



Electricity Distribution Efficiency Improvement Project (EDEIP)

EXECUTIVE SUMMARY OF Environmental and Social Management Plan (ESMP)

for

**Extension of 132-kV Grid Stations,
Augmentation of 132-kV Grid Stations,
Installation of Capacitor Banks,
Installation of Transformer Monitoring Systems,
Laying of Aerial Bundled Cables and
Installation of Advanced Metering Infrastructure**

Peshawar Electric Supply Company (PESCO)

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Executive Summary

The Peshawar Electric Supply Company (PESCO) is planning to undertake upgrade of its existing 132-kilovolt (kV) grid stations, laying of aerial bundled cables (ABC), installation of transformer monitoring systems and installation of advanced metering infrastructure (**these works will be described as the proposed subproject in this document**). All components of the proposed subproject are located in various districts of the Khyber Pakhtunkhwa (KP) province.

PESCO is undertaking the proposed subproject under the Electricity Distribution Efficiency Improvement Project (EDEIP), with the financial assistance from the World Bank (WB). EDEIP also includes the Hyderabad Electric Supply Company (HESCO) and the Multan Electricity Power Company (MEPCO), in addition to the Power Division of the federal Ministry of Energy.

This Environmental and Social Management Plan (ESMP) has been prepared to address the potential environmental and social (E&S) impacts of the proposed subproject, in compliance with the national/provincial regulatory requirements as well as the WB Environmental and Social Framework (ESF).

EDEIP Overview

The EDEIP has four components: Improving Grid Reliability, Modernizing Operations and Management; Building Capacity and Technical Assistance; and Reform Support. The first component covers the investments for the Secondary Transmission and Grid (STG) and Energy Loss Reduction (ELR) programs. The second component includes modernization of the operations and management functions using latest equipment, technology and information systems. The third component includes improving operations and maintenance, capacity building and training, and EDEIP implementation support. The fourth component aims to support implementation of power sector reforms and improve sector governance.

Subproject Overview

Under the proposed subproject, PESCO intends to undertake various upgrades for the existing 132-kV systems. Specifically, the subproject comprises extension of nine existing 132-kV grid stations, augmentation of nine existing 132-kV grid stations, installation of capacitor banks in 26 existing 132-kV grid stations, installation of 20,723 monitoring systems on 100 kilovolt-amperes (kVA) and 200-kVA distribution transformers, installation of 53,927 smart meters, and laying of 60 ABC feeders.

The 132-kV grid station (GS) extension works include installation of a new power transformer and its transformer bay within the existing 132-kV GS, to reduce overloading on the existing power transformers. The extension of the selected GSs is expected to enhance system reliability for domestic, commercial, and industrial consumers. The key works under GS extension include: transportation and delivery of new transformers to the GSs; excavation and construction of foundations for new power transformers and other transformer bay components; installing transformers on their foundations; installing conservator tanks, radiators, bushings, and cooling fans on the transformers; installation of the transformer bay equipment; installation of control cabinets; cabling; connecting the transformer bay with existing grid network; and finally testing and commissioning.

The GS augmentation involves replacement of the existing power transformers with higher capacity power transformers within the existing 132-kV GSs, to meet the rising demand on the

grid stations. The key activities include: disconnecting the existing power transformers from the transformer bays, safe removal of the old power transformers; transporting the new power transformers to the GS sites; foundation modifications (if required); installation and connecting the new power transformers with the transformer bays; and finally, testing and commissioning.

Installation of capacitor banks involve construction of concrete foundations, erection of support structure, installation of capacitor banks, connections with the existing systems, wiring of the relays and control panels, and finally, testing and commissioning.

Installation of the monitoring systems on the distribution transformers involve fixing the monitoring device, making the electrical connections, setting up the communication systems, and digital integration.

The ABC laying works involve dismantling the old conductors, pole reinforcement or replacement, installation of pole mounted accessories, stringing of ABC conductors, connection works, jointing and termination works, earthing, and finally testing and commissioning.

Institutional and Legislative Framework for Environmental and Social Management

The key regulatory institution for the management of E&S aspects of the proposed subproject is the KP Environmental Protection Agency (KP-EPA) that has been established under the Pakistan Environmental Protection Act 1997. The key provincial legislation to manage the E&S aspects of the proposed subproject is the KP Environmental Protection Act (Amendment), 2022, which is a comprehensive legislation and provides the legislative framework for protection, conservation, rehabilitation and improvement of the environment in the KP province. Under this Act, PESCO will seek environmental approvals for the proposed subproject from KP-EPA. The subproject will also be required to comply with the National Environmental Quality Standards (NEQS) for air quality, noise and water quality.

In addition to the national/provincial legal requirements, the subproject will also comply with the World Bank's Environmental and Social Framework (ESF) as well as the Environmental and Social Standards (ESSs).

Environmental and Social Management Framework (ESMF)

To address the generic environmental and social impacts associated with the EDEIP and to define principles, assessment criteria and procedures to prepare various E&S documents for various EDEIP subprojects, an Environmental and Social Management Framework (ESMF) has been prepared, in accordance with the WB ESF. The present ESMP has been prepared based upon the principles and criteria described in the ESMF.

Baseline Description

The areas where the proposed subproject will be carried out include districts of Peshawar, Malakand, Mardan, Nowshera, Kohat, Dera Ismail Khan, Upper Dir, Swabi, Charsadda, Banu and Buner. These districts are spread over most parts of the KP province, which exhibits a diverse geography ranging from high mountains to alluvial plains and valleys. The province is multi-ethnic with Pushtun being most dominant group; other groups include Hindkowans, Dards, Chitralis, and Gujars. The literacy rates in the province show greater disparity between genders: 39% for women and 73% for men. The electricity consumption in the province is also quite lower as compared to

the national average: the annual per capita electricity consumption in the province is about 281 kilowatt-hour (kWh) which is about one-half of the national average (516 kWh).¹

The GS extension and augmentation works and installation/upgrade of capacitor banks will be carried out inside the existing grid stations that are mostly located within urban and semiurban settings. During the construction of these grid stations, these sites have been levelled and de-vegetated thus modifying the original landform, land-use, natural habitat and flora/fauna. The boundary walls around the grid stations isolate these facilities from the surrounding population. The air quality and noise levels at these grid stations are likely to be within the acceptable limits prescribed by the NEQS.

The installation of transformer monitoring systems, laying of ABC feeders, installation of smart meters, will be carried out within urban and semiurban areas. Some of these components will be installed in/near congested urban areas and business centers. The congested urban areas are likely to have poor air quality and high noise levels.

E&S Scoping

The E&S scoping was carried out during the preparation of this ESMP. The Scoping considered all potential E&S impacts and issues and then considered their relevance with the proposed subproject's nature, activities involved and its environmental and social settings. The E&S issues that were considered to be relevant to the proposed subproject were scoped-in and the ones that were not relevant to the proposed subproject were scoped-out. The aspects that are scoped-in include soil erosion and contamination, air quality deterioration, water contamination, noise generation, occupation health and safety risks, community health and safety risks, blocked roads and routes, waste generation, labor influx, sexual exploitation and abuse (SEA) and sexual harassment (SH), and child labor. The key aspects that have been scoped-out include impacts on biological resources, impacts on cultural heritage sites, land acquisition, damage to existing infrastructure such as roads, public utilities and irrigation network. The aspects that have been scoped-in have been further assessed and their mitigation and control measures have been identified in the ESMP. The aspects that have been scoped-out have not been further discussed in this ESMP.

Potential E&S Impacts

The extension and augmentation work of the existing GSs as well as the installation of capacitor banks will be carried out within the existing GSs, hence their potential E&S impacts will mostly be confined to the GS boundaries. During the construction phase, these impacts will include: dust and noise generation as well as air quality deterioration caused by the excavation activities and operation of construction machinery and movement of vehicles; waste water releases from the construction sites and workers' camps causing soil and water contamination; soil erosion caused by excavation for foundations; occupation health and safety (OHS) risks for construction workers caused by working near moving machinery/vehicles, lifting and hoisting, working at heights, working in confined spaces, fall and trips, and working at/near energized systems/equipment; safety risks for nearby population (mostly in the staff colonies within the GSs) associated with the vehicle movement, construction activities and electrocution; generation of solid waste including hazardous waste; issues related to labor influx (such as SEA/SH); living conditions within workers'

¹ <https://www.ceicdata.com/en/pakistan/electricity-generation-and-consumption/electricity-consumption-by-region-khyber-pakhtun-khwa-kpk>

camps; and child labor. During the operation and maintenance (O&M) phase, the potential E&S risks associated with these systems will include OHS risks particularly working at heights and electrocution, safety risks for the communities particularly the residents of staff colony, soil and water contamination in case of transformer oil leakage, release of effluents (particularly, toilet waste) from office/control building and staff colony; and solid waste generation from office, workshop and staff colony.

The installation works for transformer monitoring systems and smart meters will potentially cause E&S impacts mostly limited to OHS risks, community health and safety (CHS) risks, waste generation, and SEA/SH risks.

ABC works during the construction phase will mostly cause impacts quite similar to the ones described earlier for the works inside the GSs, except that no excavation-related impacts are expected. Furthermore, the construction activities in populated areas will pose a greater risk of SEA/SH issues, privacy issues, as well as CHS risks. The E&S risks associated with the O&M phase include OHS risks particularly working at heights and electrocution, and SEA/SH.

Mitigation of Potential Impacts

The risks and impacts described above will be mitigated and controlled mostly with the help of standard mitigation measures. For the construction phase, these measures include water sprinkling to control dust emissions, scheduling construction activities during the daytime to minimize the impact of noise generation, apprising the local communities particularly the staff colony residents about noise generation and safety risks associated with the construction activities, treating the waste effluents released from the site, treating the toilet waste from the workers' camps appropriately (such as through septic tanks), avoiding soil erosion by appropriate techniques such as building dykes and covering the loose soil, disposing non-hazardous waste through the municipality waste handling and disposal system, disposing hazardous waste in accordance with the associated material safety data sheet (MSDS), addressing OHS risks through adopting a stringent OHS management regime that would include employing properly qualified and trained OHS staff at the construction sites, hazard risk assessment and implementing standard operating procedure (SOP) for each construction activity, barricading the construction sites to avoid entry of community members particularly children, awareness raising and training of subproject staff and workers about gender issues particularly SEA/SH, adopting a code of conduct (CoC) covering gender, cultural and SEA/SH issues, to be followed by all site personnel, ensuring proper living conditions within the worker's camps in accordance with the labor laws, ensuring that no child labor is employed at the site and workers' camps.

During the O&M phase, the PESCO's existing OHS management system will be strictly followed to address the OHS risks. The mitigation and control measures for the remaining O&M-related risks will mostly be the same as described above for the construction phase.

Environmental and Social Management

Institutional setup. PESCO has already established the Project Management Unit (PMU) that includes E&S personnel. PESCO has also employed the Project Implementation and Management Support Consultants (PIMSC) that also have E&S specialists to carry out E&S assessments and prepare the associated documents (such as this ESMP) for PESCO's subprojects under the EDEIP, and also ensure compliance of this ESMP and other E&S documents during the construction phase. The construction contractors to be engaged by PESCO

will also be required to employ fulltime E&S specialists at the construction site to ensure compliance with the E&S documents including this ESMP.

Mitigation and Monitoring Plan (MMP). The contractor will be required to implement the MMP that has been prepared on the basis of the E&S impact assessment carried out as part of this ESMP. The PIMSC will carry out compliance monitoring with the help of this Plan. The PIMSC will also carry out effects monitoring for the key E&S parameters such as noise and dust emissions, OHS and CHS incidents, community complaints, and waste management.

Contractor's ESMP (C-ESMP). The construction contractors will be required to prepare and implement the C-ESMP that will include a number of site- and subproject-specific plans including camp management plan, waste management plan, traffic management plan, OHS management plan, CHS management plan, and site restoration plan. These plans will be prepared on the basis of mitigation and control measures provided in the MMP.

Capacity building. The PMU, PIMSC and contractors will be required to conduct regular training and awareness raising for the subproject personnel including construction workers, on key E&S aspects such as waste management, OHS management, camp management, grievance management, traffic management, gender aspects particularly SEA/SH, and implementation of CoC.

Grievance Redress Mechanism (GRM). For all of its subprojects under EDEIP, PESCO has established a three-tier GRM to receive, evaluate, and facilitate the resolution of concerns, complaints, and grievances of the affected communities about the E&S aspects of the subprojects. The GRM will provide a time-bound, early, transparent and fair resolution for affected persons' and other stakeholders' grievances regarding E&S management of the proposed subproject. Under this GRM, a separate mechanism will be established to address labor-related complaints; similarly, a mechanism will also be established to address the complaints related to gender-based violence (GBV).

Stakeholder Consultations and ESMP Disclosure

A Stakeholder Engagement Plan (SEP) has been prepared for the entire EDEIP to describe objectives, process and outcome of the stakeholder engagement already carried out during the EDEIP preparation and to be carried out during the EDEIP implementation – in accordance with the WB ESS 10. The stakeholder engagement and consultation activities for the proposed subproject have been carried out in accordance with the guidelines provided in the SEP. These consultations were carried out from May 2025 to March 2026. These consultations engaged 542 participants including PESCO GS Staff, PESCO Staff residing inside the GS colony, local community, interested parties, and vulnerable groups. During these sessions, subproject details and their likely E&S impacts were explained to the participants and their views, comments and concerns obtained about the subproject and its impacts. Separate consultations were carried out with the relevant government departments to seek their views and concerns about the proposed subproject and its E&S impacts.

During these consultations, community participants generally welcomed the subproject, appreciating that it would improve the electricity availability and reliability in the area. Their key concerns particularly related to the safety risks, noise generation, presence of construction workers inside/near the residential areas, violation of local norms, blocked accesses and disturbance. They were assured, during the consultations, that PESCO and its contractors would

take all necessary precautionary and mitigation measures to ensure safety of the nearby communities, and to address all the subproject-related impacts. They were further informed that this ESMP describe all the mitigation and monitoring measures of the proposed subproject and the contractors would be bound to implement these mitigation measures. They were also informed that the workers' camps would be established away from the residential areas, workers would not be allowed to enter these areas, and contractor would be required to implement strict code of conduct ensuring appropriate behavior being followed by all site personnel.

The government departments broadly supported the proposed subproject and assured their full support to PESCO and its contractors during the subproject implementation. The KP-EPA official confirmed that the proposed subproject would not need any clearance from the Agency since no new grid station would be constructed and no new transmission line would be installed under the proposed subproject. The official from the Planning and Development Department pointed out that the proposed subproject would be required to comply with the provincial environmental law in addition to the WB E&S requirements. He was assured that the present ESMP has been prepared in compliance with the local legal and WB requirements. The official from the Directorate of Manpower and Labor raised concerns about child labor, unavailability of personal protective equipment (PPE), women harassment, and wage discrimination during the construction phase. He was assured that appropriate mitigation and monitoring measures were included in this ESMP to address all of these important issues.

The present ESMP once finalized and Urdu translation of its executive summary will be disclosed at the PESCO website. The ESMP and its translated executive summary will be made available at the PESCO offices including head-office, the relevant grid stations, contractor's site office and worksites.