-grade		X	x	x	
3.2	Scale-up Rooftop Solar PV sys-tems	x		x		A waste management plan needs to be developed. An in-stallation guide for PV kits will be prepared.
4	Technical Assistance, Capacity Building and Project Manage-ment					No requirement
4.1	Pilot improved battery recy-cling in Gaza		x	x	x	Environmental and Social Au-dits will be prepared for the 3 battery recycling factories that will be improved

6. Environmental and Social Management Procedure

Environmental/Social Screening

All project components or sub-projects to be implemented under the proposed project will be subject to an environmental/social screening in order to prevent execution of projects with significant negative environmental impacts. The purpose of "environmental/social screening" is to get a preliminary idea about the degree and extent potential environmental impacts of a particular sub-project, which would subsequently be used to assess the need for further environmental/social assessment. The sub-projects will be identified by PENRA and the DISCOs; after selection of a sub-project, the ESO will conduct environmental/social screening of the sub-project as integral part of its planning and implementation.

The environmental and social screening process will determine the nature of environmental and social assessment that should be subsequently undertaken. The environmental/social screening will provide a rapid assessment of the project characteristics, its beneficiaries, the socio-economic dimensions of the area, and its potential environmental/social impacts and risks. The results of the environmental/social screening will determine whether or not a sub-project requires further environmental and social assessment, including Environmental and Social Impact Assessment (ESIA), and Resettlement Action Plan (RAP).

The environmental/social screening would involve: (i) reconnaissance of the sub-project areas/routes and their surroundings; (ii) identification of the major sub-project activities; and (iii) preliminary assessment of the impacts of these activities on the ecological, physic-chemical and socio-economic environment of the sub-project surrounding areas.

The ESO would carry out the "environmental/social screening" of sub-projects with a preliminary idea about the nature of the sub-project location and sub-project activities by filling in the **"Environmental/Social Screening Form 2a (for substation), 2b (for power line) and 2c (for solar system"** presented in Annex 2. Based on the evaluation results, the ESO should follow the ESMF procedure to recommend suitable measures to avoid or minimize the environmental and social risks of the subproject.

Environmental and Social Management Plan

ESMP consists of the set of mitigation, monitoring, and institutional measures to be taken during the implementation and operation of a project to eliminate adverse environmental and social risks and impacts, offset them, or reduce them to acceptable

levels. The EMP also includes the measures and actions needed to implement them. PENRA will:

- Identify the set of responses to potentially adverse impacts;
- Determine the requirements for ensuring that those responses are made effectively and in a timely manner; and
- Describe the means for meeting those requirements.

6.1.1 Mitigation and Enhancement Measures

Depending on the subcomponents of the project, an ESMP is prepared and incorporated directly here. This ESMP includes mitigation measures, responsibilities for Planning, implementation, supervision and monitoring. Hence, the following environmental management plans describe how an action might impact the natural environment in which it occurs and set out clear commitments from the person taking the action on how those impacts will be avoided, minimized and managed so that they are environmentally acceptable and ESMP is targeted to exclude the deterioration of the environment during the implementation of planned activities. This is applied to components 1.1, 1.2, 1.4, 3.1, 3.2 and 3.3.

PENRA will mitigate the environmental and social impacts associated with construction activities by: (i) including environmental and social clauses (see section 6.1.6) in all supply, installation/construction contracts and (ii) ensuring that contractor personnel are familiar with these clauses.

Mitigation measures which will effectively address potential risks and impacts and implementation and monitoring responsibilities for mitigation measures are identified. The following Tales provide generic ESMP matrices which should be modified after exact location and detailed information of the subproject are identified.

Subcomponent 1.1 Rehabilitation of PETL-IEC connection points

Table 2: Generic ESMP Matrix for Subcomponent 1.1

Project Activity	Potential Environmental/Social Issue	Management/ Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
Construction Stage				
Right-of-way maintenance	Biodiversity	- Replant the trees in the same type of the soil. - Avoid installation sites that require cutting or substantially pruning a protected tree, an old tree or known bird-nesting tree.	Contractor	ESO at PENRA
	Risk of cut vegetation burning	- Avoid disposing any cut materials by burning.	Contractor	ESO at PENRA
	Risk of damaging Habitats and species outside the RoW by the workers	- Prevent Habitats and species damage outside the RoW by the workers.	Contractor	ESO at PENRA
	Impacts on private lands	- Prevent any close alignments of the routes that may cross private lands.	Contractor	ESO at PENRA
Excavation and Civil work	Noise Impact	- Implement the installation activities only during the daytime. - Inform the neighborhood of the activities before any installation.	Contractor	ESO at PENRA

Project Activity	Potential Environmental/Social Issue	Management/ Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		- Use noise cancelling devices.		
	Dust	- Obviate large machines. - Inform the neighborhood of the activities.	Contractor	ESO at PENRA
	Excavation for towers and outdoor rooms could damage water pipes in the village	- Avoid any damaging for the existing infrastructure by consulting the local community.	Contractor	ESO at PENRA
	Waste Disposal	- Dispose packaging and construction waste at approved waste management sites using registered transport services. - Use untreated waste as domestic waste.	Contractor	ESO at PENRA
Installation of the electrical components (such as transformers, switches, auto reclosures	Exposure to electrical and magnetic fields	- Put warning signs in the areas where the electrical and magnetic fields are high. - Train the workers of the occupational electric and magnetic levels and other hazards.	Contractor, safety inspector	ESO at PENRA
	Chemicals & Hazardous materials used in the switchgear	- Handle products carefully to avoid accidental breakage or spillage. - Adopt safety procedures and personnel safety equipment to handle any chemicals used such as SF6. -	Contractor, safety inspector	ESO at PENRA

Project Activity	Potential Environmental/Social Issue	Management/ Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
	Occupational health and safety (working at height)	- Test structures for integrity prior to undertaking work; - Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others; - Establishment of criteria for use of 100 percent fall protection (typically when working over 2 meters above the working surface, but sometimes extended to 7 meters, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point; - Installation of fixtures on tower components to facilitate the use of fall protection systems; - Provision of an adequate work-positioning device system for workers. Connectors on positioning systems should be compatible with the tower components to which they are attached; - Hoisting equipment should be properly rated and maintained and hoist operators properly trained;	Contractor, safety inspector	ESO at PENRA

Project Activity	Potential Environmental/Social Issue	Management/ Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		- Safety belts should be of not less than 16 millimeters (mm) (5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident; - When operating power tools at height, workers should use a second (backup) safety strap; - Signs and other obstructions should be removed from poles or structures prior to undertaking work; - An approved tool bag should be used for raising or lowering tools or materials to workers on structures.		
	Occupational health and safety (Live Power Lines)	▪ Only allow trained and certified workers to install, maintain, or repair electrical equipment; ▪ Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines; ▪ Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following:	Contractor, safety inspector	ESO at PENRA

Project Activity	Potential Environmental/Social Issue	Management/ Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		- Distinguish live parts from other parts of the electrical system - Determine the voltage of live parts - Understand the minimum approach distances outlined for specific live line voltages - Ensure proper use of special safety equipment and procedures when working near or on exposed energized parts of an electrical system ▪ Workers should not approach an exposed energized or conductive part even if properly trained unless: - The worker is properly insulated from the energized part with gloves or other approved insulation; or, - The energized part is properly insulated from the worker and any other conductive object; or, - The worker is properly isolated and insulated from any other conductive object (live-line work). ▪ Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan;		

Project Activity	Potential Environmental/Social Issue	Management/ Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		▪ Workers not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, and other activities; - Minimum hot stick distances may only be reduced provided that the distance remaining is greater than the distance between the energized part and a grounded surface.		
Social and Cultural Impacts	Employment of local people	- Employ local residents in the work	Contractor	ESO at PENRA
	Risk of worker and local community harm from the accidents on site.	- Inform people of the activities to exclude them from all construction locations. - Keep any reports or records of the accidents. - Provide health & safety training for all personnel. - Follow documented procedures for all site activities.	Contractor, safety inspector	ESO at PENRA
	Possible small pieces of land acquisition for some of the new towers	- Complete all necessary land acquisition in accordance with RAP and entitlement Framework prior to the commencement of any construction works. - Ensure that the affected persons are:		ESO at PENRA

Project Activity	Potential Environmental/Social Issue	Management/ Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		- Informed about their options and rights; - Consulted on, offered choices among, and provided with alternatives; - Provided prompt and effective compensation at full replacement cost for losses of assets attributable directly to the project; - Provided with development assistance in addition to compensation measures.		
Operation and Maintenance				
Operation and Maintenance as well as provision	Electrocution risk	- Use signs as well as barriers such as locks on doors and education/public outreach to prevent public contact with potentially dangerous equipment. - Surround conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock.	PETL, involved DISCo	ESO at PENRA

Subcomponent 1.2: Upgrade of Medium voltage lines in Nablus, Jenin & Nablus (Yasid Line)

Table 3: Generic ESMP Matrix for Subcomponent 1.2

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
Pre-construction stage				
Design and location of the transmission lines and towers	Construction right of way	- Install the transmission lines and towers in their RoW. - Install the transmission lines above the trees and the vegetation to avoid any clearance	PENRA, NEDCO, TEDCO	PENRA
Construction Stage				
Construction Right of Way		- Site transmission and distribution rights-of-way, access roads, lines, towers, and substations through use of existing utility and transport corridors for transmission and distribution, and existing roads and tracks for access roads, whenever possible; - Installation of transmission lines above existing vegetation to avoid land clearing; - Revegetation of disturbed areas with native plant species; - Management of construction site activities as described in	Contractor	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		relevant sections of the General EHS Guidelines.		
Path Clearance	Biodiversity	- Implementation of an integrated vegetation management approach (IVM). The selective removal of tall-growing tree species and the encouragement of low-growing grasses and shrubs is the common approach to vegetation management in transmission line rights-of-way. Alternative vegetation management techniques should be selected based on environmental and site considerations including potential impacts to non-target, endangered and threatened species; - Removal of invasive plant species, whenever possible, cultivating native plant species; - Observing manufacturer machinery and equipment guidelines, procedures with regard to noise, and oil spill prevention and emergency response; - Revegetation of the planted trees in the same type of the soil. - Avoid installation sites that require cutting or substantially	Contractor	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		pruning a protected tree, an old tree or known bird-nesting tree.		
	Risk of cut vegetation burning	- Avoid disposing any cut materials by burning.	Contractor	ESO at PENRA
	Risk of damaging Habitats and species outside the RoW by the workers	- Avoid damaging Habitats and species outside the RoW by workers.	Contractor	ESO at PENRA
	Impacts on private lands	- Observing manufacturer machinery and equipment guidelines, procedures with regard to noise, and oil spill prevention and emergency response; - Prevent any close alignments of the routes that may cross private lands.	Contractor	ESO at PENRA
Excavation and Civil work	Noise Impact	- Implement the installation activities only during the daytime. - Inform the neighborhood of the activities before any installation. - Use noise cancelling devices.	Contractor	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
	Dust	- Obviate large machines. - Inform the neighborhood of the activities.	Contractor	ESO at PENRA
	Excavation for towers and outdoor room could damage water pipes in the village	- Avoid any damaging for the existing infrastructure by consulting the local community.	Contractor	ESO at PENRA
	Waste Disposal	- Disposing packaging and construction waste at approved waste management sites using registered transport services. - Use untreated waste as domestic waste	Contractor	ESO at PENRA
Installation of the electrical components (such as transformers, switches, auto reclosures)	Exposure to electrical and magnetic fields	- Identify potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities; - Train workers in the identification of occupational EMF levels and hazards; - Establish and identify safety zones to differentiate between work areas with expected elevated EMF levels	Contractor, safety inspector	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		compared to those acceptable for public exposure, limiting access to properly trained workers; - Implement action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE). Personal exposure monitoring equipment should be set to warn of exposure levels that are below occupational exposure reference levels (e.g. 50 percent). Action plans to address occupational exposure may include limiting exposure time through work rotation, increasing the distance between the source and the worker, when feasible, or the use of shielding materials. -		
	Chemicals & Hazardous materials	- Handle products carefully to avoid accidental breakage or spillage. - Adopt safety procedures and personnel safety equipment	Contractor, safety inspector	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
	used in the switchgear	to handle any chemicals used.		
	Occupational health and safety (working at height)	- Test structures for integrity prior to undertaking work; - Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others; - Establishment of criteria for use of 100 percent fall protection (typically when working over 2 meters above the working surface, but sometimes extended to 7 meters, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point; - Installation of fixtures on tower components to facilitate the use of fall protection systems; - Provision of an adequate work-positioning device system for workers. Connectors on positioning systems should be	Contractor, safety inspector	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		compatible with the tower components to which they are attached; - Hoisting equipment should be properly rated and maintained and hoist operators properly trained; - Safety belts should be of not less than 16 millimeters (mm) (5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident; - When operating power tools at height, workers should use a second (backup) safety strap; - Signs and other obstructions should be removed from poles or structures prior to undertaking work; - An approved tool bag should be used for raising or lowering tools or materials to workers on structures. - Update, adopt and implement the Labor Management Procedure (LMP) which has been prepared for the project and implement the contractor's occupational health and safety (OHS) guidelines - Child labor bellow age 18 should not be allowed.		

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
	Occupational health and safety (Live Power Lines)	▪ Only allow trained and certified workers to install, maintain, or repair electrical equipment; ▪ Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines; ▪ Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following: - Distinguish live parts from other parts of the electrical system - Determine the voltage of live parts - Understand the minimum approach distances outlined for specific live line voltages - Ensure proper use of special safety equipment and procedures when working near or on exposed energized parts of an electrical system		

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		▪ Workers should not approach an exposed energized or conductive part even if properly trained unless: - The worker is properly insulated from the energized part with gloves or other approved insulation; or, - The energized part is properly insulated from the worker and any other conductive object; or, - The worker is properly isolated and insulated from any other conductive object (live-line work). ▪ Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan; ▪ Workers not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, and other activities;		

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		▪ Minimum hot stick distances may only be reduced provided that the distance remaining is greater than the distance between the energized part and a grounded surface.		
	Labor Conditions and community health and safety	▪ GBV, HIV/AIDS, Child protection training/awareness campaign for contractor, sub-contractors and communities (and HIV/health); ▪ Provisions for handling of GBV in the GRM ▪ Update and implement the stakeholder engagement plan (SEP) ▪ Communication through contractor environmental and social specialist when stringing activities will take place to ensure children are not playing in the work area; ▪ Project sites to be marked off with fencing and signage to prevent people from entering the dangerous sites;	Contractor	PENRA
Social and Cultural Impacts	**Land Acquisition, Involuntary Displacement and**	- Update the Resettlement Framework (RF) to Resettlement Action Plan(s) (RAP) and implement it - Development of subsequent and/or Livelihood Restoration Plans (LRP)	ESO at PENRA	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	**Supervision and Monitoring**
	Restrictions on land use			
	Community Health and Safety **Electromagnetic Interference** **Visual Amenity**	- Use signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment; - Surround conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock; - Create emission line rights-of- way and conductor bundles to ensure radio reception at the outside limits remains normal; - Extensive public consultation as indicated in the SEP during the planning of power line and power line right-of-way locations; - Accurate assessment of changes in property values due to power line proximity;	Contractor	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
	Noise **Visual Amenity**	- Siting power lines, and designing substations, with due consideration to landscape views and important environmental and community features; - Burying transmission or distribution lines when power must be transported through dense residential or commercial areas. - Project planning stages to locate rights-of-way away from human receptors, to the extent possible. Use of noise barriers or noise canceling acoustic devices should be considered as necessary. - Extensive public consultation as indicated in the SEP during the planning of power line and power line right-of-way locations; - Accurate assessment of changes in property values due to power line proximity; - Siting power lines, and designing substations, with due		

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		consideration to landscape views and important environmental and community features; - Burying transmission or distribution lines when power must be transported through dense residential or commercial areas.		
	Labor Conditions and community	▪ GBV, HIV/AIDS, Child protection training/awareness campaign for contractor, sub-contractors and communities (and HIV/health); ▪ Provisions for handling of GBV in the GRM ▪ Update and implement the stakeholder engagement plan (SEP) ▪ Communication through contractor environmental and social specialist when stringing activities will take place to ensure children are not playing in the work area; ▪ Project sites to be marked off with fencing and signage to prevent people from entering the dangerous sites;	PENRA	PENRA
	Land Acquisition, Involuntary Displacement and	- Update the Resettlement Framework (RF) to Resettlement Action Plan(s) (RAP) and implement it	PENRA	PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
	Restrictions on land use	- Development of subsequent and/or Livelihood Restoration Plans (LRP)		
		-		
Operation and Maintenance				
Operation and Maintenance as well as provision	Electrocution risk	- Use signs as well as barriers such as locks on doors and education / public outreach to prevent public contact with potentially dangerous equipment. - Surround conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock.	NEDCO, TEDCO	ESO at PENRA

Subcomponent 3.1 Environmental Management Plan Grid reinforcement and upgrade to enable the evacuation of utility-scale and small-scale RE

Table 4: Generic ESMP Matrix for Subcomponent 3.1

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Implementation	Supervision and Monitoring
Noise emissions	-	Daytime installation activities only Inform neighbors of work schedule	Undertake maintenance activities only during daytime	Contractor	ESO at PENRA
Land Acquisition and resettlement	World Bank ESS5 to be followed (see RF) Prepare ESIA, SEP and RAP	- Update the Resettlement Framework (RF) to Resettlement Action Plan(s) (RAP) and implement it - Development of subsequent and/or Livelihood Restoration Plans (LRP)		Contractor	ESO at PENRA
Electromagnetic field	Overhead power transmission lines shall be at safety distance from residential buildings/ apartments	- Identify potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities;	Warning signs to be placed at areas of high electric/	Contractor	ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Implementation	Supervision and Monitoring
		- Train workers in the identification of occupational EMF levels and hazards; - Establish and identify safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers; Implement action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and the Institute of Electrical and Electronics Engineers (IEEE). Personal exposure monitoring equipment should be set to warn of exposure levels that are below occupational exposure reference levels (e.g.	magnetic field		

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Implementation	Supervision and Monitoring
		50 percent). Action plans to address occupational exposure may include limiting exposure time through work rotation, increasing the distance between the source and the worker, when feasible, or the use of shielding materials.			
Biodiversity	- Avoid installation sites that require cutting or substantially pruning a protected tree, an old tree or known bird-nesting tree. In some specific sites trees are to be removed in order to build new connection points, the trees will have to be planted in the same type of soil; If a tree needs to be	- Do not remove a mature tree unless absolutely necessary;	Same as construction stage	Contractor	ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Implementation	Supervision and Monitoring
	pruned, only remove parts that are absolutely necessary;				
Economic impacts and livelihood	Ensure wide dissemination of information to all stakeholders	-	Ensure project performance information results are widely shared		ESO at PENRA
Occupational health and safety	-	▪ Only allow trained and certified workers to install, maintain, or repair electrical equipment; ▪ Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines; ▪ Ensuring that live-wire work is conducted by trained workers with strict	Same as construction phase	Contractor, Safety inspector	ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Implementation	Supervision and Monitoring
		adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following: - Distinguish live parts from other parts of the electrical system - Determine the voltage of live parts - Understand the minimum approach distances outlined for specific live line voltages - Ensure proper use of special safety equipment and procedures when working near or on exposed energized parts of an electrical system			

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Implementation	Supervision and Monitoring
		▪ Workers should not approach an exposed energized or conductive part even if properly trained unless: - The worker is properly insulated from the energized part with gloves or other approved insulation; or, - The energized part is properly insulated from the worker and any other conductive object; or, - The worker is properly isolated and insulated from any other conductive object (live-line work). ▪ Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan;			

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Implementation	Supervision and Monitoring
		▪ Workers not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, and other activities; ▪ Minimum hot stick distances may only be reduced provided that the distance remaining is greater than the distance between the energized part and a grounded surface.			
Waste disposal	The generated waste during excavation, must be disposed of at the EQA-designated disposal site	The generated waste during excavation, must be disposed of at the EQA-designated disposal site		Contractor	ESO at PENRA

Subcomponent 3.2: Scale-up Rooftop Solar PV systems for Health, MSMEs and Residential Sector

Table 5: Generic ESMP Matrix for Subcomponent 3.2

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	**Construction**	**Operation**	**Planning and Implementation**	**Supervision and Monitoring**
Air emissions/dust	Identify suppliers of ISO- or best industry standard-compliant products Minimize cut & fill operations, the site clearing and Grubbing operations should be limited to specific locations only.	Dust generation due to vehicle movement on haul roads/access shall be controlled through regular water sprinkler system.		Contractor	ESO at PENRA
Noise Emissions	-	1. Daytime installation activities only	Undertake maintenance activities only during daytime	Contractor	ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	**Construction**	**Operation**	**Planning and Implementation**	**Supervision and Monitoring**
		2. Inform neighbors of work schedule			
Chemicals	Identify suppliers (PV panels, inverters and batteries) of ISO- or best industry standard-compliant products	Handle products carefully to avoid accidental breakage or spillage	If the roof is used for rainwater harvesting, check the panels frequently for any damage.	Contractor	ESO at PENRA
Heat or light reflection	Avoid installation sites that would require panels to be placed in a manner which would reflect light into an immediate neighbor's window, balcony or door for more	Install screens to prevent light from reaching an immediate neighbor's window, balcony or door	Same as construction stage if a new building is constructed next to the site following installation.		ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	**Construction**	**Operation**	**Planning and Implementation**	**Supervision and Monitoring**
	than 30 days a year				
Biodiversity	Avoid installation sites that require cutting or substantially pruning a protected tree, an old tree or known bird-nesting tree. In some specific sites trees are to be removed in order to create open un-shaded area for PV panel installation	If a tree needs to be pruned, only remove parts that are absolutely necessary. Do not remove a mature tree unless absolutely necessary	Same as construction stage		ESO at PENRA
Cultural Heritage	Avoid selecting installation sites that are culturally	-	-		ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	**Construction**	**Operation**	**Planning and Implementation**	**Supervision and Monitoring**
	or religiously sensitive				
Employment	Train local workers as much as possible	Use local labor for skilled and semi-skilled labor. Provide temporary employment for technical and unskilled labor	Same as construction phase		ESO at PENRA
Visual Impact	Public consultation during the planning of solar PV design			Contractor	ESO at PENRA
Economic Impacts and livelihoods	Ensure wide Dissemination of information to all stakeholders Prepare SEP	-	Ensure project performance information results are widely shared		ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	**Construction**	**Operation**	**Planning and Implementation**	**Supervision and Monitoring**
Social conflict	1. Ensure fair competition by creating a level playing field. 2. Ensure access to information and transparency in decisions. 3. Undertake public Consultation and Information dissemination and finally establish and create awareness grievance redness mechanism.	Create awareness on grievance redress procedure	Same as construction phase		ESO at PENRA
Occupational health and safety	-	1. Respect all safety measures	-	Contractor, safety inspector	ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Planning and Implementation	Supervision and Monitoring
		required for working on rooftops. Use safety nets in roofs facing roads to prevent debris accidentally falling to the street. 2. Place appropriate warnings on the road. 3. Ensure compliance with the LMP so that: -All workers are above 18 years 4. -Regular review & inspection of working sites.			

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	**Construction**	**Operation**	**Planning and Implementation**	**Supervision and Monitoring**
		-The contractor shall make available all IDs of his working team - Raise awareness and promote children rights.			
Waste disposal	Identify suppliers (PV panels, inverters and batteries) or ISO or best industry standard compliant products Prepare Waste Management Plan	Disposing packaging and construction waste at approved waste management sites using registered transport services. Use untreated waste as domestic waste Prepare installation guide for PV grids.	Provide a temporary storage facility to contain waste ahead of final disposal to EQA approved facility Contact with recycling or waste disposal facility capable of handling solar panel and battery waste		ESO at PENRA

Potential Environmental Issue	Management/Mitigation Measures			Responsibility	
	Pre-construction	Construction	Operation	Planning and Implementation	Supervision and Monitoring

Pilot improved battery recycling in Gaza

Table 6: Generic ESMP Matrix for pilot improved battery recycling in Gaza

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
Construction Stage				
Site allocation	Noise Impact	• Choose workshop location that minimizes the noise impact on residential appartments • Ensure that no working activities are extended out of the licensed working area • Ensure that the selected sites have adequate space for sound operations	Owner	ESO at PENRA
	Impacts on private lands	• Take all preventive measures to protect nearby private lands and houses.	Owner	ESO at PENRA
Excavation and Civil work	Noise Impact	• Choose equipment that have low noise. • Work during day time and according to labor law.	Contractor	ESO at PENRA
	Dust	• Avoid large machines. Inform the neighborhood of the activities.	Contractor	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
	Waste Disposal	• Disposing packaging and construction waste at approved waste management sites using registered transport services. • Use not treated waste as domestic waste.	Contractor	ESO at PENRA
Installation of crushing machine and furnace	Occupational Health and Safety of Labor during installation of equipment	• Prepare social and environmental audit. • Use of well-trained workers equipped with safety tools.	Contractor, safety inspector	ESO at PENRA
Social and Cultural Impacts	High Youth unemployment	• Employ local residents in the works.	Contractor	PENRA, PETL
	Risk of workers and local community harm from the accidents on site.	• Inform the people of the activities to exclude them from all construction locations. • Keep any reports or records of the accidents. • Provide health & safety training for all personnel. • Follow documented procedures for all site activities. • Prepare hazardous waste management plan • Ensure compliance with the LMP so that: -All workers are above 18 years 4. -Regular review & inspection of working sites.	Contractor, safety inspector	ESO at PENRA

Project Activity	Potential Environmental Issue	Management/Mitigation Measures	Responsibility	
			Implementation	Supervision and Monitoring
		-The contractor shall make available all IDs of his working team • Raise awareness and promote children rights.		
Operation and Maintenance				
Crushing	Air Pollution	• Enclose crushing area to prevent any dust to spread around	Operator	ESO at PENRA
Sorting	Air Pollution	• Avoid Lead particles to spread around	Operator	ESO at PENRA
	Surface water	• Avoid Lead, acids and other chemicals to spill on ground and contaminated surface water	Operator	ESO at PENRA, EQA
Furnace	Air pollution	• Use special gas cleaning systems to avoid polluting air	Operator	ESO at PENRA
Separation of Lead and heavy metals	Occupational Health and Safety	• Use proper safety measures to store separated lead and heavy metals in safe places • Prepare OSH guidelines	Operator	ESO at PENRA
	Water	• Avoid contamination of separated heavy metals with water • Prepared hazardous waste management plan	Operator	ESO at PENRA, Ministry of Health

Monitoring Plan

Based on the above EMP and the mitigation measures set, the following monitoring plan is developed to help, track and assess the interventions set in the mitigations of each environmental parameter throughout the life-cycle of the project. In this plan all indicators to be monitored and the institutional responsivities are presented, in addition to a column showing the implementation route/plan needed.

Table 7: Monitoring Plan

Project Activity/Aspect	Parameter	Indicator	Institutional Responsibility			Project Phase	Monitoring Cost
			Implementation Route/Plan	Monitoring Responsibility	Frequency		
Impact on Flora	Visual Inspection	Bare Soil / Soil Erosion	ESMP	Contractor Project Manager/ Supervising Engineer	Monthly	Construction and operation	Included in supervision scope and costs
Air emissions and quality of dust	TPS, SO2, CO, H2S, CO2, Dust fallout	Bad Odor, Use of PPE, Health and Safety Plan in use Record of induction for workers, Active dust suppression	ESMP	Contractor Supervising Engineer	Monthly	Construction and operation	Included in supervision scope and costs
Safeguarding community health and safety	Visual Inspection Incident and accident records	Induction training records Safety working procedure Maintenance of complaints log and resolution process and Evidence of effective GM. Photographs of appropriate fencing; and signage around	SEP Project performance Grievance Mechanism	Contractor Supervising Engineer	Daily	Prior to and during Construction and operation	Included in supervision scope and costs

		site perimeter and where identified through risk assessment process.					
Safeguarding Worker Occupation Health and Safety	Health and safety records Visual inspection Active and passive monitoring	Audits of PPE use, maintenance of disciplinary records, etc. Records of inductions, trainings & toolbox talks	OHS Management system	Contractor Supervising Engineer	Daily	Construction and operation	Included in supervision Scope and costs
		Good "housekeeping" on site					
		Worker Grievance Records & resolution					
Storage of hazardous materials and chemicals	Spillages Visual inspection	MSDS for all store Chemicals Functioning storage containers Chemical usage records	Waste Management Plan	Contractor Supervising Engineer	Monthly Audit Review	Construction	Included in supervision scope and costs
Traffic concerns	Visual inspection	Record of accidents involving project vehicles	Traffic Management Plan	Contractor Supervising Engineer	Daily	Construction and operation	Included in supervision scope and costs
		Banks men shall be used to direct vehicle traffic around construction sites and					

		hazards during working hours (Health and Safety Plan).					
		Plan approved by project Manager barrier and signage					
Public Awareness and Community perceptions	Community Consultations	Grievance management records & resolution process Evidence of Occurrence- Event report	SEP GM	Contractor Supervising Engineer	Monthly	Construction and operation	Included in supervision scope and costs
Noise	dB(A)	Measure included in design and procurement plans Hearing protection and PPE in use Record of equipment maintenance	ESMP	Contractor Supervising Engineer	Monthly	Construction and operation	Included in Supervision scope and Costs
Soil Erosion	Visual inspection	Bare soil pillars	ESMP	Contractor Supervising Engineer	Weekly	Construction and operation	Included in Supervision scope and Cost
Solid waste management	Domestic refuse, metallic scraps,	Documented Approvals for placement of wastes,	Comprehensive waste management plan	Contractor Supervising Engineer	Daily	Construction and operation	Included in Supervision scope and Costs

Land Acquisition, displacement and restrictions on land use	Consultations Site Visits	Records of compensation completion & completion rate Progress on RAP/Land Restriction Plan (LRP) implementation Compliance with RPF/RAP and national legislation	RF/RAP	PENRA	Daily	Prior to and during Construction	Included in supervision scope and costs
Cultural Heritage	Visual inspection	Records of CFP activated	ESMP (Chance Finds Procedures)	Contractor Supervising Engineer	Daily	Prior to and during Construction	Included in supervision Scope and costs
Supply Chain	Reporting	Bidding documents and Contracts Supply chain performance on ESS2 compliance	ESMP Bidding documents	Contractor Supervising Engineer	Weekly	Construction and Operation	Included in supervision scope and costs

6.1.2 Occupational Health and Safety Guidelines

PETL and other distribution companies have their own occupational health and safety manuals. For the aim of this project, it is requested to follow the World Bank environmental health and safety and guidelines for electric power transmission and distribution as it is stricter. A copy of this can be found in the following link: https://www.ifc.org/wps/wcm/connect/7b65ce6b-129d-4634-99dc-12f85c0674b3/Final%2B-%2BElectric%2BTransmission%2Band%2BDistribution.pdf?MOD=AJPERES&CVID=jqeI4Rs&id=1323162154847.

A summary of essential safety mitigation measures that should be applied during the implementation of the project include:

6.1.3 Workers Occupational health and Safety

The following guidelines must be followed:

1. Staff Training and regular equipment service and testing
2. Only trained & certified workers are permitted to install, maintain or repair electrical equipment;
3. Testing structures for integrity prior to undertaking work;
4. Workers not directly associated with power transmission activities who are operating around power lines should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, pruning, and other activities
5. Use of signs, barriers and education/ public outreach to prevent public contact with potentially dangerous equipment;
6. Ensure provision and proper use of Personal Protective Equipment (e.g. Safety harness, helmet, dust masks, etc.);
7. Follow safe work procedures;
8. Community policing should be encouraged to reduce vandalism of towers;
9. Ensure there is no encroachment on the transmission line way leave.

6.1.4 Community Occupational Health and Safety

The following guidelines must be followed:

1. Adherence to OSHA 2007 Act and its subsidiary legislations to ensure that health and safety of immediate neighbors and the public is not threatened.
2. The Contractor should ensure that construction work is undertaken in a manner that is not likely pose risks to community health and safety.
3. The contractor should use barricading tape to prevent members of public from accessing excavated tower foundations and work sites during construction.
4. The contractor should put in place adequate hazard communication to the public by using appropriate signage as prescribed by national law and international best

practices.

5. The contractor should conduct public awareness sessions on safety requirements within construction sites
6. Adequate security where necessary for the public and staff should be provided.
7. Public awareness of the public health issues should be identified.
8. Working sights should be condoned and controlled access must be ensured.

6.1.5 Fall from Heights

Contractors should follow safe work procedures and Procure and enforce proper use of necessary protective equipment.

1. Test structures for integrity prior to undertaking work;
2. Implementation of a fall protection program that includes training in climbing techniques and use of fall protection measures; inspection, maintenance, and replacement of fall protection equipment; and rescue of fall-arrested workers, among others;
3. Establishment of criteria for use of 100 percent fall protection (typically when working over 2 meters above the working surface, but sometimes extended to 7 meters, depending on the activity). The fall protection system should be appropriate for the tower structure and necessary movements, including ascent, descent, and moving from point to point;
4. Installation of fixtures on tower components to facilitate the use of fall protection systems;
5. Provision of an adequate work-positioning device system for workers. Connectors on positioning systems should be compatible with the tower components to which they are attached;
6. Hoisting equipment should be properly rated and maintained and hoist operators properly trained;
7. Safety belts should be of not less than 16 millimeters (mm) (5/8 inch) two-in-one nylon or material of equivalent strength. Rope safety belts should be replaced before signs of aging or fraying of fibers become evident;
8. When operating power tools at height, workers should use a second (backup) safety strap;
9. Signs and other obstructions should be removed from poles or structures prior to undertaking work;
10. An approved tool bag should be used for raising or lowering tools or materials to workers on structures.

6.1.6 Live Power Lines

Contractors/workers should also follow safe work procedures and equipment regarding working with live power lines including:

- Only allow trained and certified workers to install, maintain, or repair electrical equipment;
- Deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity, to the lines;
- Ensuring that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following:
  - Distinguish live parts from other parts of the electrical system
  - Determine the voltage of live parts
  - Understand the minimum approach distances outlined for specific live line voltages
  - Ensure proper use of special safety equipment and procedures when working near or on exposed energized parts of an electrical system
- Workers should not approach an exposed energized or conductive part even if properly trained unless:
  - The worker is properly insulated from the energized part with gloves or other approved insulation; or,
  - The energized part is properly insulated from the worker and any other conductive object; or,
  - The worker is properly isolated and insulated from any other conductive object (live-line work).
- Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices, and other precautions should be defined in a health and safety plan;
- Workers not directly associated with power transmission and distribution activities who are operating around power lines or power substations should adhere to local legislation, standards, and guidelines relating to minimum approach distances for excavations, tools, vehicles, and other activities;
- Minimum hot stick distances may only be reduced provided that the distance remaining is greater than the distance between the energized part and a grounded surface.

Special Environmental Clauses (SECs) for Tenders Document

6.1.7 Environmental and Social Clauses for Contractors

PENRA will incorporate the following standardized environmental and social clauses in tender documentation and contract documents, so that potential bidders are aware of

environmental and social performance requirements expected from them, are able to reflect that in their bids, and are required to implement the clauses for the duration of the contract. PENRA will enforce compliance by contractors with these clauses.

The clauses cover four issues:

- Environment, Health and Safety (EHS),
- Environmental and social monitoring by contractor,
- Environmental and social liabilities,
- Grievance mechanism for workers.

6.1.8 Environment, Health and Safety

There are clauses for contractors which address environment, health and safety concerns.

Purpose

The purpose of the environment, health and safety (EHS) clauses for contractors is to define minimum standards of practice acceptable to PENRA and the World Bank. The clauses will be included in the bidding documents and contracts.

6.1.9 Contractor Environmental and Social Management Plan

Prior to the start of implementation of the specific sub-component, each contractor must prepare and submit a Contractor Environmental and Social Management Plan (C-ESMP) to PENRA for acceptance. The C-ESMP will provide a detailed explanation of how the contractor will comply with the EHS clauses for contractors and demonstrate that sufficient funds are budgeted for that purpose and sufficient capacity is in place to oversee, monitor and report on C-ESMP performance. The C-ESMP must include specific mitigation measures based on the project's environmental and social management plan, the final design, the proposed work method statements, and the nature of the project site. The C-ESMP should include management plans that cover the following issues:

6.1.10 Gender based Violence

Contractors must address the risk of gender-based violence, through:

1. Mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women;
2. Informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted;
3. Introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination);

4. Adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence.

6.1.11 Child Labor

Contractors must follow LMP and should not employ workers below the age of 18 in all project components including connection points/substations, transmission lines, rooftop PV systems and small scale battery recycling and retooling the operation equipment of 2-3 small workshops to be supports by the project.

6.1.12 Labor influx

Where contractors and labor come from outside the local area, contractors will need to maintain labor relations with local communities through labor codes of conduct.

6.1.13 Road

In order to carry out the construction works, PENRA may close or divert certain specified roads, either permanently or temporarily. The Contractor should arrange diversions for providing alternative routes for transportation and/or pedestrians.
After breaking up, closing or otherwise interfering with any street or footpath to which the public has access, the Contractor shall make such arrangements as may be reasonably necessary so as to cause as little interference with the traffic in that street or footpath during implementation of the construction works as shall be reasonably practicable. Wherever construction works interfere with existing public or private roads or other ways over which there is a public or private right of way for any traffic, the Contractor shall construct diversion ways wherever possible.

6.1.14 Movement of Trucks

The Contractor moving solid waste materials shall take strict measures to minimize littering of roads by ensuring that vehicles are licensed and loaded in such a manner as to prevent falling off or spilling of construction materials and by sheeting the sides and tops of all vehicles carrying mud, sand, and other materials and debris. Construction materials should be brought from registered sources in the area and debris should be transferred to assigned places in landfills with documented confirmation.

6.1.15 Traffic Safety Measures

The Contractor shall provide, erect and maintain traffic signs, road markings, barriers and traffic control signals and other measures that may be necessary for ensuring traffic safety around construction sites.

The Contractor shall not commence any work that affects the public roads and highways until all traffic safety measures necessitated by the work are fully operational.

6.1.16 Access to Project Sites

The Contractor shall take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of adjacent properties, and to the public generally. The Contractor shall maintain any existing right of way across the whole or part of the construction site and public and private access to adjoining frontages in a safe condition and to a standard not less than that pertaining at the commencement of the contract. If required, the Contractor shall provide acceptable alternative means of passage or access to the satisfaction of the people affected.

6.1.17 Noise and Dust Control

The Contractor shall take all practicable measures to minimize nuisance from noise and dust caused by collection equipment. This includes:

1. Respecting normal working hours in or close to residential areas.
2. Maintaining equipment in a good working order to minimize extraneous noises from equipment movement, as well as emissions or fumes from the equipment.
3. Shutting down equipment when they are not directly in use.
4. Using operational noise mufflers if needed.
5. Providing spray water when required to minimize the impact of dust.
6. Limiting the speed of equipment used for waste collection.

6.1.18 Protection of the Existing Installations

The Contractor shall properly safeguard all buildings, structures, works, services or installations from harm, disturbance or deterioration during the concession period. The Contractor shall take all necessary measures required for the support and protection of all buildings, structures, pipes, cables, sewers and other apparatus during the construction period, and to repair any damage occurs in coordination with concerned authorities.

6.1.19 Protection of Trees and Other Vegetation

The Contractor shall avoid the loss of trees and damage to other vegetation wherever possible. Adverse effects on green cover within or in the vicinity of construction sites shall be minimized. The contractor will restore vegetative cover, where feasible.

6.1.20 Cultural Resources

The contractor will train construction crews and supervisors to spot potential archaeological finds. In the event of a potential find, the contractor will inform PENRA who will in turn liaise with the National Museum, or a local university, for quick assessment and action.

6.1.21 Clean-up of Sites on Completion of Work

The contractor shall clean up all sites before starting and after completing the works to remove oil and waste properly in environmentally good practices and safe disposal following hygiene procedures.

6.1.22 Worker Health and Safety

To avoid work related accidents and injuries, the contractor will:

1. Provide occupational health and safety training to all employees involved in the works. Provide protective masks, helmet, overalls and safety shoes, and safety goggles, as appropriate.
2. Provide workers in high noise areas with earplugs or earmuffs.
3. Ensure the availability of first aid boxes.
4. Provide employees with access to toilets and potable drinking water.
5. Provide safety and occupational safety measures to workers with Personal
6. Properly dispose solid waste at designated permitted sites landfill allocated by the local authorities.
7. Carry out all procedures to prevent leakage of generator oil into the site.
8. Ensure that the head of the well is covered tightly.
9. Provide secondary tanks for oil and grease to avoid spills.

6.1.23 Site Construction Safety and Insurance

Further to enforcing the compliance of environmental management, contractors are responsible and liable of the safety of site equipment, labor and daily workers attending to the construction site and safety of citizens for each project site, as mandatory measures.

6.1.24 Environmental and Social Monitoring by Contractors

PENRA will require that contractors monitor, keep records and report on the following environmental and social issues for the project. The application of this requirement will be proportionate to the activities and to the size of the contract, in a manner acceptable to the World Bank including:

Safety: hours of work, recordable incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (for example, revised job safety analysis, new or different equipment, skills training, and so forth).
Environmental incidents and near misses: environmental incidents and high potential near misses and how they have been addressed, what is outstanding, and lessons learned.

Major works: those undertaken and completed, progress against project schedule, and key work fronts (work areas).
E&S requirements: noncompliance incidents with permits and national law (legal noncompliance), project commitments, or other E&S requirements.
E&S inspections and audits: by contractor, engineer, or others, including authorities—to include date, inspector or auditor name, sites visited and records reviewed, major findings, and actions taken.

Workers: number of workers, indication of origin (expatriate, local, nonlocal nationals), gender, age with evidence that no child labor will be involved in all project components including for rooftop PV systems and small scale battery recycling and retooling the operation equipment of 2-3 small workshops to be supports by the project, and skill level (unskilled, skilled, supervisory, professional, management).
Training on E&S issues: including dates, number of trainees, and topics.
Footprint management: details of any work outside the boundaries or major off-site impacts caused by ongoing construction—to include date, location, impacts, and actions taken.

External stakeholder engagement: highlights, including formal and informal meetings, and information disclosure and dissemination—to include a breakdown of women and men consulted and themes coming from various stakeholder groups, including vulnerable groups (e.g., disabled, elderly, children, etc.).
Details of any security risks: details of risks that the contractor may be exposed to while performing its work—the threats may come from third parties external to the project.

Worker grievances: details including occurrence date, grievance, and date submitted; actions taken and dates; resolution (if any) and date; and follow-up yet to be taken—

grievances listed should include those received since the preceding report and those that were unresolved at the time of that report.

External stakeholder grievances: grievance and date submitted, action(s) taken and date(s), resolution (if any) and date, and follow-up yet to be taken—grievances listed should include those received since the preceding report and those that were unresolved at the time of that report. Grievance data should be gender-disaggregated.

6.1.25 Major changes to contractor's environmental and social practices

Deficiency and performance management: actions taken in response to previous notices of deficiency or observations regarding E&S performance and/or plans for actions to be taken—these should continue to be reported until PENRA determines the issue is resolved satisfactorily.

6.1.26 Environmental and Social Liabilities of the Contractors

Contractors will be legally and financially accountable for any environmental or social damage or prejudice caused by their staff, and thus, they are expected to put in place controls and procedures to manage their environmental and social performance. A breakdown for the cost of noncompliance for each mitigation measure will be enclosed in the bidding documents. These will include:

1. Mitigation measures to be included in the contract will be specified in the project ESMP.
2. Deductions for environmental noncompliance will be added as a clause in the Bill of Quantities (BOQ) section.
3. Environmental penalties shall be calculated and deducted in each submitted invoice.
4. Any impact that is not properly mitigated will be the object of an environmental/social notice by PENRA.
5. For minor infringements and social complaints, an incident which causes temporary but reversible damage, the contractor will be given a notice to remedy the problem and restore the environment. No further actions will be taken if the project engineer confirms that restoration is done satisfactorily.
6. For social notices, the project engineer will alert the contractor to remedy the social impact and to follow the issue until solved. If the contractor does not comply with the remediation request, work will be stopped and considered under no excused delay
7. If the contractor hasn't remedied the environmental impact during the allotted time, the Project engineer will stop the work and give the contractor a notification indicating a financial penalty according to the non-complied mitigation

measure that was specified in the bidding document.

8. No further actions will be required if the project engineer sees that restoration is done satisfactorily. Otherwise, if Contractor hasn't remedied the situation within one day any additional days of stopping work will be considered no excused delay.
9. Environmental notifications issued by the Project engineer might include one or more environmental penalty
10. In the event of repeated noncompliance totaling 5% of the contract value, the project engineer will bring the environmental and social notices and the deduction history to PENRA procurement in order to take legal action.

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6.1.26 Management of Hazardous Waste

Waste management plan should be prepared and implemented for safe management of these waste. There are two essential prerequisites to ensure that the plan is implemented – sufficient staff and financial resources. The plan covers all waste life cycle, i.e from generation, storage, collection, transportation and finally safe treatment or disposal. It is anticipated that solid waste will comprise of paper, wood, plastic, scrap metals, and glass. The overall volume is expected to be low.

Generation: Solid waste generated during construction mainly consists of municipal and construction wastes shall be stored in a separate container. Waste should be separated from hazardous waste. In addition as some waste can be reused, then segregation of waste should be carried out. For example Wood wastes will be given to factories that re-shape them and make them usable for fireplaces for residential purposes

Collection: Solid waste will be collected by local Joint Service Council using special vehicle.

Disposal: collected waste should be disposed of in an authorized landfill.

A waste management procedure will be revised to be aligned with the Palestinian National solid waste management strategy. When the plant is decommissioned, the priority option of

Hazardous waste management Plan

Hazardous waste will be likely to comprise of fuel, oils, lubricants, hydraulic/insulating fluids and batteries, tires, metal drums and empty chemical containers, PV panels. Scrap metals, plastic, batteries, metal drums, old meters and glass waste will be rewarded to small factories that recycle them in a safe way.

According to article 12 of the Palestinian Environmental Law, Law7, the law forbids any one from handling (manufacturing, storing, distributing, using, treating, disposing) haz-

ardous materials or waste except according to the regulations and instructions determined by the Ministry (EQA) in coordination with the competent parties. Therefore it is essential to have a hazardous waste management plan that consists of the following:

a) Any hazardous generated as a result of any activity during construction or by the end of the project life should be stored in separate containers. The containers should be labeled as "Hazardous waste". Labelling system should be clear and well known to the public and workers to ensue general safety.
b) Transportation of the hazardous waste container should be with special vehicle by special contractor. Before the start of transporting this hazardous waste, a form should be filled by the generator and transporter indicating the amount and type of hazardous waste. A written permission for transporting the hazardous waste to registered treatment facility should be issued by EQA.
c) Trans- boundary of hazardous waste is not allowed unless a written permission is issued by EQA. The permission complies with Basel convention requirements.
d) A hazardous waste record keeping should be created and checked by ESO from time to time to make sure that hazardous waste is well managed.
e) Disposal of the PV panels and other hazardous waste such as used oil will be according to EQA hazardous waste management regulations that meet Basel convention requirements.
f) Existing technical facilities for treating and disposing of hazardous waste should be assigned before the start of the project.
g) For emergency cases, all workers expected to be in contact with hazardous waste should be trained for safe handling of hazardous waste.
h) All workers should be familiar with hazardous waste warning signs.

6.1.27 Grievance Mechanism for Workers

Contractors will put in place a Grievance Mechanism for their workers that are proportionate to their workforce, according to the following principles:

Provision of information: All workers should be informed about the grievance mechanism at the time they are hired, and details about how it operates should be easily available, for example, included in worker documentation or on notice boards.

Transparency of the process: Workers must know to whom they can turn in the event of a grievance and the support and sources of advice that are available to them. All line and senior managers must be familiar with their organization's grievance procedure.

Keeping it up to date: The process should be regularly reviewed and kept up to date, for example, by referencing any new statutory guidelines, changes in contracts or representation.

Confidentiality: The process should ensure that a complaint is dealt with confidentially. While procedures may specify that complaints should first be made to the workers' line manager, there should also be the option of raising a grievance first with an alternative manager, for example, a human resource (personnel) manager.

Non-retribution: Procedures should guarantee that any worker raising a complaint will not be subject to any reprisal.

Reasonable timescales: Procedures should allow for time to investigate grievances fully but should aim for swift resolutions. The longer a grievance is allowed to continue, the harder it can be for both sides to get back to normal afterwards. Time limits should be set for each stage of the process, for example, a maximum time between a grievance being raised and the setting up of a meeting to investigate it.

Right of appeal: A worker should have the right to appeal to PENRA or national courts if he or she is not happy with the initial finding.

Right to be accompanied: In any meetings or hearings, the worker should have the right to be accompanied by a colleague, friend or union representative.

Keeping records: Written records should be kept at all stages. The initial complaint should be in writing if possible, along with the response, notes of any meetings and the findings and the reasons for the findings.

Relationship with collective agreements: Grievance procedures should be consistent with any collective agreements.

Relationship with regulation: Grievance processes should be compliant with the national employment code.

7. Institutional Set Up for Environmental and Social Monitoring and Capacity Building Requirements

Responsibilities for Environmental and Social Monitoring

As mentioned in section 2.3 concerning the Environmental and Social implementation measures, the ESO at PENRA's PMU will be responsible for compliance with any provisions of environmental and social documents required under the ESF. He/She will be updating the drafted documents as soon as the components will be more specifically determined. The ESO will also be responsible for monitoring of the plans and along the course of Project implementation the need to assign ESOs at the level of PETL and DISCOs will be assessed.

The EQA will be fully informed and any additional requirements will be followed between the ESO and the EQA. PENRA will be responsible for grievances reported from communities and workers related to the implementation of project activities.

Monitoring Evaluation and Reporting

The objectives for monitoring are:

- To record environmental impacts resulting from the sub-project activities and to ensure implementation of the "mitigation measures" identified earlier in order to reduce adverse impacts and enhance positive impacts from project activities.
- To alert project authorities by providing timely information about the success or otherwise of the EIA process as outlined in this ESMF in such a manner that changes to the system can be made in a timely manner, if required; and
- To make a final evaluation in order to determine whether the mitigation measures designed into the sub-projects have been successful in such a way that the pre- subproject environmental and social conditions have been restored, improved upon or are worse than before.

Environmental monitoring needs to be carried out during pre-construction, construction and post construction of the sub-projects in order to measure the success of the recommended mitigation measures.

Pre-construction stage Ensure that:

- Proposed construction activities, are as applicable at each site(s), are subjected to environmental screening; plan and design for construction activities confirms to the Environmental Guidelines of the WB and/or the Palestinian Environmental Law; and

- Site specific Environmental Assessment (ESMP or ESIA) is prepared on time and incorporated into bidding documents.

Construction Phase: ESO at PENRA will conduct compliance monitoring, using the specific environmental measures relevant to, and prescribed for the activities as well as to assess general environmental management/performance. Report should contain information with regard to environmental compliance in accordance to the provisions of the Tender Document as well as any difficulty or outstanding works need to be prepared. A monitoring plan should be prepared by the ESO.

Apart from general monitoring of mitigation/enhancement measures and health and safety protocols (as outlined in the ESMF and Tender Document), important environmental parameters to be monitored during the construction phase of the sub-projects include noise level, drainage congestion, and traffic problems. However, the requirement and frequency of monitoring would depend on the type of sub-project and field situation. For certain sub-projects (e.g., rehabilitation of existing distribution line), monitoring of these parameters is not critical; while monitoring of some of these parameters (e.g., noise level) would be needed only if significant pollution is suspected. Table 7 presents guidelines for monitoring of specific environmental parameters during construction phase of different sub-projects. In addition of Table 7, describe the routine monitoring work will be done by PENRA's ESO to ensure that:

- All personnel at work sites shall be provided with protective gears like helmets, goggles, boots, etc. so that injuries to personnel are avoided or minimized.
- Workforce, likely to be exposed to noise levels beyond regulatory stipulated limits, shall be provided with protective gears like hear plugs etc. and regularly rotated.
- Dust suppression measures like sprinkling of water shall be ensured at all operations areas.
- The work and campsites shall have suitable facilities for handling any emergency situation like fire, explosion, electrocution, etc.
- All areas intended for storage of hazardous materials shall be quarantined and provided with adequate facilities to combat emergency situations. All required permits for storage of inflammable/hazardous materials are to be obtained.
- The construction workers, supervisors and engineers shall be properly trained and with sufficient experience.
- The operational areas shall be access controlled and entry shall be allowed only under authorization.

Post-construction Phase: ESO at PENRA will prepare a summary report for the implementation effectiveness of all environmental and social mitigation measures and share it with stakeholders and communities and share it with the WB.
The following are some of the pertinent parameters and verifiable indicators that can be used to measure ESMF process, mitigation plans and performance.

- Has the project resulted in better living standards for the community?

- How has the adoption of the ESMF requirements improve the environmental health and biophysical state of the people?
- Has the project resulted in job creation?
- Has ESMF adoption resulted in sustainable use of energy and improved efficiency?
- Are periodic monitoring reports being completed?
- Are processes defined in the ESMF working well?
- How many complaints/grievances have been received regarding the project?

The following table shows some specific environmental and social indicators that need to be monitored and assessed by various institutions.

Table 8: Environmental and Social Indicators and Monitored Institutions

Impact	Indicator	Information Source	Responsibility
Air Emissions	Reduction in GHG caused by the project cumulative reduction in GHG emissions from project installations.	Contractor	PENRA
Noise Emissions	Noise intensity and duration in installation of solar panels.	Contractor	PENRA, JDECO
Heat or Light Reflection	Number of Complaints on heat or light reflection	Contractor	PENRA, EQA
Biodiversity	Number of tress that have fallen. Reported Number of incidents of injury and killing of birds.	Contractor	PENRA, EQA
Chemicals	Number of recorded accidents due to chemical exposure	Contractor	PENRA, EQA
Cultural Heritage	Reported complaints on reduction of aesthetic value or impact on heritage.	Contractor	PENRA, EQA
Employment	Number of technical and unskilled workers hired and contract duration.	Contraction	PENRA

Impact	Indicator	Information Source	Responsibility
Economic and livelihood impacts	Individual project cost saving to utility company. Price of solar panels purchased per kW. Cumulative cost saving to government. Changes in household incomes in project locations. Proportion of household expenditure on electricity.	JDECO	PENRA
Social Conflicts	Number of stakeholders consulted and minutes of the meeting. Number of complaints received on inconvenience and maintenance.	Contractor, JEDCO	PENRA, EQA
Health and Safety	Quantity of day to day waste produced and taken to waste management site. Quantity of solar panel special waste taken to designated waste. Quantity of solar panel waste exported	Contractor	PENRA, EQA

The implementation effectiveness will be carried out by PENRA. This will be undertaken during midterm and end of the project. The evaluation will assess ESMF's effectiveness in addressing environmental and social impacts of the project. The midterm evaluation will give feedback for implementation of the ESMF.

Monitoring Frequency will be carried out once every week, particularly during heavy equipment, once a week; when drainage/traffic congestion suspected, once a week, and as and when needed.

Capacity Building and Training Requirement

A qualified and trained staff at PENRA PMU, PETEL, and DISCOs is very essential to ensure that mitigation measures have been applied, implemented and are functioning as intended. This means that staff from above institutions is having:

- Training and awareness sessions related to environmental management, policies and regulations.
- Training on environmental assessment and monitoring activities specific to energy projects.
- Training sessions on preparing manuals and guidelines on how to assess the environmental impact of ASPIRE project components.
- Training on how to record and resolve any grievance.

ESMF implementation Budget

The cost of mitigation measures of the ESMP, which is part of the project tender documents, will be included in the BOQ and the Bidding documents.

Example of mitigation measures' costs including:

- Costs of dust suppression during excavation works and costs of monitoring noise during construction (shall be calculated based on the frequency of monitoring and cost of equipment);
- Costs of installing erosion control measures shall be estimated as part of the engineering costs;
- Cost of labor management and labor and community health and safety shall be estimated as part of the engineering costs;
- Cost of waste management procedures shall be estimated as part of the engineering costs;
- Cost of clean-up and disposal of construction debris and waste shall be estimated as part of the engineering costs;
- Cost of implementation of stakeholder engagement and grievance mechanism; and
- Costs related to hiring and training of ESO.

PENRA will be responsible for financing the Environment and Safety Officer post and monitoring activities, as part of the project administrative costs. It may be useful to institute monitoring milestones and provide resources, as necessary, in order to carry out the monitoring activities. Also, the proposed indicators may be further elaborated and validated to accommodate any significant site-specific needs, in each case with input and oversight of the EQA and in compliance with Word Bank ESF.

Table 9 presents an indicative budget for the actions of ESMF implementation covering (i) cost of hiring ESO, (ii) cost of training, and (iii) cost of orientation seminar for contractors.

Table 9: **ESMF Cost Estimate**

Activities	Quantity	Unit Rate $	Total $
ESO expenses			
Remuneration of ESO	104[1]	1800[2]	188,000
Health Insurance	8	800	6,500
Phone	8	700	5,500
Laptop	1	600	600
Capacity Building for ESO by Local Technical Consultant	1	6,000	6,000
SEP implementation			
Site visits	1-2 visits /week	50	16,000
Consultation sessions	50	50	2,500
Training sessions for contractors	3	1000	3,000
GRM communication material	(leaflets, GRM boxes, Manuals)		5,000
GRM management / Database			20,000
Information disclosure (including media)	8	1,000	8,000
Internal Training	7	500	3,500
Other activities			
Monitoring Site visits	2 visits /months	50	10,000
Environmental orientation Seminars	4	6,000	24,000

Environmental and social management cost under Local Technical Consultant contract	2	3,000	6,000
Legal consultant	2	3,000	6,000
Dispute resolution budget	Lump sum		150,000
Permits	Lupsum		20,000
Consultancies	10%		48,060
Miscellaneous		6,000	6,000
Total			534,660[3]

[1] Considering the ASPIRE will have 96 months and 1 month/ year end of service
[2] including taxes
[3] This budget is not taken into account the Institutional Risk assessment of the project. The remedies measures need to be implemented and financial from the project budget.

8. Social Management Framework

This section of the Social Management Framework (SMF) will provide guidelines regarding the mechanism to identify and address concerns and impacts resulting from the project's activities during the project's life cycle. The SMF also aims to ensure that a transparent and inclusive approach are integrated into the project's activities by engaging all potential stakeholders starting from the planning phase and throughout the project's lifecycle to ensure sustainable outcomes. The adoption of a transparent and inclusive approach ensures the early identification of potential social risks that might be caused by the project's activities and allows the stakeholders to participate in finding mitigation solutions to them. Broader participation and engagement of key stakeholders, public transparency, and institutional accountability fosters a sense of ownership over the project, allows early identification of social risks and contribute to designing comprehensive mitigation strategies to them.

Social Management Principles

8.1.1 Inclusion

The project should ensure that disadvantaged or vulnerable groups in the communities are identified and involved in the project activities starting from the planning phase to post implementation. The opinion, expectations and concerns of these groups are as equally important as of the wider population in any community where the project's

activities will take place. These include the very poor, women, minority communities, disabled people and people with special social or cultural characteristics.

8.1.2 Participation

The communities should have the opportunity to have deep and positive exchange of information and be fully engaged in the project's activities. Stakeholders should have full access to the project's information and have the opportunity to participate in designing the project's activities and monitor its progress and also provide feedback when needed. Communication between the project stakeholders and the project's implementing partners should be both- ways rather than one- way.

8.1.3 Transparency

Stakeholders should be able to have full access to information concerning the project's activities. The project implementing partners should disclose the project information through domains that are accessible and known to the stakeholders taking into consideration their different educational levels. The disclosed information includes all project information including but not limited to reports from the initial environmental and social screening visits and consultation meetings as well as resettlement action plan, where applicable.

8.1.4 Social Accountability

Social accountability will be an integral component in the project's design allowing the local community to be fully engaged in the project. To strengthen transparency and accountability includes strengthening the Grievance Redress and Management systems. Responses to grievances should be given on timely manner.

8.1.5 Social Safeguards

The following social safeguarding principles among others will be followed and incorporated in all mitigation plans consistent with the requirements of the RF and ESS5:

- All Project Affected Parties (PAPs) will be compensated for losses resulting from project interventions.
- All compensation will be at replacement value; i.e. current market price at which the asset can be replaced, without deducting depreciation and salvage value.
- The project implementing partners will announce the cut-off date and will determine the people who will be included as PAPs. The public consultation and communication component will be an ongoing activity of the project.

- A clear Grievance Redress Mechanism (GRM) will be developed and publically announced through portals known to all PAPs allowing them to file their grievances and ensuring fair, appropriate and comprehensive solution to their problems.

Social Management Procedure

The social management plan of the proposed project will start with the identification of sub-projects followed by social and environmental baseline screening of the sub-projects. Based on the social and environmental screening, a social assessment plan would be determined. If a sub-project is found to have no significant social safeguard issues including loss of land, assets or source of income, only a social safeguard report will be prepared summarizing the findings of the screening. However, if the screening identifies social safeguard issues, the sub-project would require social impact assessment, along with preparation of resettlement action plan (RAP).

Grievance Redress Mechanism

In compliance with the World Bank's ESS10 requirement, a specific Grievance Mechanism (GRM) should be set-up for the project. The GRM is essential to allow individuals who believe the project's activities will have adverse effects on their livelihoods, assets or wellbeing have access to fair and just solution to their concerns. The GRM would include the formation of a special committee which will be responsible to:

- Receive, record and sort grievances;
- Conduct an initial assessment of the grievances;
- Refer grievances to appropriate units or people;
- Follow up with the filed grievances;
- Closure of grievances

The committee's members should receive a capacity building training on how to receive, handle, respond and close the filed grievances in line with best international practices.
The GRM should also include the production of written information material including pamphlets and posters which include information about the project as well as the GRM. Possible portals to submit grievances include: suggestion boxes in local council headquarters, the local mosque; social media pages like Facebook. A designated database should be established to handle the filed grievances.

Resettlement Framework

Resettlement Framework (RF) is prepared as separate document for the project. The RF sets out the policies, principles, institutional arrangements, schedules and indicative budgets that will take care of anticipated resettlements for various project components. These arrangements ensure that there is a systematic process for ASPIRE's implementation that assures continuous beneficiary participation, involvement of relevant institutions and stakeholders, adherence to World Bank ESSs requirements, in particular ESS5 and ESS10, and the national procedures and requirements, and outline entitlement and compensation for affected persons. RF has attempted to identify the Project Affected Persons (PAPs), types of impacts, strategies for compensation and/or restoration of potential losses for individual and business. RF provides guidance to PENRA to establish the mechanism to compensate losses adequately according to the correspondent legislations and ESS5 requirements, and to apply the project activities with the least disturbance to the communities hosting the project.

RF also applies to other activities resulting in involuntary resettlement that in the judgment of the Bank, are directly and significantly related to the Bank-assisted project, necessary to achieve its objectives and carried out or planned to be carried out, contemporaneously with the project. The eligibility criteria will ensure that all PAPs are clearly recognized as eligible for assistance as per the provisions of the RF for the land that they occupy, or their livelihoods or assets that are affected. As required by the RF, consultation with local authorities and PAPs at various site locations were conducted by PENRA. The participants were informed about the project's salient features and possible impacts to the local population. The feedback and areas of concerns provided by the participants was carefully recorded for further action.

PENRA will prepare the RAPs for Tubas-Nablus medium voltage line in Yasid and possibly in some of the connection points and the medium voltage line between Jericho and Ramallah passing through the Bedouin communities in Al-Muarajat based on the RF in a manner acceptable to the Bank.

Implementation and Monitoring of RAP

PENRA will submit the subproject RAP (where required) to the Bank for review and clearance before implementation. PENRA upon approval from the Bank will implement the RAP with assistance from the consultants and the ESO, Surveyors and Overseers. Individual payment plan will be prepared for each affected persons and mitigation plans including replacement of affected physical structures by PENRA will be also documented as a reference for future tracking. All declarations and agreements as per RAP will be executed before taking over land through voluntary contribution, direct purchase or exchange and disclosed for the public.

For RAP implementation, PENRA's ESO will be responsible to follow up and monitor that the RAP is implemented according to the timings associated with the project re-settlement process. PENRA will also be responsible for performance monitoring against previously set milestones including number of public consultation meetings held, censuses of individuals, assets and inventories conducted; number of housing units allocated.

PENRA will also recruit an external local consultant to conduct an external monitoring of the resettlement process. The consultant will monitor if the PAPs have been fairly compensated and re-established their incomes and livelihoods to pre-project levels or better.

9. Public Consultation and Stakeholder Engagement

A Stakeholder Engagement Plan (SEP) has been developed for the project that seeks to define a technically and culturally appropriate approach to consultation and disclosure. The goal of this SEP is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project-affected people and other stakeholders in a timely manner, and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence Project decisions. The SEP is a useful tool for managing communications between PENRA and its stakeholders.

For the Transmission Lines and connection points components, there will be a need to communicate directly with owners of lands who will be affected by clearance of the road reservation. It is not possible to identify these individuals at this stage, but PENRA will be responsible for preparing a communication plan to discuss potential impacts and agree timing for Transmission clearance activities when the exact location of the subprojects are identified.

The public consultation and stakeholder engagement (PC and SE) seek to define a technically and culturally appropriate approach to consultation, disclosure and grievance redress. The goal of this stakeholder engagement (SE) is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project-affected people and other stakeholders in a timely manner, and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence Project decisions. Therefore, the SE is a useful tool for managing communications between PENRA and its stakeholders.

A provisional list of affected communities has already been compiled based on the proposed sites and area of impact. Consultations and engagement with Yasid and Al-Muarajat and other four communities including Qalqilya, Fandoqomiya, Sarra, and Awarta

were conducted and reported in the SEP separate document. During consultation, the communities were informed during the meetings that a GRM system will be available to them prior to the implementation phase to file complaints and concerns related to the project activities. Different stakeholder engagement activities that have taken place to date and detailed description of the stakeholder engagement activities for each component are available in the SEP document. Summary of consultations are presented in Annex 3.

The SEP will be updated once the exact locations of subprojects are identified and the ESO shall be engaged by the project to liaison with the local stakeholders and project affected community.

8.1.6 Analysis of Communities' requests and fears/concerns

The following table illustrate the needs and the concerns raised by the communities' people during the consultation activities conducted over different timescales. The PENRA was keen to address these raised concerns.

Analysis of concerns and mitigation measures

Fear/Concern	Mitigation measures
Fear for public safety due to magnetic fields, malfunctions in lines	- The proposed Medium voltage network lines had been designed horizontally so they are at a distance of no less than 2 m from buildings in accordance with international standards. - The proposed Medium voltage electrical networks do not pass over buildings and houses. - Prepare a labor management procedure (LMP) and occupational health and safety (OHS) guidelines - Community health and safety measures - Raise public awareness on the contractor's responsibility commitment to the ESMPs and LMP where child labor bellow age 18 will not be allowed be allowed
Fear that the land would lose its value due to the project's	- Prepare a stakeholder engagement plan (SEP) - Plan land use change Compensation, relocation - Prepare Resettlement Action Plan (RAP)

Fear of affecting the village Flora	- In designing the project's activities including the towers' proposed sites, the project shall take into consideration that it does not bring harm to vegetation including old trees, or green areas. - Avoid installation sites that require cutting or substantially pruning a protected tree, an old tree or known bird-nesting tree. - In some specific sites trees are to be removed in order to build new connection points, the trees will have to be planted in the same type of soil in another place.
Fear of losing access to private land or inability to build or construct in the land	- The most preferable temporal routes will be considered prior to construction time after authorization (Use of existing routes will be priority as far as possible). - A census and asset survey will be undertaken as part of the ESIA and RAP to identify the eligible PAPs and determine the magnitude and significance of the land impact - Local Authorities of affected areas and land owners within the route will be approached by the project manager and the ESO for explanation of project scope and beneficiary PAP will gain. - -All affected will be identified and compensated as per resettlement policy framework and subsequent RAP - Stakeholder consultations will be undertaken in line with the SEP - A Grievance Mechanism will be implemented and monitored
Fear that the land would lose its value due to the project's activities mainly the towers	- A survey team shall ensure that during the survey and tower pegging processes the tower to be established causes no damage to the habitat of existing communities. - A marked route pegs should be designed to guide awarded contractor on appropriate route to take. - A Grievance Mechanism will be implemented and monitored - Plan land use change compensation, relocation - Any affected land should be rehabilitated directly after constructing the towers
Fear that the project would endanger their lives because they live in semi- permanent	- The survey team shall ensure that during the survey and tower pegging processes the tower to be established causes no damage to the habitat of existing communities. - Prepare a labor management procedure (LMP) and occupational health and safety (OHS) guidelines

homes made of corrugated metal.	- Community health and safety measures should be prepared and applied.
Fear of increased charges on electricity service. As an example, given by the attendees is that electricity prices in Qalqilya are much lower than in Nablus which receives its services from NEDCO.	- PERC should regulate the electricity price. - Before setting electricity service prices, living standards conditions should be taken into consideration.
Lack of trust with DISCO. As an example is the previous bad experience with TEDCO.	- The distribution companies as service providers should work to restore their credibility among the end users. - In designing the project's activities, the company shall ensure that the village residents are engaged and well informed of the project's sites activities. - Distribution companies should make sure that erected towers will be within the street's right of way. - TEDCO or any other distribution company should raise the public's knowledge about the project through public sessions, media, radio spots etc. - Prepare Grievance mechanism and make it that is clear to the public.
Fear that the project's activities will trespass over the farmers' private land and not within the road's RoW.	- Redesign route path to make sure that project's activities will not trespass over farmers' private land. If cannot avoided, then a times chedule for activities to be carried out should be prepared and proposed for private land over to approve before work started. - Distribution companies should make sure that erected towers will be within the street's right of way. - A census and asset survey will be undertaken as part of the ESIA and RAP to identify the eligible PAPs and determine the magnitude and significance of the land impact. - Make sure that even when the existing road is widen to 20m. as it was designed for, the location of new towers will not trespass private land

	- A grievance mechanisms for affected areas and land concerns within the route will be implemented and monitored by Local authorities, project manager and EOS.
The project would contribute to economic activity in the area like quarries which would disturb our way of living.	- Quarries owners should comply with OSH guidelines in order not to affect people surrounded the quarries.
Unfair Employment practices	- Priority for employment within the project activities should be given to local people but should be in comply with the LMP.

10. Grievance Redress Mechanism (GRM)

The Grievance Redress Mechanism (GRM) addresses grievances in an efficient, timely and cost-effective manner, that arise in the Project, either due to actions by PENRA or the contractor/sub-contractors employed by PENRA, from affected communities and external stakeholders. A separate mechanism is developed to address worker grievances. PENRA is responsible for managing the GRM, but many of the grievances on the Project will likely relate to the actions of the Contractor and so will need to be resolved by the Contractor. PENRA with the support of the Implementation Consultant will administer the GRM process deciding whether they or the Contractor is responsible and determining the best course of action to resolve the grievance. The Implementation Consultant will support PENRA to monitor grievance resolution being undertaken by the contractor.

The project GRM deals with the issues of land and other assets acquisition (e.g. amount of compensation, suitability of residual land plots, loss of access roads, loss of livelihood, etc.) as well as the losses and damages caused by construction works, and any direct or indirect environmental and social impacts. Therefore, the grievance redress mechanism has to be in place by the time PENRA starts preparation of RP (if applicable), ESIA and shall function until the completion of all construction activities and beyond till the defect liability period ends. PAPs and other potential complainants should be fully informed of the GRM, its functions, procedures, and timelines and contact persons both verbally and through booklets and information brochures during consultations meetings and other stakeholder engagement activities. PENRA will

keep a log of the complaints at hand.

Typical grievances related to the project activities are:

1. Land acquisition and physical displacement
2. Loss of land value due to project's activities
3. Loss of access to private properties or assets due to project activities
4. Physical damages to health and wellbeing during project construction phase and post- construction phase
5. Damages to residents' source of income like crops, trees or livestock.

PENRA will implement an effective GRM, with the objective of helping third parties to avoid resorting to the judicial system as far as possible. Complainants can seek redress from the judicial system at any time. The step-by-step process does not deter them from approaching the courts. All grievance related correspondence will be documented and the grievance resolution process will be systematically tracked.

10.1 Grievance Process

The Environmental and Social Officer (ESO) will be assigned to follow up complaints related to the project. The complaint, in order to be filed, should be related to the project components and/or to its implementation and management. The grievance resolution process involves the following main steps:

10.1.1 Receipt of Grievances

Anyone from the affected communities or anyone believing they are affected by the Project can submit a grievance:

- By completing a written grievance registration form that will be available - (i) at the local municipalities and in the affected villages (i.e. those within proximity of construction activities); (ii) at the entrance of each construction site; (iii) on the Project's website; and (iv) at the Project's headquarters in Ramallah and Gaza. Grievance registration forms will be provided. The Project's Environmental and Social Officer will review the received grievances and record them in a Grievance Register.
- Electronically: the complainant files a complaint electronically using the electronic GRM forms on the ministry website: http://www.penra.pna.ps
- By telephone: the complainant can call the following numbers:
- PENRA Ramallah: +970 2 2984752
- PENRA Gaza: +970 9 238477
- ESO mobile once hired: TBD
- By email: ESO@penra.ps

Where possible it is desirable that complaints are submitted in writing by the complainant. Should the complainant not wish to comply with this request and submit the complaint verbally, then the complainant information and the details of the complaint should be entered in the GRM log.

10.1.2 Procedures for filing complaints

The complainant fills in the designated form in writing and signs it, or fills it electronically including all personal information and details of the complaint.
The complainant encloses all copies of documents which may support the complaint.
The GRM staff at the Complaints Unit will ensure that the form is filled in accurately.
The complainant receives a receipt or a confirmation email of acknowledgment with a reference number to track the complaint.
If the complainant choses to file his/her complaint verbally, the GRM employee must register the complainant information and details of the complaint into the system. The complainant will receive a reference number to track his/her complaint.

10.1.3 Registering complaints

The GRM staff will enter the complaint into the GRM log. The complaints register records the following information:

- Complaint Reference Number
- Date of receipt of complaint
- Name of complainant
- Confirmation that a complaint is acknowledged
- Brief description of Complaint
- Details of internal and external communication
- Action taken: (Including remedies / determinations / result)
- Date of finalization of complaint

Original documentation must be kept on file.

10.1.4 Referral and Examination of complaints

A GRM system will be established, which include a GRM Committee. The ESO will inform the complainant that an investigation is underway within three business days. The complainant shall be informed of the estimated duration for resolving the complaint which is no later than ten business days from the date of receipt of the complaint. Where the complaint is unlikely to be resolved within the estimated duration, the ESO must promptly contact the complainant to request additional time and explain the delay. In any event, the complaint must be resolved no later than two weeks from

the date of receipt of the complaint. If the complaint is not, the ESO will refer the complaint to the Director of the PMU to take the appropriate measures.

The ESO will then follow the steps below:

- Verify the validity of the information and documents enclosed.
- Ask the complainant to provide further information if necessary.
- Refer the complaint to the relevant department.
- ESO charge in the relevant department shall conduct field visits for verification, if necessary, and prepare recommendation to the PMU director of actions to be taken and of any corrective measures to avoid possible reoccurrence.
- The ESO shall register the decision and actions taken in the GRM log.

10.1.5 Notifying the complainant and Closing the complaint

- **Notifying the Complainant:**

The ESO shall notify the complainant of the decision/solution/action immediately either in writing, or by calling or sending the complainant a text message.
When providing a response to the complainant, the ESO must include the following information:
• A summary of issues raised in the initial complaint;
• Reason for the decision.

- **Closing the Complaint:**

A complaint is closed in the following cases:

- Where the decision/solution of complaint is accepted by the complainant, the ESO shall close the complaint and sign outcome and date in the Complaint Register.
- A Complaint that is not related to the project or any of its components.
- A Complaint that is being heard by the judiciary.
- A malicious complaint.

10.1.6 Additional Dispute Resolution Scheme

Where the complainant is not satisfied with the outcome of his/her complaint, the following procedures shall be considered:

- Internal Dispute Resolution Scheme

The ESO shall advise the complainants that if they are not satisfied with the outcome of their complaint, they may readdress the issues with the DG of PMU at PENRA and request a further review or consideration.

Where the complainants are not satisfied with the resolution provided by the DG of PMU, the ESO shall advise the complainants to readdress the issue either to the President of PENRA.

- **External Dispute Resolution Scheme**

In case the complainants are not satisfied with the internal procedures for handling complaints, the outcomes of the complaints or for any unhandled complaints, the ESO shall provide information on a complainant's right to refer their complaint to the Cabinet's Unit for grievances or to the judicial system.

10.1.7 Reporting

The ESO shall review the Complaints Register regularly for the purpose of providing analysis and reports on complaints to the Director of the PMU and the World Bank periodically. The report shall include number of complaints received, handled and closed. It shall also include analysis on systemic and recurring problems. This will assist the project management in determining the cause of complaints and whether remedial action is warranted.

Periodic Reporting shall be as following:

- A monthly report to the project management at the PMCU.
- A quarterly or semi-annual report to the project management at the World Bank.

10.2 Back/grievance monitoring and recording

There is a Complaints Unit at PENRA. The Complaints Unit headed by ESO work is regulated by the Council of Ministers Decision No. (8) of 2016 and by the Procedure Manual No. (20/17) of 2017. Both documents are made public and published in Arabic on the ministries' websites. A detailed GRM manual that includes guidelines on filing and handling complaints at the project's level has been prepared with the support of the World Bank consultant. PENRA will keep log for grievances and how complaints were resolved within a stipulated time frame and then produce monthly reports for senior management. Grievances/feedback reports include data on numbers of grievances/feedback received, compliance with business standards, issues raised in grievances/feedback, trends in grievances/feedback over time, the causes of grievances/feedback, whether remedial action was warranted, and what redress was provided.

10.3 World Bank Grievance Redress System

Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may also complaint directly to the Bank through the Bank's Grievance Redress Service (GRS) (http://projects-beta.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service).
A complaint can be submitted to the Bank GRS through the following channels:

- By email: grievances@worldbank.org
- By fax: +1.202.614.7313
- By mail: The World Bank, Grievance Redress Service, MSN MC10-1018, 1818 H Street Northwest, Washington, DC 20433, USA

10.4 Workers' Grievance Mechanism

PENRA will require contractors to develop and implement a grievance mechanism for their workforce prior to the start of civil works. The construction contractors will prepare their labor management procedure before the start of civil works, which will also include detailed description of the workers grievance mechanism.
The workers grievance mechanism will include:

- a procedure to receive grievances such as comment/complaint form, suggestion boxes, email, a telephone hotline;
- stipulated timeframes to respond to grievances;
- a register to record and track the timely resolution of grievances;
- an assigned staff to receive, record and track resolution of grievances.

The workers grievance mechanism will be described in staff induction trainings, which will be provided to all project workers. Information about the existence of the grievance mechanism will be readily available to all project workers (direct and contracted) through notice boards, the presence of "suggestion/complaint boxes", and other means as needed. The ESO will monitor the contractors' recording and resolution of grievances, and report these to PENRA in their monthly progress reports.

10.5 PENRA Contact Information

The point of contact regarding grievance management and the local stakeholder engagement activities is the General Director of the PMU at PENRA:

Description	Contact details
Agency:	PENRA
To:	Mr. Abdel Hadi Barakat General Director of the Project Management
E-mail:	abarakat@penra.pna.ps

Description	Contact details
Website:	http://www.penra.gov.ps/
Telephone:	02-2984752

Information on the Project and future stakeholder engagement programs will available on the Project's website. Information can also be obtained from the ESO. Six-monthly E&S reports that document the implementation of the Stakeholder Engagement Plan (SEP) will be disclosed on the Project website.

Annex 1: Comparative Analysis of Applicable ESSs and Palestinian's National Regulations

The following table matches the relevant World Bank's 10 Environmental and Social Standards with the relevant Palestinian national laws and regulations.

Note: This comparison is a preliminary and indicative in nature.

ESF	National Laws and Requirements	Gaps
ESS1: Assessment and Management of Environmental and Social Risks and Impacts		
Identify, assess, evaluate, and manage environment and social risks and impacts.	**Environment Act No 7, 1999** aims to protect the environment from all different forms of pollution, inserts environmental protection grounds in the economical & social developmental plans, conserves the biodiversity, protects the environmentally sensitive areas and improves the environmentally damaged areas. **Chapter 3 of the Environment Act No 7, 1999** relates to the EIA, **section 1** identifies the subjected projects under the EIA studies, **section 2** sets out the nature of licenses and permissions on the projects that may affect the environment, **section 3** lays out the inspections and the administrative procedures regarding the facilities and the projects.	No significant gaps between Performance Standard 1 and the national laws.
To adopt a mitigation hierarchy approach to:	**Environment Act No 7, 1999** aims to protect the environment from all different forms of pollution, inserts environmental protection grounds in the economical & social developmental	No significant gaps between ESS1 and the various national laws.

Anticipate and avoid risks and impacts; Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; Once risks and impacts have been minimized or reduced, mitigate; and Where significant Residual impacts remain, compensate for or offset them, where technically and financially feasible.	plans, conserves the biodiversity, protects the environmentally sensitive areas as well as improves the environmentally damaged areas.	
To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable.	No provision in the National laws for adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable	This is gap between ESS1 and the national laws.

To utilize national environmental and social institutions, systems, laws, Regulations and procedures in the assessment, development and implementation of projects, whenever appropriate.	There are many Palestinian institutions, regulations, and laws that support the environmental protection and the sustainable development as well as to the international environmental conventions that are adopted, these include: **Authorities and Institutions: -** Environment Quality Authority (EQA). Palestine Association for Education & Environmental Protection. Palestinian Environmental Friends Association. **Laws, Regulations and Procedures:** The Environment Act No 7, 1999 which represents the general legal framework regulating rights, duties in protecting the environment. EQA adopted the Environmental Impact Assessment Policy. United Nations Framework Convention on Climate Change (UNFCCC).	This project is not using country systems per se.

	United Nations Convention to Combat Desertification (UNCCD).	
To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.	Improve and support the environment, for example: Project to strengthen the capacity of the Ministry of Environmental Affairs in the field of supervision and inspection 2013. Horizon 2020 Capacity Building (2010-2014)	The Project in itself is an opportunity to enhance the environmental and social management systems in Palestine.
ESS2: Labor and Working Conditions		
To promote safety and health at work.	**Section 5 of Chapter 1 of the Public Health Act No 20, 2004 states the Occupational Health**. Article 34 of this section identifies the health conditions to be met by workers in their occupations, trades, and industries that may affect their health; it also identifies the initial & preventive tests that are vital for workers in their occupations, trades, and industries. **Chapter 5 of the Employment Act No 7, 2000** lays out the conditions of the work, **section 1** of this chapter defines the working hours and leaves; **Article 68;** the working hours are 45 hours per week,	Apply ESS2 requirements for the development and implementation of a labor management procedures applicable to the project. These procedures will set out the way in which workers will be a managed safely in accordance with requirements of national employment laws and ESS2 requirements."

	Article 69; daily working hours shall be reduced by at least one hour in hazardous or harmful work to health and night work**.** **Article 70;** daily working hours should have a period or more for worker to rest. This should not be more than 1 hour, taking into account that the worker should not work more than 5 hours without a break. **Article 90** states means of personal protection and prevention of workers from work hazards and occupational diseases. **Chapter 9 of the Employment Act No 7, 2000** defines the working injuries and states the treatment that should be provided to the injured worker as well as the compensations that should be given.	
To promote the fair treatment, non-discrimination and equal opportunity for project workers.	**The Employment Act No 7, 2000;** **Article 2:** work is a right for every citizen that can work and it is on the basis of equal opportunity & without any kind of discrimination. **Article 90:** discrimination between men and women is prohibited.	No precise clarification regarding the penalties towards all types of discrimination. Special measures of protection and assistance to remedy discrimination or selection for a particulate job based on the inherent requirements of the job or the objectives of the project should be consistent with national law.

To protect project workers, including vulnerable workers such as women, people with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate.	**The Employment Act No 7, 2000;** **Article 2:** working is a right for every citizen that can work and it is on the basis of equal opportunity & without any kind of discrimination. **Article 13:** The employer is obliged to employ a number of qualified disabled workers in work commensurate with their disability at least (5%) of the size of the workforce in the establishment. **Article 90:** discrimination between men and women is prohibited. **Article 93:** Children employment before 15 years is prohibited. **Article 101:** Employment of women is prohibited in the three following cases; dangerous work, additional working hours during pregnancy and the first six months of giving birth, night working hours except the occupations that the ministries council defines. **The Council of Ministers Act 11, 2012** determines the minimum wage of the worker; The minimum monthly wage in all areas of the Palestinian National Authority and in all sectors shall be (1450 NIS).	No significant gaps between ESS2 requirement and the various national laws

	The minimum wage for day laborers, especially those who work daily, shall be irregular, in addition to seasonal workers (65 NIS). The minimum wage per hour per worker shall be NIS (8.5 NIS). **The Employment Act No,2000, the Workman compensation;** **Article 119:** If a worker is temporarily incapacitated and has lost his or her ability to perform his / her temporary work, he / she is entitled to receive 75% of his / her daily wage up to a maximum of 180 days. **Article 120:** The amount of monetary compensation in the case of permanent total disability or death with 3500 working days or 80% of his basic wage until he reaches the age of sixty, whichever is higher. **In terms of the Act, Workman is any person who performs work for the employer for a wage and is in the course of his work under his administration and supervision.**	
To prevent the use of all forms of forced labor and child labor.	**The Employment Act No 7, 2000;** **Article 93:** Children employment before 15 years is prohib-ited. **Article 95:** juvenile must not work at; industries hazardous or harmful to health, night work, official or religious holidays or	No significant gaps between ESS 2 requirement and the various national laws

	public holidays, additional working hours, and remote, distant places. **Article 13 of the Palestinian constitution**; No one shall be subjected to any coercion or torture. **The Palestinian Child Act No 7, 2004;** **Article 14:** Children employment before 15 years is prohibited.	
To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.	**The Employment Act No 7, 2000:** In accordance with the provisions of the law, workers and employers have the right to form trade union organizations on a professional basis in order to protect their interests and defend their rights. **General Federation of Palestinian Workers' Union:** It organizes the labors based on professional grounds, it improves the labor conditions, follows up the labor demand issues, and defends the workers in case of labor disputes.	No significant gaps between ESS 2 requirement and the various national laws
To provide project workers with accessible means to raise workplace concerns.	No precise regulations or grievance procedures that raise the workplace concerns. Also, there are no specialized labor courts. Project-level worker GRMs are not covered in the law.	There is a gap in description the grievance procedures. Development of grievance mechanism is needed in order to make sure that workers are not prohibitive from freely practicing alternative

		mechanism to express their grievances and protect their rights regarding working conditions and terms of employment.
ESS3: Resource efficiency and Pollution Prevention and Management		
To promote the sustainable use of resources, including energy, water and raw materials.	**Environment Act No 7, 1999** aims to protect the environment from all different forms of pollution, inserts environmental protection grounds in the economical & social developmental plans, conserves the biodiversity, protects the environmentally sensitive areas and also improves the environmentally damaged areas. **Chapter 2 of the Environment Act No 7, 1999** presents the protection of all types of the environment including air, water, ground... and sets out plans, procedures, limits, conditions, and standards to prevent any deterioration or harm that may be caused to the environment.	There is gap between ESS3 requirement and the various national laws. National laws do not address all of the requirements of the ESF.
To avoid or minimize adverse impacts on human health and the environment by Avoiding or minimizing pollution from project activities.	**Environment Act No 7, 1999** aims to protect the environment from all different forms of pollution, inserts environmental protection grounds in the economical & social developmental plans, conserves the biodiversity, protects the environmentally sensitive areas and improves the environmentally damaged areas. **Chapter 3 of the Environment Act No 7, 1999** relates to the EIA, **section 1** identifies the subjected projects under the EIA	No significant gaps between ESS 3 requirement and the various national laws

	studies, **section 2** sets out the nature of licenses and permissions on the projects that may affect the environment, section 3 lays out the inspections and the administrative procedures regarding the facilities and the projects. **Chapter 4 of the Environment Act No 7, 1999** puts penalties for anyone or any project that violates the articles regarding the protection of the environment. **Article 76 of the Environment Act No 7, 1999** "Pay compensation" states that any person who has caused any environmental damage as a result of an act or negligence contrary to the provisions of this law or any international agreement to which Palestine is a party in is obliged to pay the appropriate damages in addition to the criminal responsibility stipulated in this law.	
To avoid or minimize project-related emissions of short and long-lived climate pollutants.	**Section 2 of Chapter 2 of the Environment Act No 7,** 1999, it describes all the regulations that are related to the atmosphere, it determines the air pollutant ratios, it restricts using any equipment that may produce a non-standard exhaust. **Article 24 of the Environment Act No 7, 1999** talks about reducing the depletion of the ozone layer in accordance to the international treaties which Palestine is signed on.	No significant gaps between ESS3 requirement and the various national laws
To avoid or minimize generationof hazardous and non- hazardous waste.	**Article 7 of the Environment Act No 7, 1999** sets out a plan of solid wastes management plan.	No significant gaps between ESS 3 requirement and the various national laws

	Article 11 of the Environment Act No 7, 1999 defines a list of the most dangerous wastes. **Article 12 of the Environment Act No 7, 1999** restricts the use of the dangerous materials by setting out many instructions and regulations. **Article 13 of the Environment Act No 7, 1999** bans any dangerous wastes and restricts their access through the Palestinian lands. **Apply hazardous waste by-law**	
To minimize and manage the risks and impacts associated with pesticide use.	**Article 14 of the Environment Act No 7, 1999** puts conditions to use the agricultural chemical materials. **Article 15 of the Environment Act No 7, 1999** puts special quantifications of the permitted agricultural chemical material. Palestine has an international convention regarding the pesticides; **Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.**	No significant gaps between ESS 3 requirement and the various national laws.
ESS 4 Community Health and Safety		
To anticipate and avoid adverse impacts on the health and safety of project-affected communities	Safety plan should be provided: Spray the dust with water Work only at the allowable hours.	There is gap between ESS 4 requirement and the various national laws

during the project lifecycle from both routine and non-routine circumstances	Use safety fence around the site. National laws do not have provisions to assess and manage specific risks and impacts to the community arising from Project activities including behavior of Project workers, response to emergency situations, and Gender Based Violence (GBV) and sexual exploitation and abuse (SEA).	
To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams.	Palestine has international conventions regarding the climate change and the environment: United Nations Framework Convention on Climate Change (UNFCCC). Stockholm Convention on Persistent Organic Pollutants (POPs). Basel convention	Still there is a need to empower all international convention and agreements.
To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials.	**The Traffic Act No 5, 2000** provides for the compliance of all the conditions of the vehicles that should have in the traffic roads as well as the traffic safety procedures. **Article 7 of the Environment Act No 7, 1999,** sets out a plan of solid wastes management plan. **Article 11 of the Environment Act No 7, 1999** defines a list of the most dangerous wastes.	There is gap resulted from the fact that the national laws only provides general guidelines. Hence there is a need to empower the environment Act no 7. This can be accomplished by the preparation of an ESMP specifically for respective component.

	Article 12 of the Environment Act No 7, 1999 restricts the use of the dangerous materials by setting out many instructions and regulations. **Article 13 of the Environment Act No 7, 1999** bans any dangerous wastes and restricts their access through the Palestinian lands. **Section 5 of Chapter 1 of the Public Health Act No 20, 2004** states the Occupational Health. Article 34 of this section identifies the health conditions to be met by workers in the occupations, trades, and industries that may affect their health; it also identifies the initial & preventive tests that are vital for workers in their occupations, trades, and industries.	
To have in place effective Measures to address emergency events.	No specific laws or regulations that take action in emergency events. However**, Chapter 9 of the Employment Act No 7, 2000** defines the working injuries and states the treatment that should be provided to the injured worker as well as to the compensations that should be given.	There is gap between ESS 4 requirement and the various national laws. Should comply with ESS4 requirements and prepare an effective emergency plan.
To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected Communities.	Safety plan should be provided.	There is a gap where there is no coverage for this issue in any national document

ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement		
ESS5: Eligibility Classification People who have formal legal rights to land or assets People who do not have formal legal rights to land or assets, but have a claim to land or assets that are recognized or recognizable under national law; People who have no recognizable legal right or claim to the land or assets they occupy or use.	**The Palestinian Civil Act No 4, 2012, article 931**" No one shall be deprived of his property or of the use thereof, no property shall be expropriated except for the public benefit, all this shall be in the cases prescribed by the law and in the manner prescribed by it, and in return for fair compensation". **The Palestinian Constitution in article 21** states "Private property is protected; property is not expropriated except for the public benefit in accordance to the law in exchange for fair compensation or by judicial order." **The Settlement of land rights Act No 80, 1928, article 16** states" after the publication of the settlement declaration in any village, any person claiming ownership of land in that village must attend at the time and place designated by the settlement officer and submit a list of his claim according to the specified form".	All The Palestinian civic act is in line with the ESS5 objective "To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives".
To avoid forced eviction.	**The Palestinian Civil Act No 4, 2012, article 931**" No one shall be deprived of his property or of the use thereof, no property shall be expropriated except for the public benefit, all this shall be in the cases prescribed by the law and in the manner prescribed by it, and in return for fair compensation". **The Palestinian Constitution in article 21** states "Private property is protected; property is not expropriated APPENDIX	There is a need to follow RF in order to avoid or minimize involuntary settlement

	3 except for the public benefit in accordance to the law in exchange for fair compensation or by judicial order."	
To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) Providing timely compensation for loss of assets at replacement cost and (b) Assisting displaced people in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre- displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	**The Land Expropriation Act No 2, 1953, article 5** states that the decision of taking the lands should be disseminated in an official newspaper, and this publication is considered conclusive evidence based on **article 7. Article 6** states that the decision should be informed to the land owners. **Article 9** of this law states that "after notification of the decision in accordance to Article 6, the originator shall negotiate with the owner of the land or any person entitled to it and agree with him to buy, dispose of it or use it for a limited period or to own any right required by the project." **Article 10** states that "In the case of people related to the land due to the right of benefit or lease, the owner of the land shall notify the originator of their names within fifteen days from the date of notification of the expropriation decision, otherwise, he shall be solely responsible to them for the compensation they seek, tenants and beneficiaries shall be entitled to compensation by the originator if they have a contract with a fixed date prior to the expropriation decision, in this case, compensation is estimated in the same way as compensation to landowners". **Article 15** discusses specifically the various cases of compensation that should be given to the land owners.	There are specific regulations regarding the description of various cases of compensations.

To improve living conditions of poor or vulnerable people who are physically displaced, through the provision of adequate housing, access to services and facilities and security of tenure.	No resettlement framework exist.	There are specific regulations regarding the description of various cases of compensations. Abide to the RF and if site is specified perform RAP
. "To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant. • To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected."	No resettlement framework exists.	Follow the RF and for specified area prepare RAP Ensure that appropriate disclosure of information is meaningful and practiced.
ESS6: Biodiversity conservation and Sustainable Management of Living Natural Resources		
To protect and conserve biodiversity and habitats.	**The Environment Act No 7, 1999, article 40** put grounds and standards to protect the national and natural reserves. **Article**	There is significant gaps between ESS 6 requirement and the various national

	41 bans any hunt or killing for specific wild and marine animals. **Article 42** concerns about the conservation of the biodiversity in Palestine. **Natural Resources Act No 1,** 1999 which aims to prepare scientific studies as well as the supervision on the natural resources investment processes. **Chapter 2 of the Environment Act No 7, 1999** presents the protection of all types of the environment including air, water, ground... and sets out plans, procedures, limits, conditions, and standards to prevent any deterioration or harm that may happen to the environment.	laws. National laws have variable definitions of habitats and do not include measures to assess impacts on ecosystem services
To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.	**Environment Act No 7, 1999** aims to protect the environment from all different forms of pollution, inserts environmental protection grounds in the economical & social developmental plans, conserves the biodiversity, protects the environmentally sensitive areas and also improves the environmentally damaged areas. **Chapter 2 of the Environment Act No 7, 1999** presents the protection of all types of the environment including air, water, ground... and sets out plans, procedures, limits, conditions, and standards to prevent any deterioration or harm that may happen on the environment. **Chapter 3 of the Environment Act No 7, 1999** relates to the EIA, **section 1** identifies the subjected projects under the EIA	No significant gaps between ESS 6 requirement and the various national laws.

	studies, **section 2** sets out the nature of licenses and permissions on the projects that may affect the environment, section 3 lays out the inspections and the administrative procedures regarding the facilities and the projects.	
To promote the sustainable management of living natural resources.	**Environment Act No 7, 1999** aims to protect the environment from all different forms of pollution, inserts environmental protection grounds in the economical & social developmental plans, conserves the biodiversity, protects the environmentally sensitive areas and also improves the environmentally damaged areas. **Chapter 2 of the Environment Act No 7, 1999** presents the protection of all types of the environment including air, water, ground... and sets out plans, procedures, limits, conditions, and standards to prevent any deterioration or harm that may happen on the environment. **Chapter 3 of the Environment Act No 7, 1999** relates to the EIA, section 1 identifies the subjected projects under the EIA studies, section 2 sets out the nature of licenses and permissions on the projects that may affect the environment, section 3 lays out the inspections and the administrative procedures regarding the facilities and the projects. **Natural Resources Act No 1, 1999** which aims to prepare scientific studies as well as the supervision on the natural resources investment processes.	There is gap between ESS 6 requirement and the various national laws. The standard has provision for certification for industrial scale production and animal husbandry and welfare.
ESS8: Cultural Heritage		

To protect cultural heritage from the adverse impacts of project activities and support its preservation.	**Section 5 of Chapter of the Environment Act No 7,** 1999 presents the regulations regarding the cultural and historical regions to guarantee their protection.	There is gap between ESS8 requirement and the various national laws. National law does not include similar definitions of intangible and tangible cultural heritage.
To address cultural heritage as an integral aspect of sustainable development.	**Section 5 of Chapter of the Environment Act No 7,** 1999 presents the regulations regarding the cultural and historical regions to guarantee their protection.	No significant gaps between ESS8 requirement and the various national laws.
To promote meaningful consultation with stakeholders regarding cultural heritage.	**Chapter 3 of the Environment Act No 7, 1999** relates to the EIA which involves public participation and consultation.	No significant gaps between ESS8 requirement and the various national laws.
To promote the equitable sharing of benefits from the use of cultural heritage.	Palestine does not have requirements specific to equitable benefit sharing from the use of cultural heritage.	There is significant gap between ESS8 requirement and the various national laws. Hence follow ESS8 requirements
ESS10: Stakeholder Engagement and Information Disclosure		
To establish a systematic approach to stakeholder engagement that will help borrowers identify stakeholders and build and	**Chapter 3 of the Environment Act No 7, 1999** relates to the EIA which involves stakeholder engagement plan as well as public hearing and consultation. However, no precise systematic approach is clear.	Slight gaps between ESS 10 requirement and the various national laws.

maintain a constructive relationship with them, in particular project-affected parties.		
To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance.	**Chapter 3 of the Environment Act No 7, 1999** relates to the EIA which involves stakeholder engagement plan as well as public hearing and consultation. The stakeholder engagement plan involves the assessment of the interest and powers for each stakeholder.	No significant gaps between ESS 10 requirement and the various national laws.
To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.	No clear regulations about inclusive engagement with project –affected parties throughout its lifecycle.	Significant gaps between ESS 10 requirement and the various national laws.
To ensure that appropriate project information on environmental and social risks and impacts are disclosed to stakeholders in a	**The Environmental Impact Assessment Policy, 1999**, **article 8** invites to make coordination between all the stakeholders and the participative entities and presents many points to engage all the stakeholders in many stages of the implemented project.	No significant gaps between ESS 10 requirement and the various national laws

timely, understandable, accessible and appropriate manner and format.		
To provide project- affected parties with accessible and inclusive means to raise issues and grievances, and allow borrowers to respond to and manage such grievances.	The Palestinian Bylaw sets the rules for grievance of the public and the improving the performance of the Palestinian Ministries and Authorities. No project GRM is required.	The ESS ensures reception and timely response to any complaints made about the Project and be the basis for developing appropriate mitigation strategies
To establish a systematic approach to stakeholder engagement that will help borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties.	**The Environmental Impact Assessment Policy, 1999** defines participation of stakeholders in many stages like in the TOR stage, the policy also includes that wider participation in case of projects that may affect the environment, and the methods and the results of the meetings should be documented in the EIS.	No significant gaps between ESS 10 requirement and the various national laws during preparation phase. However, no explicit mention of stakeholder engagement during implementation/construction and operation phase.

Annex 2: Environmental/Social Screening

Form a: Environmental/Social Screening: Connection Point
(to be completed by ESO following Guideline in Section 4 of ESMF)

Name of Substation:
Location of Substation:

1) Potential Environmental Impact during Construction Phase:

(a) Ecological impacts:

▪ Felling of trees	Significant □	Moderate □	Minor □	Number of tress
▪ Clearing of vegetation	Significant □	Moderate □	Minor □	
▪ Presence of protected area, key biodiversity area along the route of power line	Yes □		No □	

Note: *If answer to the above question is "Yes", then a detail analysis of alternative routes would be carried out to identify possible route(s) that would eliminate/reduce risk to bio-diversity, vegetation, and habitat. If it is not possible to completely avoid such sensitive areas, then possible impact on biodiversity must be addressed as outlined in the ESMF.*

(b) Physicochemical impacts:

▪ Noise pollution	Significant □	Moderate □	Insignificant □
▪ Air pollution	Significant □	Moderate □	Insignificant □
▪ Drainage congestion/water log-ging	Very likely □	Likely □	Unlikely □
▪ Water pollution	Significant □	Moderate □	Insignificant □
▪ Pollution from solid/ construc-tion waste	Significant □	Moderate □	Insignificant □
▪ Pollution from chemical & haz-ardous materials used	Significant □	Moderate □	Insignificant □

(c) General Socio-economic impacts:

▪ Traffic congestion and risk	Very likely □	Likely □	Unlikely □
▪ Occupational Health and safety-	Significant □	Moderate □	Insignificant □
Working at height	Yes □	No □	
Live power lines	Yes □	No □	
▪ Impact on archaeological and historical	Significant □	Moderate □	Insignificant □
▪ Employment generation	Significant □	Moderate □	Insignificant □
▪ Community Health and Safety	Significant □	Moderate □	Insignificant □

(d) Social impacts related to acquisition of land, Bedouin people:

(1) Exposure to electrical and magnetic fields	Yes □	No □
(2) Encroachment on ROW	Yes □	No □
(3) Acquisition of private land needed	Yes □	No □
(4) Amount of private land to be acquired:		
(5) Presence of Bedouin population in project surrounding areas	Yes □	No □

Assessment of social impacts

▪ Loss of land	Significant □	Moderate □	Insignificant □
▪ Loss of Income	Significant □	Moderate □	Insignificant □
▪ Impact on Bedouin people (if applicable)	Significant □	Moderate □	Insignificant □

2) Potential Environmental Impact during Operational Phase: No significant adverse impact anticipated that cannot be addressed by routine O&M activities, and no such impacts are expected that could potentially affect nature of subsequent environmental and social assessment.

3) Summary of possible environmental/social impacts of the subproject:
[mention overall nature of impacts, and mention if social safeguard issues (e.g., land acquisition, impact on Bedouin people) have been identified]

4) Proposed mitigation measure:

- Depending on the screening process and risk classification, either update the generic ESMP (Tables 2) with relevant impacts to produce site-specific ESMP, as appropriate or conduct ESIA for the subproject if required

- If land acquisition, and impact on Bedouin people are identified, update the Resettlement Framework (RF) to Resettlement Action Plan(s) (RAP) and implement it

5) Overall Comments:

Prepared by: (Name, designation, mobile number, signature, date) ----------

Annex 2

Form b: Environmental/Social Screening: Substation
(to be completed by ESO following Guideline in Section 4 of ESMF)

Name of Substation:
Location of Substation:

1) Potential Environmental Impact during Construction Phase:

(e) Ecological impacts:

▪ Felling of trees	Significant □	Moderate □	Minor □	Number of tress
▪ Clearing of vegetation	Significant □	Moderate □	Minor □	
▪ Presence of protected area, key biodiversity area along the route of power line	Yes □		No □	

Note: *If answer to the above question is "Yes", then a detail analysis of alternative routes would be carried out to identify possible route(s) that would eliminate/reduce risk to biodiversity, vegetation, and habitat. If it is not possible to completely avoid such sensitive areas, then possible impact on biodiversity must be addressed as outlined in the ESMF.*

(f) Physicochemical impacts:

▪ Noise pollution	Significant □	Moderate □	Insignificant □
▪ Air pollution	Significant □	Moderate □	Insignificant □
▪ Water pollution	Significant □	Moderate □	Insignificant □
▪ Pollution from solid/ construction waste	Significant □	Moderate □	Insignificant □
▪ Pollution from chemical & hazardous materials used	Significant □	Moderate □	Insignificant □

(g) General Socio-economic impacts:

▪ Traffic congestion and risk	Very likely □	Likely □	Unlikely □
▪ Occupational Health and safety	Significant □	Moderate □	Insignificant □
Working at height	Yes □	No □	
Live power lines	Yes □	No □	
▪ Impact on archaeological and historical	Significant □	Moderate □	Insignificant □
▪ Employment generation	Significant □	Moderate □	Insignificant □
▪ Community Health and Safety	Significant □	Moderate □	Insignificant □

- Impact on Bedouin people Health and Safety (if applicable) Significant □ Moderate □ Insignificant □
- Impact on community Health and Safety Significant □ Moderate □ Insignificant □

(h) Social impacts related to acquisition of land, Bedouin people:

(1) Exposure to electrical and magnetic fields Yes □ No □
(2) Encroachment on ROW Yes □ No □
(3) Acquisition of private land needed Yes □ No □
(4) Amount of private land to be acquired:
(5) Presence of Bedouin population in project surrounding areas Yes □ No □
(6) Relocation of people Yes □ No □

Assessment of social impacts

- Loss of land Significant □ Moderate □ Insignificant □
- Loss of Income Significant □ Moderate □ Insignificant □
- Impact on Bedouin people (if applicable) Significant □ Moderate □ Insignificant □

2) Potential Environmental Impact during Operational Phase: No significant adverse impact anticipated that cannot be addressed by routine O&M activities, and no such impacts are expected that could potentially affect nature of subsequent environmental and social assessment.

3) Summary of possible environmental/social impacts of the subproject:
[mention overall nature of impacts, and mention if social safeguard issues (e.g., land acquisition, impact on Bedouin people) have been identified]

4) Proposed mitigation measure:
Depending on the screening process and risk classification, either update the generic ESMP (Tables 2) with relevant impacts to produce site-specific ESMP, as appropriate or determine the need for further environmental assessment such as ESIA for the subproject if required

- If land acquisition, and impact on Bedouin people are identified, update the Resettlement Framework (RF) to Resettlement Action Plan(s) (RAP) and implement it

5) Overall Comments:

Prepared by: **(Name, designation, mobile number, signature, date) ----------**

Annex 2
Form b: Environmental/Social Screening: Solar System
(to be completed by ESO following Guideline in Section 4 of ESMF)

Name of Substation:
Location of Substation:

1) Potential Environmental Impact during Construction Phase:

		YES	NO
A. Will the subproject or subproject site:			
1	Build or rehabilitate any structures or buildings?		
2	Be located in or near an area where there is an important historical, archaeological or cultural heritage site?		
3	Be located within or adjacent to any areas (eg. Protected tree, heritage site, protected area) that are or maybe protected by government?		
4	Be located on a water-harvesting roof?		
5	Be located in an area where plans for future land use may affect the project?		
6	Produce solid wastes during construction, operation or decommissioning?		
If the answer to any of the questions 1-6 is "yes", please use the indicated section(s) of the ESMF for guidance on how to avoid or minimize risks. If the answer to Q2 or Q3 is "yes", follow the ESMF procedure.			
B. Environment – will the subproject or any subproject site:			
7	Risk causing contamination of drinking water?		
8	Need to cut down any trees?		
9	Be located within or adjacent to environmentally sensitive areas, threatened species or a protected tree?		
10	Require freshwater during operations?		
11	Release any pollutants or any hazardous toxic or noxious substances to the air during construction or operation?		

12	Will there be any liquid discharge to surface or ground water during construction or operations?		
13	Involve use, transport, handling or production of substances or materials that can be harmful to human health or raise concerns about the actual or received risks to human health?		
If the answer to any of Q7-Q11 is "yes", please use the indicated section(s) of the ESMF for guidance on how to avoid or minimize risks			
C. Social			
14	Will the proposed beneficiary house roof require additional improvement works? Before the solar panels are installed.		
15	Will the installation create new and additional jobs?		
16.	Will there be health impacts during the construction and operational phases?		
17	Will the project have adverse impacts on livelihoods? (If the answer is 'yes' and livelihoods will be adversely affected, please attach details of how it will be impacted and the type, magnitude and severity of impact?		
18	If livelihoods will be impacted, are adequate alternatives or compensations considered? (if yes, please provide details)		
19	Are there any disputes/complaints from neighbors/ neighboring properties?		
If the answer to any of Q16, Q17 or Q18 is "yes", please use the indicated section(s) of the ESMF for guidance on how to avoid or minimize risks.			

2) Potential Environmental Impact during Operational Phase: No significant adverse impact anticipated that cannot be addressed by routine O&M activities, and no such impacts are expected that could potentially affect nature of subsequent environmental and social assessment.

3) Proposed mitigation measure:

- Update the generic ESMP (Tables 5) as appropriate

4) Overall Comments:

Prepared **by:** (Name, designation, mobile number, signature, date) ----------

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Annex 3: List of Stakeholders affected by the project:

Subcomponent/ Subcategory	PAPs	Internal OIP	External OIPs
Subcomponent 1.4: Design of 161kv Jenin – Nablus. Yaseed	owners of lands adjacent to the proposed transmission line as well as residents who live in the village where the existing line will be rehabilitated (Note: line within RoW)	no disadvantaged or vulnerable individuals or groups have been identified in the project's area.	**Legislative and Government institutions** Palestinian President Office (PPC) Palestinian Cabinet (PC) PENRA Palestinian Electricity Regulatory Council North Electricity Distribution company (NEDCO) Tubas Electricity Distribution company (TEDCO) PETL Yaseed Local council **Private Sector** Renewable Energy companies (Private Sector) Palestine Investment Fund
Subcomponent 1.4: Design and Build of MV line and infrastructure between Jericho & Ramallah	Bedouin and nomadic communities who live within the RoW or in areas where the OHL will pass.	Bedouin communities who live on the road from Jericho to Ramallah (Muarajaat)	**Legislative and Government institutions** **Palestinian President Office (PPC)** **Palestinian Cabinet (PC)** **PENRA**

to evacuate imported energy from Jordan and solar energy from Jericho". **Jericho/ Al- Muarajat**	Owners of lands where the proposed transmission line will pass		Palestinian Electricity Regulatory Council Jericho Governorate Israeli Coordination of Government Activities in the Territories (COGAT) PETL JDECO **Private Sector** Renewable Energy companies (Private Sector) Palestine Investment Fund
Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and Gaza to supply additional electricity from IEC". Category1: Supply medium voltage connection point directly from PETL substation. Sarrah Village	PAPs: owners of lands adjacent to the proposed transmission line as well as residents who live in the village where the existing line will be rehabilitated.	No disadvantaged or vulnerable individuals or groups have been identified in the project's area.	**Legislative and Government institutions** PENRA Palestinian Electricity Regulatory Council North Electricity Distribution company (NEDCO) PETL Sarra Municipal Council Jeet Village Council
Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and	No PAPs identified. The land plots where the current connection point or the new	No disadvantaged or vulnerable individuals or groups have	**Legislative and Government institutions** PENRA

Gaza to supply additional electricity from IEC". Category2: Supply connection point directly from PETL substation. **Fondoqomiya Village**	one are owned by the local council	been identified in the project's area.	Palestinian Electricity Regulatory Council PETL Fondoqomiya Village Council
Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and Gaza to supply additional electricity from IEC". Category3: Supply medium voltage connection point through PETL from IEC network. **Qalqilya Town**	Land owner adjacent to the connection point as the space of the current plot (30 square meters) is insufficient to construct the new room.	Disadvantaged/ vulnerable individuals or groups in the community: The al- Sabri clan and al-Mahmoud clan: The two families live on land within Qalqilya jurisdiction, however; the separation wall passed from their land putting them on the Israeli side of the wall. The municipality provides these families with electricity. Plantations area which falls within Qalqilya jurisdiction but is on the Israeli side of the wall	**Legislative and Government institutions:** PENRA Palestinian Electricity Regulatory Council PETL Qalqilya Municipal Council

Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and Gaza to supply additional electricity from IEC". Category4: Upgrade low voltage connection point to medium voltage connection point and supplied through PETL from IEC network. **Awarta Village**	If rehabilitation is to take place on the current point; further evaluation is needed as the new construction might encroach over private land and reinforcement might be needed as the land might not be able to withstand the added rooms. Therefore, the PAPs might include neighbors as well as owners of land adjacent to the room If rehabilitation is to take place on the new rooms; land acquisition might not be needed as the land plot is owned by the village council.	No disadvantaged or vulnerable individuals or groups have been identified in the project's area.	**Legislative and Government institutions** PENRA Palestinian Electricity Regulatory Council PETL **Awarta Village Council**

Annex 4: Summary of Public Consultations

Summary of the public consultations held for the purpose of ESMF include meeting attendees as well as issues and concerns raised during the meetings.

Component (location/ Date)	Meeting Attendees	Issues/ concerns raised during meetings
Subcomponent 1.4: Design of 161kv Jenin – Nablus. (Yaseed village/ October, 9th, 2019)	**Land owners** 1. Yosef Mashaqi 2. Ahed Mashaqi 3. Yosef Yahya 4. Fahmi Mashaqi 5. Wael Mashaqi 6. Mohamed Mashaqi 7. Mohamed Mashaqi 8. Sameeh Yahya **Two local council members** 1. Dergham Dhaher 2. Waddah Dhaher	• Fear of losing access to private land or inability to build or construct in the land • Fear that the land would lose its value due to the project's activities mainly the towers • Fear of harming the village Flora. • Previous bad experience with TEDCO. The participants explained that TEDCO had erected towers in their land without informing them and that the tower's location is not within the street's right of way. The land owners filed a lawsuit against the company to remove them. • Lack of trust in TEDCO's services. • Fear that the project's activities will trespass over the farmers' private land and not within the road's RoW. The proposed road is 20 meters wide however, the constructed road is only six meters wide which does not necessarily pass according to the proposed plan which means that the towers' location could potentially trespass over their land.
Subcomponent 1.4: Design and Build of MV line and infrastructure	Three Bedouin communities from the	***Family one: Khalayfeh***

Component (location/ Date)	Meeting Attendees	Issues/ concerns raised during meetings
between Jericho & Ramallah to evacuate imported energy from Jordan and solar energy from Jericho". (Al- Muarajat October, 27, 2019).	Kaabneh clan who inhabit the area Family One: Salman Khalayfeh (Chosen leader representing 50 families) Family Two: Alia and Mohammed al-Yamtein Family Three: Khadra Abu Awad Mohammed Izheiman (Chosen leader)	No opposition to project as long as it will pass within the RoW and will not encroach on his home. ***Family Two: Yamtein*** ***Fear*** that the project would endanger their lives because they live in semi- permanent homes made of corrugated metal. ***<u>Family Three: Abu Awwad</u>*** Concerns expressed about the project: 1. Project would endanger the lives of the community residents. Nearly two years ago, a fault in one of the lines on top of a nearby hill caused fire to the area which was extinguished by the local herders. 2. Adverse health effects on the community residents because they live in semi- permanent homes made of corrugated metal. 3. The project would contribute to economic activity in the area like quarries which would disturb our way of living.
Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and Gaza to supply additional electricity from IEC".	Town's Mayor: Mr. Shehadeh Abu Turabi Member of municipal council: Mohamed Abu Shehadeh	The attendees showed an overall approval and support for the project. According to the attendees, the project will contribute to the generation of direct and indirect significant positive social impacts including: ***Improved access*** to electricity service for the citizens in the town. The electricity service is currently available to all

Component (location/ Date)	Meeting Attendees	Issues/ concerns raised during meetings
Category1: Supply medium voltage connection point directly from PETL substation. Sarrah village October, 22, 2019		town's residents; however, the current network will not be able to cover future urban growth. ***The land value (price) adjacent*** to the connection point will increase as a result of improved access to proper infrastructure and facilitated access to the land. ***Reduce burden of power cuts*** resulting from outdated networks.
Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and Gaza to supply additional electricity from IEC". Category2: Supply connection point directly from PETL substation. (Fondoqomiya Village/ October, 23rd, 2019)	Head of Village council: 1.Asem Jarrar Members of village council: 1. Abdul Khaleq Qarareyeh 2. Amjad Shehadeh 3. Morad Azzam Representatives of town residents: 1. Abdullah Azzam	The attendees showed an overall approval and support for the project. According to the attendees, the project will contribute to the generation of direct and indirect significant positive social impacts including: ***Having to deal*** with a national entity (PETL) instead of the IEC ***Substitute t***he overhead towers with underground cables (if the new rooms are used as connection points)
Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and Gaza to supply additional electricity from IEC".	Mayor Deputy: Dr. Basem Hashem members of Municipal council:	The attendees showed significant reservations about the project and its components. Few years ago, the municipality held a public consultation meeting with the local community to discuss joining NEDCO, however the community

Component (location/ Date)	Meeting Attendees	Issues/ concerns raised during meetings
Category3: Supply medium voltage connection point through PETL from IEC network. Qalqilya Village, October, 23rd, 2019	1. Nabil Shreim 2. Mohammed Shreim Representative of local NGOs: 1. Hisham al- Khatib Representatives of residents: 1. Taghreed Afaneh 2. Abeer Ashri 3. Nehaya Afaneh	has strongly reject the proposition. The proposition was also rejected by the political factions in the governorate. The attendees explained that the reasons are: ***Community is highly conservative*** who believe privatization is contrary to Islamic teachings **Lack of trust in the quality of service provided by NEDCO** company ***Fear of increased charges on electricity service.*** As an example, given by the attendees is that electricity prices in Qalqilya are much lower than in Nablus which receives its services from NEDCO. ***Company's financial scandals*** including corruption, embezzlement The attendees stressed that if a public consultation session was also held with the local community to discuss joining PETL, the community will also reject it for the following reasons: ***Lack of clarity*** about the added advantage to joining PETL ***Lack of trust in governmental entities*** due to corruption, nepotism etc. The municipality representative required the following: 1. Provide clear description for the municipality about the project's added value

Component (location/ Date)	Meeting Attendees	Issues/ concerns raised during meetings
		2. Description of municipality role after the project. The attendees recommended the following as mitigation strategies ***Guarantees*** for quality service ***Guarantees*** to increase capacity from the IEC to accommodate the urban expansion ***Clear description*** of how electricity prices are determined 1. ***Guarantees*** to protect local workers' rights and not to substitute them with workers from PETL.
Subcomponent 1.2 "Upgrade of MV lines in Nablus, Jenin, Hebron and Gaza to supply additional electricity from IEC". Category4: Upgrade low voltage connection point to medium voltage connection point and supplied through PETL from IEC network. (Awarta Village October, 22, 2019)	Head of Village council: Saeed Awwad Members of the village council: Marwa Awwad	The attendees showed an overall approval and support for the project. According to the attendees, the project will contribute to the generation of direct and indirect significant positive social impacts including: ***Reduce*** the village electrical bill by at least 18% due to transforming the electricity form low voltage to high voltage ***Improved*** access to electricity service for the citizens in the town. The electricity service is currently available to a majority of the town's residents, however in three areas the electricity service is very poor which results in damages to electrical appliances of home owners in the area. ***Economic growth*** in the village. Due to the poor electricity, the village residents are unable to carry any economic pro-

Component (location/ Date)	Meeting Attendees	Issues/ concerns raised during meetings
		jects including small factories or farms because these projects require adequate electricity which the current network is not suitable to provide.