ASIAN INFRASTRUCTURE INVESTMENT BANK

Indonesia: Strengthening Sumatra Power Distribution Results-Based Project

Project ID: P000819

ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT (ESSA)

Draft for Consultation

ASIAN INFRASTRUCTURE INVESTMENT BANK
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Contents

Acronyms

ADB	–	Asian Development Bank
AF	–	Associated Facilities
AIIB	–	Asian Infrastructure Investment Bank
AMI	–	Advanced Metering Infrastructure
AMR	–	Automated Meter Reading
BESS	–	Battery Energy Storage System
DLI	–	Disbursement-linked Indicator
DLR	–	Disbursement-linked Result
EHSG	–	Environmental, Health and Safety Guidelines
ES	–	Environmental and Social
ESF	–	Environmental and Social Framework
ESG	–	Environmental, Social and Governance
ESMP	–	Environmental and Social Management Plan
ESMS	–	Environmental and Social Management System
ESEL	–	Environmental and Social Exclusion List
ESP	–	Environmental and Social Policy
ESSA	–	Environmental and Social Systems Assessment
EV	–	Electric Vehicle
FPIC	–	Free, Prior, Informed Consent
GHG	–	Greenhouse Gas
GIIP	–	Good International Industry Practice
GRM	–	Grievance Redress Mechanism
HQ	–	Headquarter
HTD	–	Human Talented Division
IFI	–	International Financing Institution
IP	–	Indigenous Peoples
KBA	–	Key Biodiversity Area
LV	–	Low Voltage
LSD	–	Pengembangan Listrik Desa (*Rural Electricity Development)*
MDB	–	Multilateral Development Bank
MEMR	–	Ministry of Energy and Mineral Resources
MV	–	Medium Voltage
OHS	–	Occupational Health and Safety
ODS	–	Operasi Distribusi Sumatra dan Kalimantan (*Distribution for Sumatra & Kalimantan)*
PCB	–	Polychlorinated Biphenyl
PLN	–	Perusahaan Listrik Negara
PPE	–	Personal Protection Equipment
PV	–	Photovoltaic
RBF	–	Results-based Financing
RBP	–	Results-based Project
RBP AP	–	Results-based Project Action Plan
RSD	–	Perencanaan Startegis Distribusi (*Distribution Strategic Planning)*
RF	–	Results Framework
RE	–	Renewable Energy
RPJMN	–	Rencana Pembangunan Jangka Menengah Nasional

RPJPN	–	Rencana Pembangunan Jangka Panjang Nasional
RUKN	–	Rencana Umum Ketenagalistrikan Nasional
SCADA	–	Supervisory Control and Data Acquisition
SOP	–	Standard Operating Procedure
SPKLU	–	Public Electric Vehicle Charging Station
UKL/UPL	–	Environmental Management Efforts and Environmental Monitoring Efforts (Indonesian Environmental Assessment Documents)
UID	–	Unit Induk Distribusi
UIW	–	Unit Induk Wilayah
UP3	–	Unit Pelaksana Pelayanan Pelanggan
UP2K	–	Unit Pelaksana Proyek Ketenagalistrikan
WB	–	World Bank
WBWS	–	Willing Buyer – Willing Seller

Executive Summary

1. Project Description

Indonesia aims at increased supply, reliability, and access to electricity services through a 10-year rolling investment plan of the state-owned electricity utility Perusahaan Listrik Negara (PLN), referred to as the Rencana Umum Penyediaan Tenaga Listrik (RUPTL). The financial outlay is expected to be about USD 85.7 billion covering all three key aspects- generation, transmission, and distribution[1]. As a part of this plan, the Government of Indonesia and AIIB are currently engaged in preparing a Results-based Project (RBP) aimed at supporting the distribution component of the RUPTL in Sumatra for the 2024-2028 period. The total investment required for Sumatra's electricity sector over this five-year period is estimated at US$18 billion (US$10.2 billion for generation, US$6.1 billion for transmission, and US$1.8 billion for distribution). The AIIB's proposed financing of US$500 million will cover distribution improvements across Sumatra, including remote island systems where electrification rates remain below the regional average of 25%.

The key activities under the RBP are organized into four categories, each with a direct and causal relationship to one or more of the RBP's objectives.

Table 1 Key Activities Supported under the RBP

Project objective	Supporting activities
Increasing access to electricity services and improving climate resilience of the distribution system (including expanding rural electrification)	• Construction of new low voltage (LV) and medium voltage (MV) distribution lines • Installation of new substations and transformers • Deployment of off-grid solar photovoltaic (PV) plus battery energy storage systems (BESS)
Improving the reliability of electricity services	• Using insulated conductors in the construction of new MV, LV and transformers and substations. • Installation of ground shield wire with new construction • Rehabilitating of existing MV/LV customer service lines and substations and replacing bare conductors with insulated ones • Installation of ground shield wire during rehabilitation
Improving distribution system technical operating efficiency	• Construction of new LV and MV distribution lines • Upgrading or replacing of old substations and transformers • Upgrading conductor diameter on MV lines
Enhance energy metering and optimize other smart energy management options to increase readiness of the grid to VRE (variable renewable energy) integration	• Installation of smart meters such as AMR (automated meter reading) and AMI (advanced metering infrastructure), load switching equipment, auto reclosers, etc. • Upgrading or deployment new SCADA (supervisory control and data acquisition) and key points

[1] Further details about the Plan and financial allocations are available in the Technical Assessment conducted by AIIB.

These activities are designed to achieve the project's goals of increasing access to electricity, improving the reliability of power supply, supporting climate change initiatives, enhancing operational efficiency, and promoting equitable economic growth. These causal relationships between Project activities, outputs, outcomes, and objectives are elaborated in the theory of change and results framework.

Associated Activities. Per to screening against the criteria in AIIB's Environmental and Social Framework (ESF) to define associated facilities/activities, expansion of hazardous waste storage facilities is considered as an associated activity of the Project.

2. Environmental and Social Exclusion, Categorization and Impacts

An exclusion list has been developed to exclude activities that are likely to have significant adverse impacts that are sensitive, diverse, or unprecedented on the environment and/or Project-affected people, which is in alignment with the exclusion criteria in PLN's Environmental and Social Management System (ESMS) and AIIB's Environmental and Social Exclusion List (ESEL).

After applying the exclusion criteria, the RBP has been classified as Category B under the AIIB's Environmental and Social Policy (ESP).

The proposed RBP is expected to result in substantial positive environmental and social impacts, as the interventions support Indonesia's decarbonization and electrification goals.

Environmental Benefits:

- Enhanced energy efficiency and reduced Greenhouse Gas (GHG) emissions through modernization of the power distribution system, including the integration of Variable Renewable Energy (VRE) smart meters, and advanced automation systems.
- Strengthened resilience to climate change impacts by upgrading power infrastructure to withstand extreme weather events and reduce vulnerability.

Social Benefits:

- Improved electricity access in underserved and remote areas, contributing to economic growth and better living standards.
- Creation of job opportunities and skill development during the construction and operational phases.
- Support for Indigenous communities through rural electrification, increasing access to modern energy while avoiding disruptions to customary lands and livelihoods.

While positive impacts/ benefits are expected, there are some risks and challenges resulting in negative impacts.

Environmental Risks:

- Noise pollution, dust emissions, and minor land use changes during the installation and upgrading of distribution lines, transformers, solar PV, BESS and associated infrastructure.
- Localized environmental disruptions, such as temporary road blockages, increased traffic, and minor vegetation clearance during the installation of power lines and substations.
- Soil and water contamination risks associated with the handling and storage of hazardous materials, particularly transformer oil or other chemicals.
- Biodiversity risks, as some projects might cross through environmentally sensitive areas, potentially impacting flora and fauna. Meanwhile, the distribution lines pose risk to birds, primates and bats through collisions and electrocutions.
- Occupational health and safety (OHS) risks from live power lines, working at height, exposure to chemicals, and fire and explosion risks associated with BESS.
- Disposal of hazardous waste including end-of-life solar panels and batteries.
- Community health and safety risks related to construction activities, including road

accident risks from the transportation of equipment and the use of heavy machinery, safety risks to local population due to traffic accidents.

Social Risks:

Social risks emanate from the need for: (i) lands to erect poles and sub-stations as well as widening/ constructing new access roads; (ii) lands for temporary purposes such as access roads, storage/ godowns, labor camps; (iii) proper handling of labor influx and interface with local communities; (iv) capacity to ensure inclusion of all sub-sections of the community including women, indigenous peoples and other vulnerable in the project activities, especially stakeholder engagement; (v) managing cultural heritage including sacred areas; and (v) management measures to avoid/ mitigate Sexual Exploitation, Abuse and Harassment (SEASH) in / around work places;

- As the interventions relate to upgrading and/ or constructing new MV and/ LV lines and sub-stations, land requirements are quite small, and hence no physical displacement is expected. Land requirements for access roads depend upon the situation and vary from one place to another. To the extent possible, private lands could be avoided. If not, the land required could be obtained through voluntary donations from private landowners. These donations are governed by well laid out rules as per the ESMS of PLN. Creating awareness and ensuring that these are complied with could remain a challenge.
- Likewise, the rules may have to be formed and complied with respect of lands required for temporary roads, contractor's godowns and labor camps.
- An inclusive and effective outreach/ stakeholder engagement will need to be prepared and implemented to ensure 'inclusion'.
- Influx of laborers and their interface with the local communities warrant constant vigil and effective and continuous interface.
- Risk of inappropriate labor and working conditions including child/forced labor practices in supply chain for solar PV subprojects.
- Risks could also be due to the interface with cultural heritage and Indigenous Peoples' lands, which require careful management to avoid disruptions to sacred or customary areas.
- Potential gender-related risks, including SEASH, particularly in solar PV projects, such as exposure to harassment or inequitable opportunities for women in the remote project area.

3. Assessment of Borrower's Environment and Social Management Systems

The Environmental and Social Systems Assessment (ESSA) assessed the PLN's (Borrower's) ES management systems in place to manage all identified ES impacts, focused on the main elements of applicable Borrower systems, and provides an analysis of the acceptability of these systems, and the extent to which PLN systems and practices are aligned with core principles and elements outlined in the Bank's ESP. The ESSA covered a detailed analysis of the legal framework, institutional capacity, and operational systems used by PLN in project planning, implementation, and monitoring.

ES policy and legal framework: The legal framework governing PLN's ES management is robust, grounded in Government Regulation No. 22/2021 on Environmental Protection and Management. These laws mandate Environmental Impact Assessments (AMDAL), Environmental Management Efforts (UKL-UPL), and Environmental Monitoring Efforts (SPPL). For social aspects, Law No. 2/2012 on Land Acquisition for Development in the Public Interest and the implementing regulations include Government Regulation No. 19 Year 2021 on the Implementation of Land Acquisition for Development for Public Interest, and its amendment Government Regulation No. 39/2023 regulates land acquisition processes, along with specific PLN internal decrees for electricity distribution projects.

PLN's Environmental and Social Management System (ESMS) provides specific guidance on ES risk management, screening, and mitigation. The ESMS incorporates good international practices, including a mitigation hierarchy and exclusion criteria, and emphasizes risk categorization, stakeholder engagement, and operational safeguards. Despite this, inconsistent implementation across decentralized units highlights the need for capacity building and monitoring to ensure compliance with the ESMS at all levels.

The assessment concludes that the national legal framework and PLN's ESMS are broadly in alignment with the core principles and elements as set out in AIIB's ESP and Guidance Note. However, gaps remain in certain areas: (i) biodiversity protection laws lack comprehensive mechanisms for managing impacts on critical habitats outside designated conservation areas; (ii) gap on effective and inclusive stakeholder engagement as it focus largely on early project stages and does not ensure continuous consultations and grievance redressal throughout the project cycle; (iii) gap between expected and actual practices of Willing buyer-Willing seller mechanism; (iv) no explicit provision for temporary land acquisitions.

Institutional Capacity: PLN has substantial experience of working with, and managing several projects financed by various multilateral development agencies such as the World Bank, ADB, and KfW. However, the ESSA identifies the following two gaps as important:

- Human Resources (staffing and expertise): A lack of dedicated ESG (Environmental, Social and Governance) and safeguard officers across many UID units, coupled with fast staff rotation, weakens the capacity to consistently implement and monitor ES management plans.
- Capacity Building: There is a dire need for targeted training, including regular refresher courses for PLN staff, particularly on hazardous materials management, biodiversity assessment and management, social safeguard requirements, and documentation of consultations and community engagement.

Operational Performance:

- Environmental performance: overall, PLN's past performance in managing the environmental effects of its projects indicates that it has the necessary systems, experience, and capacity to implement the RBP in compliance with AIIB's ESP. However, site observations revealed several non-compliance issues regarding the implementation of national legislation and PLN's ESMS on the ground. Specifically, non-compliances identified are related to insufficient space or improper hazardous waste storage; occupational health and safety (OHS) concerns including poor maintenance of fire safety equipment, occupied assembly point, and no barricade for danger zone of working at height area; electric vehicle (EV) charging stations operating without mandatory regulatory permits. These findings underscore the need for more stringent monitoring to ensure full compliance with both national regulations and PLN's ESMS.

- Social performance: PLN's social management practices are governed by a fairly well-structured legal framework. Most consultations are conducted informally without proper documentation and feedback. Additionally, attention to women, youth, and vulnerable groups in stakeholder consultations is limited. PLN's Stakeholder Engagement Management Guideline and Indigenous People Management Guideline provide a framework for addressing these issues, but practical implementation leaves scope for substantial improvement. As regards land acquisition and resettlement, gaps exist between the expectations and actual performance.

4. Stakeholder Engagement and Grievance Redress Mechanism

The Bank conducted consultations during May – October 2024 with various stakeholders while

preparing the ESSA. Principal stakeholders include PLN representatives, community stakeholders, including landowners, women, poor households, and Indigenous peoples as well as IP leaders, village officers, and distribution vendors. Key issues that have emerged during the consultations include: (i) How the ES system had been implemented in the local context and the challenges of ES system implementation, (ii) Awareness of the ES system within the organization. ESSA notes that special/ adequate attention has not been given to the grassroots communities, especially, women, indigenous peoples, and poor and vulnerable households. PLN has a grievance system, functioning and performance of which is rather mixed.

5. Conclusions and Recommendations

The ESSA concludes that PLN has the foundational systems and regulations necessary to manage ES risks likely to be encountered in this RBP but requires improvements both content-wise as well as in the application of ESMS, especially at the field level. Key gaps identified are:

- Lack of fuller awareness about the ESMS and how to apply it among the field-level staff, which calls for not only ensuring appropriate personnel in positions but also their continuous updating and upgrading through planned capacity-building measures;
- Porous percolation of the corporate level conceptualization to the field level resulting in ineffective application of ESMS, especially in terms of; (i) stakeholder engagement and meaningful consultations; (ii) lack of planning for some dire essential components such as access roads and storage for hazardous materials; (iii) lack of guidance and procedures on securing access to temporary lands such as labor camps, contractor go downs; and (iv)ineffective grievance redress mechanisms;
- Insufficient attention to the poor and vulnerable especially women and Indigenous peoples;
- Lack of fuller guidance and the procedures thereof for addressing labor issues especially related to supply chains in Solar PV subproject;
- Ineffective monitoring and documentation: issues such as the lack of proper record-keeping for hazardous materials and poor documentation of social consultations highlight the need for better monitoring.

The ESSA recommends the following measures to strengthen its overall ES management capacity, enabling it to effectively mitigate risks and improve Project outcomes in line with good international practice standards:

- Prepare and implement a gender-balanced human resources plan ensuring that appropriate and adequate personnel are in a position to undertake the RBP effectively.
- Develop and put in place training protocols to ensure that all the personnel, including those in the field, are equipped with knowledge, skills, and management practices as that of the corporate thinking outlined in the ESMS.
- Enhance the ESMS, with an RBP-specific supplementary plans and procedures, to provide guidance and leadership-led supervision and monitoring on the following: (i) stakeholder engagement and meaningful consultations; (ii) securing dire essential components such as access roads and storage for hazardous materials; (iii) securing access to temporary lands such as labor camps, contractor go downs; (iv) RPB-specific grievance redress mechanisms (GRMs); and (v) addressing labor issues especially related to supply chains in solar PV subprojects.
- Strengthen the central and local monitoring on the enforcement of national regulatory requirements and ensure ES clauses in the tendering documents and contractor/supplier's contract.

1. OVERVIEW

1.1 Background

Indonesia aims at increased supply, reliability, and access to electricity services through a 10-year rolling investment plan of the state-owned electricity utility Perusahaan Listrik Negara (PLN), referred to as the Rencana Umum Penyediaan Tenaga Listrik (RUPTL). The current RUPTL (2021-2030) prioritizes four key objectives: (a) increasing access to reliable electricity services, (b) improving the energy generation mix as part of the country's transition to a low-carbon economy, (c) enhancing the reliability of electricity services, and (d) improving operational efficiency, including organizational efficiencies within PLN.

As a part of this plan, Government of Indonesia and AIIB are currently engaged in preparing a Results-based Project (RBP) aimed at supporting the distribution component of the RUPTL in Sumatra for the 2024-2028 period. The total investment required for Sumatra's electricity sector over this five-year period is estimated at US$18 billion (US$10.2 billion for generation, US$6.1 billion for transmission, and US$1.8 billion for distribution). The AIIB's proposed financing of US$500 million will cover distribution improvements across Sumatra, including remote island systems where electrification rates remain below the regional average of 25%.

The financed activities are designed to achieve the Project's goals of increasing access to electricity, improving the reliability of power supply, supporting climate change initiatives, enhancing operational efficiency, and promoting equitable economic growth. The activities are expected to result, apart from economic development, in substantial ES impacts. Most of these will be positive, yet some adverse impacts may occur that need to be addressed. Against this backdrop, the AIIB has undertaken this Environmental and Social Systems Assessment (ESSA).

1.2 Objectives of the Environment and Social Systems Assessment

The overall objectives of the ESSA are to (i) promote environmental and social (ES) sustainability in the RBP design; (ii) avoid, minimize, or mitigate ES adverse impacts (iii) promote informed decision-making relating to the RBP's ES effects; and (iv) help PLN strengthen its ES systems and develop adequate capacity to manage the ES risks and impacts.

1.3 ESSA Approach and Methodology

The ESSA generates analytic information both from primary and secondary sources. The latter comprise: (i) review of the relevant government legislation, policy, programs and rules and regulations; (ii) related documents prepared by other multi-lateral agencies such as World Bank, ADB, KfW etc., and (iii) documents of PLN especially their ESMS and the Guidance Notes thereof. The primary information is generated through visits to the PLN office and their operational sites and discussions with the associated officials and other stakeholders. These visits provided an insight into the institutional capacity and implementation practices of relevant agencies involved in the management of ES impacts within the RBP, including constraints (staffing, budget, etc.) that would affect ES management of the RBP thereby helping in assessing the performance of the system in different spheres- planning, implementation and monitoring. During the site visit, the team also held interviews with community stakeholders, landowners, indigenous peoples groups, village officers, and contractors to gather information on their perspectives about PLN's safeguard implementation practices for distribution lines.

Meeting and extensive discussion were held with key PLN staff at headquarters and regional/unit offices, including (i) a preliminary consultation meeting on 17 October 2024 in Jakarta with representatives of PLN headquarters to obtain their opinions on the field level findings; (ii) meetings in Aceh and Pekanbaru with representatives of PLN headquarters and regional offices and units between 21 to 24 October to obtain their views, suggestions, and recommendations on the preliminary assessment findings and proposed actions to address gaps.

2. RBP DESCRIPTION

2.1 Government Program

Indonesia's national development framework is guided by long-term plans that shape the country's overall growth and sectoral strategies. The 20-year Long-Term National Development Plan (RPJPN), which spans from 2005 to 2025, is further segmented into 5-year Medium-Term National Development Plans, known as Rencana Pembangunan Jangka Menengah Nasional (RPJMN). Each RPJMN is aligned with the priorities of the current administration and reflects the evolving needs of the nation. The current RPJMN covers the period from 2020 to 2024 and focuses on seven key priorities. These priorities include strengthening economic resilience for equitable and high-quality growth, fostering regional development to reduce inequality, enhancing infrastructure (including energy services), and bolstering environmental sustainability and resilience to climate change and natural disasters. Together, these priorities serve as the foundational framework for the development of Indonesia's electricity sector, ensuring alignment between national objectives and sector-specific goals.

At the sectoral level, the Ministry of Energy and Mineral Resources (MEMR) provides the core guidance for energy-related investments through the National Energy Policy (2014) and the National Electricity Master Plan, known as Rencana Umum Ketenagalistrikan Nasional (RUKN)[2]. The National Energy Policy emphasizes diversification of energy sources, sustainable environmental practices, and maximizing the use of domestic resources. The RUKN translates these principles into specific long-term goals for the electricity sector. These long-term goals are operationalized through the 10-year rolling investment plan of the state-owned electricity utility Perusahaan Listrik Negara (PLN), referred to as the Rencana Umum Penyediaan Tenaga Listrik (RUPTL). PLN's RUPTL (2021-2030) outlines Indonesia's electricity sector investment strategy and its alignment with both the national energy policy and the RPJPN/RPJMN.

PLN's current RUPTL (2021-2030) prioritizes four key objectives[3]: (a) increasing access to reliable electricity services, (b) improving the energy generation mix as part of the country's transition to a low-carbon economy, (c) enhancing the reliability of electricity services, and (d) improving operational efficiency, including organizational efficiencies within PLN.

2.2 Proposed RBP Boundary

The proposed RBP aims to support the distribution component of the RUPTL in Sumatra for the 2024-2028 period, alongside PLN and other financiers. The total investment required for Sumatra's electricity sector over this five-year period is estimated at US$18 billion, with allocations of US$10.2 billion for generation, US$6.1 billion for transmission, and US$1.8 billion for distribution. The AIIB's proposed financing of US$500 million will cover distribution improvements across Sumatra, including remote island systems where electrification rates remain below the regional average of 25%.

Table 2 The Proposed RBP Scope

Item	Government Program (RUPTL)	Proposed RBP
Objective	Increase supply, reliability, and access to electricity services	Increase access to sustainable, reliable, efficient, and climate-resilient electricity supply in the Sumatra region
Duration	2021-2030	2024-2028
Geographic Coverage	All Indonesia	Sumatra
Results Areas	● Increasing access to reliable electricity services.	● Increasing access to sustainable and climate-resilient electricity.

[2] The current RKUN was approved in 2019 for the period 2019-2038. The 2023-2060 RUKN is in draft status.

[3] The RUPTL rolling plans for 2022-2024 have not been issued. The next RUPTL for 2024-20343 is pending approval by the Government of Indonesia.

Item	Government Program (RUPTL)	Proposed RBP
	● Improving the energy generation mix as part of Indonesia's transition to a low-carbon economy. ● Improving operational efficiency of the electricity sector, especially PLN.	● Improving the reliability of electricity supply and services by strengthening the distribution network. ● Improving the efficiency of the distribution system by reducing losses.

The key activities under the RBP are organized into four categories, each with a direct and causal relationship to one or more of the Project's objectives. These activities are designed to achieve the Project's goals of increasing access to electricity, improving the reliability of power supply, supporting climate change initiatives, enhancing operational efficiency, and promoting equitable economic growth.

Table 3 Key Activities Supported under the RBP

Project objective	Supporting activities
Increasing access to electricity services and improving climate resilience of the distribution system (including expanding rural electrification)	● Construction of new LV and MV distribution lines ● Installation of new substations and transformers ● Deployment of off-grid solar PV plus BESS systems
Improving reliability of electricity services	● Using insulated conductors in the construction of new MV, LV and transformers and substation. ● Installation of ground shield wire with new construction ● Rehabilitating of existing MV/LV customer service lines and substations and replacing bare conductors with insulated ones ● Installation of ground shield wire during rehabilitation
Improving distribution system technical operating efficiency	● Construction of new LV and MV distribution lines ● Upgrading or replacing of old substations and transformers ● Upgrading conductor diameter on MV lines
Enhance energy metering and optimize other smart energy management options to increase readiness of the grid to VRE integration	● Installation of smart meters such as AMR and AMI, load switching equipment, auto reclosers, etc. ● Upgrading or deployment new SCADA and key points

By focusing on measurable results, utilizing robust country systems, and addressing critical infrastructure and equity challenges, the RBP is designed to play a crucial role in advancing Indonesia's development objectives while ensuring efficient use of public and private sector investments.

2.3 Geographic Coverage of the RBP

The geographic scope of the RBP is subnational, focusing exclusively on the Sumatra region, which covers a wide range of rural and urban areas across multiple provinces.

2.4 Associated Facilities

The ESSA qualifies such activities as Associated Facilities that are not included in the description of the Project set out in the Legal Agreements governing the Project, but which, following consultation with the Client, the Bank determines are: (a) directly and materially 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 be carried out if the Project did not exist. In this background, the expansion of hazardous waste storage facilities (e.g. the Binjai Warehouse) to accommodate the

storage need from the additional used transformer oil generated from the Project is considered an associated activity, for which the Client is required to comply with the requirements of AIIB's ESP. Construction or upgrading of access roads is not considered an associated activity as PLN prioritizes projects in locations where the access roads are already adequate/available. Otherwise, the access roads will usually be part of the project. The generation and transmission component of the Government Program is not considered an associated activity. As illustrated in the Technical Assessment, the generation investments prioritize transitioning from fossil fuels to renewable energy while maintaining energy security, and transmission investments are targeted at upgrading the system to integrate renewable energy sources. Therefore, Government investments in the generation and transmission would be carried out to meet the energy source transition targets and are not necessary for the distribution projects to be viable.

2.5 Key Implementing Agencies and Implementing Partners

The primary implementing agency for the RBP is PT Perusahaan Listrik Negara (PLN), the national electricity utility responsible for power generation, transmission, and distribution across Indonesia. PLN has a mandate to ensure the provision of electricity to all regions of Indonesia, including Sumatra. As the key entity driving the implementation of the 10-year RUPTL, PLN has substantial experience with similar distribution system improvement programs, including previous collaborations with the World Bank (WB) and the Asian Development Bank (ADB) under result-based programs[4]. PLN Unit Induk Distribusi (UID) based in the Sumatra region will also be a key implementing agency for this program[5].

In addition to PLN, PT Sarana Multi Infrastruktur (PT SMI), an infrastructure investment vehicle fully owned by Indonesia's Ministry of Finance, may co-finance the project and provide a local-currency denominated loan. The Global Energy Alliance for People and Planet (GEAPP) is also expected to provide technical assistance, and potentially a grant, to co-finance the project with AIIB.

2.6 Screening and Exclusion of High ES Risk Activities

The following outlines the PLN's corporate Exclusion Criteria in accordance with the PLN ESMS on activities with unacceptable ES risks:

- Project component (including third-party or goods) likely to involve forced labor, child labor, and/or human trafficking practice.
- Project expected to bring adverse impact to existing or proposed protected conservation area and/or national and internationally protected ecosystem without legally and technically acceptable process to compensate the biodiversity net loss.
- Project expected to bring adverse impact to feature or characteristic which qualifies a location to become part of UNESCO World Heritage sites or Alliance for Zero Extinction (AZE) sites.
- Project of a type that historically released or potentially releases significant amounts of greenhouse gases and contaminants to the environment without measures to reduce them to acceptable levels.
- Project that uses or trades goods or services that are prohibited by Indonesian law or international conventions or agreements; or uses or trades goods or services beyond the allowable limit determined in those regulations/ standards.
- Project that causes the land acquisition of Indigenous People (IP) community's customary lands (including physical cultural heritage) or their physical relocation without Free Prior Informed Consent (FPIC).

In addition to PLN's corporate Exclusion Criteria, the RBP will also apply the below exclusion criteria to exclude activities due to their potential to cause significant adverse environmental or social impacts:

- Activities that are anticipated to cause significant conversion or degradation of critical natural habitat, including national parks, protected forests, and other types of conservation areas,

[4] Indonesia Power Distribution Development (IPDP) PforR. Indonesia Power Transmission Development (IPTD) Project Phase I and Phase II. Eastern Indonesia Renewable Energy Project (Phase 1 and 2)

[5] Unit Distribution Aceh: Unit Distribution North Sumatra; Unit Distribution Riau & Riau Islands; Unit Distribution West Sumatra; Unit Distribution South Sumatra, Jambi, Bengkulu; Unit Distribution Lampung; Unit Wilayah Bangka Belitung

e.g., new transmission lines leading to fragmentation of important nature habitat.

- Activities in areas that are prone to natural disasters (flooding, liquefaction, earthquakes, etc.).
- Larger scale activities (e.g. 75kV and 150kV transmission lines, solar PV/ battery storage sub-projects with capacity ≥ 50 MW) which (i) do not have a full Environmental and Social Assessment (including an assessment of potential cumulative, induced, or indirect impacts) as per the Standards presented in the ESMS; and which (ii) are found by the said ES Assessment to result in significant adverse environmental and social risks and impacts.
- Activities that (i) are located in or adjacent to conservation areas, and/or Key Biodiversity Areas (KBAs) of international significance, and (ii) have significant transboundary impacts or relevance with regard to international treaties (such as conventions on marine conservation, or agreements on the protection of biodiversity).
- Activities that would cause physical displacement affecting 200 people or more, or a loss of 10% or more of productive income or assets for 200 people or more.
- Activities that directly or indirectly affect the dignity, human rights, livelihood systems, or culture of indigenous peoples, or affect the territories or natural or cultural resources that indigenous peoples own, use, occupy, or claim as ancestral domain or an asset.
- Activities applying voluntary land donations but it caused severely affected the living standards of affected persons (donors lose more than 10% of total land owned; donors are poor households and donated land is not ancestral and in sacred areas).
- Activities (including solar PV and battery storage installations) that are anticipated to cause significant impacts on cultural heritage sites that are registered in the government data or recognized by IP communities as their ancestral heritage.
- Activities where an IPP fails to sign a declaration on the prevention of forced labor in the supply chain – with terms agreeable to the Bank.
- Activities that with (i) acquisition of IP's traditional territories (ancestral domain) but without consent from the entire IP community as well as the persons who use the land, based on participatory processes; (ii) physical relocation of IP communities; (iii) significant impacts on IP's cultural heritage; and (iv) significant impacts on access to natural resources for IP communities.
- Activities that will have an impact on international waterways as defined in AIIB's Operational Policy on International Relations (March 2017).

As part of the ESSA, the Project Team screens the activities under the proposed RBP and confirms that after applying the PLN's corporate Exclusion Criteria and the exclusion list as above, the RBP does not include any High ES risk activities and activities under the ESEL, as defined in the ESP[6] and the Guidance Note.

2.7 Categorization

The RBP has been classified as Category B under the AIIB's ESP. This categorization reflects the fact that Category A activities, or those likely to have significant adverse environmental or social impacts that are sensitive, diverse, or unprecedented, have been excluded from the RBP. The ES risks and impacts associated with the activities under this Project are expected to be temporary, short-term, and localized, and can be effectively avoided or mitigated using established civil work techniques and good management practices. As a result, the potential impacts on the environment and Project-Affected People (PAPs) are considered manageable within the Project's scope.

[6]The ESP provides that "activities which the Bank determines are of high ES risk are not eligible for financing under the RBF and are excluded from the RBP."
High ES risk activities therefore include: (i) all Category A activities; and (ii) all Category B activities that are likely to have significant adverse impacts that are sensitive, diverse, or unprecedented on the environment and/or Project-affected people.

2.8 Identifying the Expected ES Effects of the RBP

2.8.1 Potential Environmental Impacts, Risks and Benefits

Environmental Benefits: The environmental benefits of the RBP are substantial and align with Indonesia's broader decarbonization and sustainability goals. These benefits include Enhanced energy efficiency and reduced carbon emissions through the modernization of the distribution network. The integration of VRE, smart meters, and advanced automation systems will reduce technical losses, improving the overall sustainability of the power sector; Improved resilience to climate change: By upgrading infrastructure, the RBP will contribute to making the energy system more resilient to extreme weather events, which are expected to increase in frequency and severity due to climate change.

Environmental Risks:
The primary environmental risks identified relate to both the construction and operational phases of the RBP. Key adverse environmental impacts include:

- Noise pollution, dust emissions, and minor land use changes during the installation and upgrading of distribution lines, transformers, Solar PV, Battery Energy Storage System (BESS) and associated infrastructure.
- Localized environmental disruptions, such as temporary road blockages, increased traffic, and minor vegetation clearance during the installation of power lines and substations.
- Soil and water contamination risks associated with the handling and storage of hazardous materials, particularly transformer oil or other chemicals.
- Biodiversity risks, as some civil works might be adjacent to environmentally sensitive areas, potentially impacting flora and fauna. Meanwhile, the distribution lines pose risk to birds, primates and bats through collisions and electrocutions.
- Occupational health and safety (OHS) risks from live power lines, working at height, exposure to chemicals, and fire and explosion risks associated with BESS.
- Disposal of hazardous waste including end-of-life solar panels and batteries.

2.8.2 Potential Social Impacts, Risks and Benefits

Social Benefits

- Improved electricity access in underserved and remote areas, contributing to economic growth and better living standards.
- Creation of job opportunities and skill development during the construction and operational phases.
- Support for Indigenous communities through rural electrification, increasing access to modern energy while avoiding disruptions to customary lands and livelihoods and providing culturally appropriate project benefits.

While positive impacts/ benefits are expected, there are some risks and challenges resulting in negative impacts.

Social risks
Social risks emanate from the need for: (i) lands to erect poles and sub-stations as well as widening/ constructing a-new access roads; (ii) lands for temporary purposes such as access roads, storage/ go downs, labor camps; (iii) proper handling of labor influx and interface with local communities; (iv) capacity to ensure inclusion of all sub-sections of the community including women, Indigenous peoples and other vulnerable in the project activities, especially stakeholder engagement; (v) managing cultural heritage including sacred areas; and (v) management measures to avoid/ mitigate Sexual Exploitation, Abuse and Harassment (SEASH) in/around workplaces;

Land Acquisition, Restrictions on Access, and Involuntary Resettlement.

Lands for poles & substations and access roads. As the interventions relate to upgrading and/ or constructing new MV and/ LV lines and sub-stations, land requirements are quite small and hence no physical displacement is expected. Moreover, expansion and reinforcement of the distribution network generally takes place along the edge of existing roads and in community areas hence the need for any form of acquisition leading to physical displacement is typically limited. Land requirements for access roads depend upon the situation and vary from one place to another.

Thus, to the extent possible, private land could be avoided. If not, the land required could be obtained through voluntary donations from private landowners which is normally practiced by PLN, or in extreme cases, through the Willing Buyer/ Willing Seller (WB/WS) approach and/ or negotiated settlements. In cases where voluntary land use or donations are required, distribution network expansion would typically require (i) use of no more than 0.2 square meters (m2) of land for installing utility poles; and (ii) possible removal of non-land assets (primarily trees) located within 2.5 m- 3 m of the conductors during their stringing. Distribution transformers are classified into two categories based on mounting location; pad-mounted transformers and pole-mounted transformers. Pad-mounted transformers will be installed on (i) the premises of customers who require power at the primary distribution level, which are generally large commercial centers or industrial complexes; or (ii) public land. The number of customers fed by a single pad-mounted distribution transformer varies depending on the number of customers in an area, thus the location of transformers can be selected quite flexibly by adjusting their capacity and coverage area. Pole-mounted transformers are installed on two utility poles which occupy about 4.5 m^2 (1.5 m x 3 m) of land.

The installation of village solar PV systems will require 1,600 m^2 - 2.500 m^2 of land, generally built in remote areas and on unproductive lands. The land required for village solar pV could be obtained through donation from private or village government. Installation of additional electric vehicle charging station may require small plots of land (minimum 42 m^2), In these cases, PLN will strategically locate the program in its premises or on lands belonging to local governments and/or customers (who are likely to be the beneficiaries) using the written agreement for the use of land. Installation of smart meters such as AMR and AMRI, loan switching equipment and auto reclosers do not trigger any involuntary resettlement because all smart meters will take place in the premises of billed customers who have initiated the request to be connected and are willing to pay for the services.

The land donations as well as (WB/WS) are governed by a well laid out rules as per the ESMS of PLN. However, creating awareness among the communities, as well as building the capacity of PLN for ensuring that these are complied with could pose a challenge. Likewise, engaging with communities having customary ownership of the lands too could require skillful handling.

Lands for temporary purposes. PLN needs to develop procedures for acquiring lands for temporary purposes such as godowns, labor camps etc. The procedures should provide structured approach for handling temporary impacts and ensure that adverse impacts are avoided or minimized and mitigated.

Indigenous Peoples. While the program is not specifically targeted at indigenous/customary (*masyarakat adat*) groups, most beneficiaries, especially in the under-served rural and remote areas, are likely to be in some customary land (*tanah adat* or *tanah ulayat*) (such as in West Sumatera area). PLN is quite aware that, given their cultural, socio-economic characteristics that may differentiate their needs in receiving resettlement assistance from other beneficiary groups. special measures need to be taken to ensure IP aspirations are heard and specifically considered in the planning and implementation of activities. As stated earlier, land requirements for the project are quite small and not expected to result in physical displacement. The program shall avoid ancestral customary lands with sacred (keramat) significance. Subsequently, In order to avoid and minimize impact on IP groups, PLN will perform thorough impact assessments, including social, cultural, and environmental dimensions, specifically focusing on affected IP. These assessments will identify potential project impacts and risks to indigenous community their lands, resources, livelihoods, and cultural heritage, as well as opportunities to benefit them in a culturally appropriate manner.

Understanding these impacts and potential benefits in advance enables appropriate measures to be taken to avoid or mitigate them and enhance project benefits while designing and implementing. Provision for FPIC is also built into the ESMS.

Labor and working conditions including child and forced labor risk is considered substantial even though past experience under MDBs and National funded projects indicates the PLN has systems in place to minimize the risk, because of forced labor risks in solar supply chain, in particular related to overseas solar panel manufacturing industry. The ESMS covers only such labor issues which are under the purview of the Indonesian regulation, and not that of Supply Chain.

As regards in-country project labor issues, PLN is expected to ensure no use of forced and/ child labor in the project as management measures will be aligned with the national labor laws and applicable regulations regarding manpower (e.g., Government Regulation in Lieu of Law No. 2 of 2022 on Work Creation, and its implementing regulations particularly ones enacted by Ministry of Manpower), sector-specific regulations regarding manpower (e.g., regulations issued by Ministry of Energy and Mineral Resources or its directorates), and applicable international standards (e.g., World Bank ESS 2). In addition, PLN will also provide grievance channels for workers, to appropriately address the labor issue and prevent the escalation of such issues. Consistent with applicable labor regulations/standards and to document worker grievances, aspects related to labor management will be determined by IA Sub-Team in the Labor Management Plan (LMP). Apart from the project specific LMP, the ESMS also provide for contractor specific LMP, probably, as a part of their ESMP.

The PLN's Contractor Safety Management System (CSMS) which covers management of contractors and suppliers focuses on the EHS aspects and does not address labor rights aspects including forced labor as part of supply chain management. Considering PLN's limited direct role in the overall RSPV (Rooftop Solar Photovoltaic) business, the enhanced measures to prevent allegations of forced labor in the supply chain will be built into the relevant document from PLN to RSPV customers, which will require the RSPV facilities to adhere to the Indonesian law, which includes the prohibition of forced labor. A specific declaration will also be required from PLN's direct contractors if PLN is implementing or procuring RSPV.

However, much ESMS recognizes the importance of managing labor issues, it needs to develop protocols for defining identification of manpower needs, requirement for screening and recruitment process, terms and conditions of employment, code of ethic in the workplace (including SEA/SH and worker behavior), worker grievance redress mechanisms, monitoring and reporting measures.

Labor Influx, Community Health, Safety and Security. ESMS needs to be explicit and prepare a Community Safety Plan to ensure effectively manage issues arising from interface between the Labor Influx and the Local Communities.

Gender risks including Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) for distribution activities, in general, are rated low, considering the relatively low number of workforce requirements and generally limited interaction with the local community, compared to power generation activity. On the other hand, the risk is rated moderate for village solar PV works as external migrant workers stay rather continuously in an off-grid solar PV area for several months, especially during construction, and could result in SEA/SH issues. On a different note, for the fear of SEA/SH, employment for women may be limited in the off-grid solar PV and denies an opportunity for them to acquire new skills and earn better incomes.

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2.8.3 Other Risks

Contextual Risk:
Contextual risks in the RBP areas are closely linked to the existing ES characteristics of the Sumatra region. These relate to the following:

- Proximity to environmentally sensitive areas, such as forests and biodiversity-rich zones, which may increase the potential for cumulative adverse impacts.
- Risk of social tensions in areas where the distribution infrastructure might impact local communities, including Indigenous Peoples (IPs), and areas prone to land tenure conflicts.
- Natural disaster risks, such as flooding or earthquakes, which may affect both the construction and operational phases of the RBP, particularly if proper disaster preparedness plans are not implemented.
- Sumatra is inhabited by a variety of ethnic groups with distinct cultural practices. Extensive community engagement efforts are required to help them understand project benefits and cope with activity impact. Many rural areas in Sumatra are isolated with limited road access, making it challenging to transport materials and equipment. In some regions, building new roads might be necessary, which adds significant costs and time to the Project.

Institutional Capacity and Complexity:
The effectiveness of ES management under the RBP depends on the institutional capacity of PLN and associated entities. The ESSA preparation discovered the following shortcomings:

- Lack of fuller awareness of ES management standards as well as ESMS its implementation.
- Insufficient staffing and resource allocation for environmental monitoring, particularly concerning the handling of hazardous materials and waste. For example, some PLN facilities have inadequate storage for hazardous waste and lack clear planning for expansion.
- Complexity of multi-tiered governance, where PLN must coordinate with multiple regulatory bodies and local authorities, complicating the efficient management of ES risks and compliance with national and international safeguards.

Reputational Risks:
The failure to adequately address ES risks could lead to reputational risks for PLN and its partners, as well as that of the Bank, under the following situations:

- Non-compliance with regulatory requirements persists, such as the operation of some EV charging stations without the necessary environmental permits.
- Public dissatisfaction or protests arise due to inadequate stakeholder engagement or failure to consider community concerns, especially in Indigenous territories or areas with poor and vulnerable populations.
- Media (both mass and social) watch over environmental mishaps, such as spills, contamination, or impacts on biodiversity areas, and land related issues which could damage PLN's and the RBP's credibility.

2.8.4 Cumulative Impacts

Cumulative impacts refer to the combined effect of the RBP activities alongside other existing or planned projects in the region. Key cumulative impacts include:

- Increased pressure on local ecosystems: The installation of power infrastructure may contribute to habitat fragmentation, especially in areas with high ecological value. This is particularly concerning for biodiversity areas that are already under stress from deforestation, illegal logging, or other infrastructure projects.
- Cumulative effects of emissions reductions: On the positive side, the RBP is expected to generate significant long-term environmental benefits by facilitating the integration of Variable Renewable Energy (VRE) into the grid. The installation of smart meters and SCADA systems will optimize energy use, reduce losses, and lower greenhouse gas (GHG) emissions cumulatively over time.
- Social impacts: Two major developments are envisaged. One, land may have to be required for other development activities, especially transmission and generation activities. There may

be some areas where these activities overlap, and land acquisitions could result in physical and economic displacement. The other expansion of power-related activities may result in increased economic activity, urbanization, and migration (in and out), which, while could look beneficial, may strain local services and infrastructure, exacerbating social challenges in the region.

At this juncture, the ESSA does not foresee significant cumulative adverse impacts as the activities are spread out over a vast geographical region, and those activities in environmentally sensitive areas are excluded. On the social front, careful watch is required to keep an eye on the developments likely to occur as a result of multifarious activities.

3. ASSESSMENT OF BORROWER'S ES MANAGEMENT SYSTEMS

3.1 Policy and Legal Framework for Managing the ES Effects of the RBP

Government Laws/Regulations
The national legal framework to address environmental and social impacts has been developed with support from various Development Finance Institutions (DFIs) in the past reflecting general ESP provisions and requirements from MDBs (the WB, ADB, etc.).

Environmental and Social Assessment:
The Indonesian regulatory framework for environmental and social assessment includes the requirement for Environmental Impact Analysis (AMDAL) under Government Regulation No.22/2021. While the framework is comprehensive and mandates various environmental assessments, there are gaps in social risk management and stakeholder engagement beyond the early stages of project planning. With the introduction of the Omnibus Law (Law No. 11/2020), significant changes were made to licensing procedures, environmental permits, and the implementation of Strategic Environmental Assessments (SEA), which offer a framework to address early-stage risks. However, challenges remain in the depth of risk assessments, quality control over consultants preparing EIAs, and the integration of social risks into environmental regulations.

Labor and Working Conditions:
Indonesia has a comprehensive legislative framework that includes protections for minimum wages, social security, occupational health and safety (OHS), and the prohibition of forced labor. The Employment Law (Law No. 13/2003) and the Job Creation Law (Law No. 11/2020) provides guidance on workforce management including wages, social security, dismissal, severance pay, use of temporary employment and outsourcing contracts, and labor union.

While the legislative framework is fairly comprehensive, there are areas where improvements can be made. One key area is strengthening regulations related to labor inspections, grievance mechanisms, and occupational health and safety (OHS) practices. Another area requiring attention is addressing gender issues in the workplace, workplace harassment, and protections for vulnerable workers, especially those with disabilities and migrant workers. The existing laws and regulations have not defined practical mechanisms to avoid involvement of forced and child labor, particularly in supply chain or by third parties (for example, contractor, subcontractor, and primary supplier). Thus, there is a need for a supply chain risk management approach and develop procedure specific for the RBP investment is required, especially for the solar PV.

Resource Efficiency and Pollution Prevention and Management:
Indonesia has robust laws on pollution prevention and resource efficiency, governed primarily by Government Regulation No.22/2021. These laws set standards for air, water, and hazardous waste management. However, there are challenges in the enforcement of resource efficiency, particularly with energy and water use, as well as greenhouse gas emissions. Additionally, regulations concerning the sustainable use of raw materials and water efficiency are underdeveloped, and regional governments face capacity issues in enforcing pollution control measures.

Community Health and Safety:
Regulations concerning community health and safety are in place through laws like Law No. 24/2007 on Disaster Management. However, these laws primarily focus on environmental protection and disaster mitigation, without providing comprehensive guidelines on project-related health and safety risks to communities. The lack of coordination between different regulatory agencies responsible for infrastructure, transportation, hazardous materials, and disaster management poses a challenge in implementing a cohesive community health and safety framework.

Land Acquisition and Resettlement:

The regulatory framework for land acquisition and resettlement is based on Law No. 2/2012, which outlines principles for compensation, consultation, and eligibility. The Law provides a straightforward procedure and time frame to accelerate the land acquisition process. The government should acquire land by involving all entitled holders and concerned entities. Implementing regulations include Government Regulation No. 19 Year 2021 on the Implementation of Land Acquisition for Development for Public Interest and its amendment Government Regulation No. 39/2023.

However, challenges and implementation gaps are identified. Performance on the ground varies significantly between projects, depending on the capacity of government officials in charge and consultants who assist them, including the preparation of the inventory of assets for which even informal land occupants are entitled to be compensated. There are also gaps in the legal framework relating to compensation, livelihood restoration implementation, and monitoring and recognition of informal land use and ownership.

Biodiversity Conservation and Sustainable Management of Natural Resources:
Indonesia's biodiversity protection laws, including Law No. 11/2020 and Ministerial regulations on environmental impact assessments, provide a comprehensive framework for managing biodiversity risks. However, gaps exist in defining critical habitats, biodiversity offsets, and the management of invasive species. The legal framework does not fully align with international standards, particularly regarding the management of natural habitats outside protected areas. Coordination between government agencies responsible for biodiversity conservation also remains a challenge.

Indigenous Peoples:
The legal recognition of Indigenous Peoples (IPs) is embedded in various sectoral laws, including forestry, land, and cultural heritage laws. While provisions exist for the protection and recognition of Indigenous Peoples' rights, there is no comprehensive statutory law that addresses Indigenous Peoples holistically. Fragmented institutional responsibility, combined with limited guidelines on Free, Prior, and Informed Consent (FPIC), presents challenges for effective engagement with Indigenous Peoples. Overall, there are gaps in current legal and institutional arrangements in terms of multiple definitions of IP communities, due to the large number of government agencies involved in addressing matters relating to indigenous peoples. Generally, the national law definitions of IP are not consistent with international standards such as the ESP 3 and core principle# 6.

Cultural Heritage:
Indonesia has a strong legal framework for the protection of cultural heritage through laws such as Law No. 11/2010 on Cultural Conservation. However, challenges exist in the implementation of cultural heritage protections in environmental impact assessments (AMDAL). There is limited consideration of cultural resources in project planning, and inter-agency coordination between the Ministry of Education and Culture and environmental permitting bodies is weak.

Stakeholder Engagement and Information Disclosure:
Indonesia's laws on public participation, including Law No. 32/2009 and Law No. 14/2018, guarantee citizens the right to access public information and participate in decision-making. Law and regulations related to land acquisitions stipulated requirements of involvement/participation of affected persons through all stages of land acquisition. Specific complaint mechanisms are also available in the law/regulation. However, stakeholder engagement practices are often limited to consultation during the early stages of project planning. There are gaps in the ongoing engagement with affected communities, particularly women and other vulnerable groups, and in the operationalization of grievance mechanisms for non-land acquisition-related issues.

Gender and Vulnerable Groups:
The inclusion of gender and vulnerable groups in infrastructure projects is an emerging priority under Indonesia's EIA/AMDAL policy. However, implementation is inconsistent, with gender mainstreaming and the participation of vulnerable groups often dependent on the specific requirements of international lenders or project proponents. The legislative framework does not provide strong mandatory requirements for gender-sensitive project design or participation by vulnerable groups, leading to gaps in equitable access to project benefits.

Overall, Indonesia has a strong legal framework with well-laid-out policies and guidelines to provide for the implementation of RBP. The list of relevant applicable national laws and regulations related to ES planning, implementation, and monitoring of the RBP are provided in **Annex 3**.

PLN Corporate ESMS
PLN's Environmental and Social Management System (ESMS) is a comprehensive framework designed to address environmental and social (ES) risks across its operations and business activities. Developed in alignment with Good International Industry Practice (GIIP) and the standards of International Finance Institutions (IFIs), the ESMS reflects PLN's commitment to sustainable development. The ESMS Manual, launched in December 2023, serves as the foundation, while 16 Management Guidelines, published in May 2024, provide operational directives for key environmental and social dimensions, including labor conditions, biodiversity management, hazardous materials, and stakeholder engagement. As a "living document," the ESMS evolves through periodic updates to address emerging risks and improve its effectiveness.

The ESMS enhances PLN's compliance with national laws while addressing gaps in the regulatory framework. For example, the ESMS adopts a risk-based screening and categorization system that goes beyond the threshold-based approach of Indonesian regulations. It strengthens labor and working conditions, biodiversity management, stakeholder engagement, and hazardous waste practices by providing specific guidelines and measures aligned with international standards.

3.2 Assessment of Applicable ES Policy and Legal Framework vis-a-vis Core Principles for RBF

Core Principle 1: Promote Environmental and Social Sustainability
Legal and Regulatory Framework: PLN operates within a robust legal framework, aligned with national laws and international standards, including the core principle and elements described in the ESP and the Guidance Note. The ESMS includes mechanisms for objective assessment of impacts, and PLN utilizes screening and categorization of projects based on ES risks. PLN's current ESMS, though covering managing the impact of associated activities, does not provide further clarification on the scope, definition, or requirements for the assessment of associated facilities. This omission means that ES risks linked to these facilities might not be fully identified, assessed, or managed effectively. Meanwhile, the awareness and implementation capacity, particularly at regional levels, are still limited, requiring further training. There is no social focal person both in the UIDs and units under the UIDs.

Gaps identified related to the following: (i) appropriate and adequate human resource capacity at PLN; and (ii) fuller awareness and knowledge about the ESMS Manuals at the operational level; and (iii) clear definitions, guidance, and specific requirements related to the assessment of associated facilities.

Core Principle 2: Avoid, Minimize, or Mitigate Adverse Impacts
Screening and Assessment: Early screening of environmental and social impacts is integrated into the investment decision-making process. Detailed assessments are proportional to identified risks, and the mitigation hierarchy (avoid, minimize, mitigate, offset) is applied effectively. The process includes consideration of alternatives to minimize impacts and stakeholder engagement, but documentation of consultations needs improvement.

Gaps Identified: ESMS application across UIDs is inconsistent, and proper documentation of consultations is often lacking. ESMS lacks in terms of clear definitions, guidance, and specific requirements related to the assessment of associated facilities.

Core Principle 3: Avoid Adverse Impacts on Natural Habitats and Cultural Resources
Biodiversity and Cultural Resources: The ESMS includes provisions for protecting critical habitats

and cultural heritage. Projects in sensitive areas are excluded, and the potential for induced and cumulative impacts is considered. However, not all UIDs have a complete list of biodiversity-related risks, making full assessment challenging.

Gaps Identified: Incomplete documentation of affected biodiversity areas and sensitive ecosystems.

Core Principle 4: Protect Public and Worker Safety
Occupational Health and Safety (OHS): The ESMS and national regulations promote workplace safety and manage hazardous materials. However, issues such as expired fire extinguishers, improper hazardous material storage, and missing disposal records indicate gaps in safety management.

Gaps Identified: Deficiencies in OHS practices, and inadequate monitoring.

Core Principle 5: Manage Land Acquisition and Access to Resources
ESMS and Land Acquisition and Resettlement Management Guideline: includes provision for Voluntary Land Donation, applicable for distribution lines. Typically, PLN avoids building poles on private lands to the extent possible but if unavoidable, landowners are consulted in advance and their informed consent is secured. It also includes provisions to identify and address social impacts from land acquisition and resettlement, including on vulnerable groups and non-titled affected people, compensation with lists the process to calculate compensation. The guideline also includes provisions for addressing livelihood impacts.

Gaps Identified: Upon adoption and implementation of PLN ESMS, capacity gaps for proper implementation of land acquisition and resettlement and stakeholder engagement remain, particularly in the PLN regional units. Although the PLN corporate environmental and social team already has knowledge and experience in carrying out consultation and engagement during the land acquisition process, implementation performance varies between regions. Further, no guidance is available on addressing temporary acquisition of lands.

Core Principle 6: Equitable Access and Indigenous Peoples' Rights
Gender and Vulnerable Groups: The ESMS requires the PLNs unit to identify and address the needs of vulnerable groups, ensuring their participation and access to project benefits. This includes provisions for targeted communication and engagement strategies. However, gaps exist in the effective implementation of these measures, as some UIDs are not effectively engaging with vulnerable groups, leading to potential inequities in access and participation.

Indigenous Peoples: The ESMS recognizes Indigenous Peoples' rights and aims to manage the risk and impact in indigenous people groups equal to ESP. Projects that would negatively affect their lands without Free, Prior, and Informed Consent (FPIC) will be excluded from the RBP.

Gaps Identified: PLN encounters difficulties in screening for IP in the project sites. There is no clarity on the participation of women, IP, and other vulnerable groups in the consultations.

Core Principle 7: Avoid Exacerbating Social Conflict
Conflict Risks: The RBP does not operate in conflict-prone areas, and the ESMS incorporates risk assessments for social conflict, including ethnic and racial dimensions. Stakeholder engagement processes are in place to address potential conflicts.

Gaps Identified: No major gaps identified in addressing social conflict risks, but strengthening stakeholder engagement practices, particularly documentation, is recommended.

A more detailed assessment of these gaps and their operational significance can be found in **Annex 4**.

3.3 Assessment of Institutional Capacity for Addressing ES Effects

3.3.1 Description of Existing ES Institutional Setup and the Adequacy.

The ES management system under the RBP is implemented through a structured institutional framework within PLN. The key institutional arrangement for managing ES impacts under the RBP is the Environmental and Social Management System (ESMS), which is governed by the Steering Committee, established through Directors' Decree No. 0067.K/DIR/2024. This Committee is led by five PLN directorates: Transmission and System Planning (TRANS), Project Management and New and Renewable Energy (MPRO), Legal and Human Capital Management (LHC), Generation Management (MKIT), and Distribution (DIST), with the Energy Transition and Sustainability (TEK) Division serving as the Chair. Further details related to the functioning of this committee and the associated units as well as adequacy of the institutional resources are described in **Annex 6**.

The ESMS Steering Committee coordinates across several divisions within PLN to ensure that the ESMS is implemented at all levels, including central, regional, and local units. These units, such as the Main Units responsible for distribution and transmission, play a crucial role in day-to-day ES management at the project level. Additionally, PLN divisions at the corporate level, such as the Environmental (K3L) and Safeguard (TEK) Divisions, are tasked with providing technical guidance and ensuring compliance with national regulations and international standards. Figure below provides the Institutional Arrangement of ESMS Implementation at Project Level.

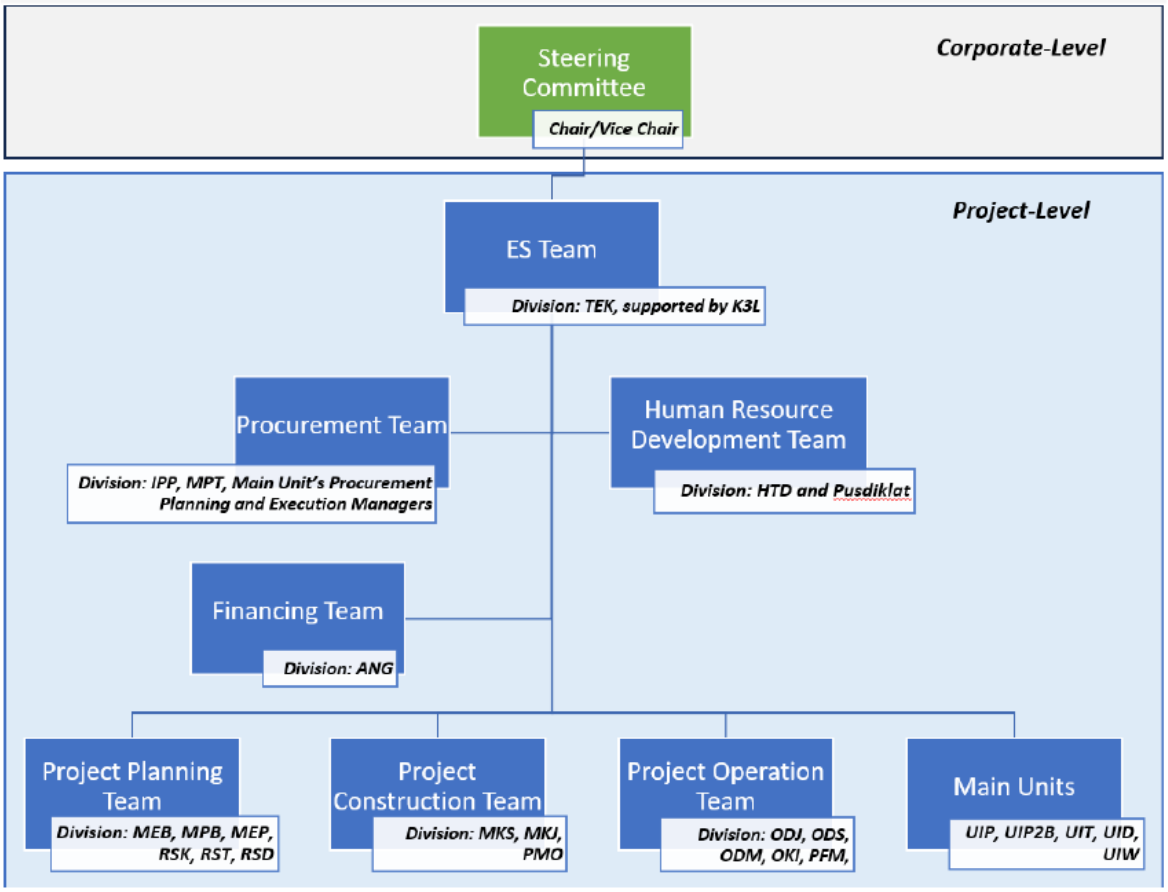

Figure 1 Institutional Arrangement of ESMS Implementation at Project Level

A detailed description of the function, responsibilities, and required capacities of PLN's Division and Subdivision for the ESMS Implementation is presented in **Annex 6**.

3.3.2 Assessment of the Adequacy of Institutional Resources

The legal and regulatory authority to implement the ESMS and commit resources for effective ES management is established through the formal institutional arrangement as described in 3.2.1. PLN, under the guidance of the Steering Committee, has the necessary legal mandate to allocate resources, assess impacts, and implement appropriate mitigation actions. PLN's institutional capacity for managing ES effects under the RBP shows that PLN has established an adequate organizational structure for ES management through the Energy Transitions and Sustainability Division (DIVTEK) and the Health, Safety, Security and Environment Division (DIV HSSE) at the PLN Headquarters in Jakarta. These divisions will ensure that all foreign-funded projects in PLN will implement the ESMS and the IFI requirements by providing guidance and advice to other divisions, sub-divisions, and Main Units in PLN, as well as developing capacity-building programs for the involved personnel. DIVTEK and DIV HSSE have demonstrated strong capacity in managing environmental and social safeguards in various MDBs supported projects including several ongoing energy projects funded by ADB, World Bank, and KfW.

DIV HSSE in the headquarters will supervise and monitor of all ES operational issues in each UIDs. Moreover, DIVTEK will do the same for each UIDs in particular on implementation of the ESMS including to assist UIDs on complying with ES safeguards requirements from international lenders or donors.

The dissemination of PLN's ESMS to operational levels remains limited, contributing to inconsistent awareness and implementation among UIDs and UIWs. There are 6 UIDs and 1 UIW offices located in Sumatra. These units are responsible for the planning, construction, and maintenance of MV and LV distribution lines, and low-capacity power plants (including micro-hydro and micro-solar power plants). Each UID/UIW supervises several UP3 and UP2K; each UP3 supervises several ULP[7] that are in charge of customer service including the maintenance of distribution lines within sub-districts. Each UID/UIW has assigned qualified staff to address environmental issues that may arise during the UID's/UIW's operations. No dedicated staff has been assigned to social tasks within UID/UIW UP3 and UP2K offices; issues are typically handled by the Communication & CSR section under UID/UIW or directly by the manager or the planning division. Following the issuance of PLN ESMS, an ESG & Safeguards Officer is supposed to be appointed in each UID/UIW, however not all units fill in the position.

To address the identified gaps in the application of environmental and social safeguards regulations and PLN decrees, it is essential to first develop a comprehensive ES training curriculum, as suggested by the ESMS. This curriculum should be designed to target the UIDs and UIWs that will participate in the programs, prioritizing induction sessions for relevant ESMS staff. The training program should cover key aspects of the ESMS, including proper consultation documentation, participation of vulnerable groups (such as women and children), and handling community complaints. An ESMS induction training; covering land acquisition and resettlement; indigenous people and biodiversity; participated by representation of UIDs/UIWs in Sumatra has been conducted in 16-18 October 2024.

Secondly, further capacity building is needed to address institutional resource gaps, particularly in specialized training and the allocation of staff resources. The PLN Corporate University offers general capacity-building programs, but there is a need for more specialized training to enhance the impact of the RBP. In addition, given the fast rotation of PLN staff, it is important to implement robust in-house refresher courses regularly to maintain a high level of awareness and ensure consistent safeguard implementation. These courses should include guidance on managing social safeguards and addressing environmental concerns. Moreover, the assignment of dedicated staff for social safeguards and additional environmental staff at each UP3, UP2K, and ULP office is critical to ensure sufficient personnel are in place to coordinate and implement the RBL effectively. A detailed gap between the existing ES Curriculum and ESS Requirement is presented in **Annex 7**.

[7] ULP is *Unit Layanan Pelanggan* (or customer service unit)

3.4 Operational Performance in Managing ES Effects

The ESSA evaluated PLN's operational performance in managing environmental effects in past projects. PLN has a demonstrated track record of implementing environmental and social safeguards through multiple large-scale projects financed by multilateral development banks (MDBs), including the World Bank, Asian Development Bank (ADB), and KfW. This experience provides valuable insights into PLN's capacity to manage the environmental and social effects of the RBP in Sumatra.

In particular, PLN has successfully implemented the Indonesia Power Distribution Development (IPDP) PforR, where it built over 106,000 km of distribution lines, primarily in Sumatra, including in environmentally challenging areas. This project effectively applied exclusion criteria to avoid significant environmental impacts, demonstrating that PLN follows prescribed rules and procedures to manage ES risks. PLN's ability to navigate environmental challenges and maintain compliance with the World Bank's environmental and social standards underscores its operational competence in managing the environmental effects of infrastructure projects.

Moreover, PLN has successfully handled high-risk investment projects using the Investment Project Financing (IPF) model, including the Indonesia Power Transmission Development (IPTD) and the Pumped Storage Hydropower Java Bali System Project. For these projects, PLN conducted detailed Environmental and Social Impact Assessments (ESIA), Cumulative Impact Assessments (CIA), and Land Acquisition and Resettlement Action Plans (LARAP). This demonstrated its capability to manage complex social and environmental impacts, particularly those related to land acquisition and large infrastructure projects. Despite this notable program participation, gaps do exist especially between the expectations and real field-level occurrences. While the ESMS objectives are well ingrained at the corporate level conceptualization, it finds difficult to percolate down to the field level implementation.

Additionally, PLN's experience with MIGA guarantees for renewable energy projects highlights its competence in managing ongoing monitoring and compliance with international ES standards. PLN has successfully ensured that mitigation measures are implemented in accordance with international standards for geothermal and hydropower projects, further solidifying its capacity to manage ES risks effectively.

3.4.1 Management of Environmental Effects of RBP

Overall, PLN's past performance in managing the environmental effects of its projects indicates that it has the necessary systems, experience, and capacity to implement the RBP in compliance with AIIB's ESP. However, site observations during visits to PLN's Unit Induk Distribusi (UID) Sumatera Utara (4-5 September 2024), Sumatera Selatan Jambi Bengkulu (2-3 September 2024), Aceh (21-22 October 2022) and Riau & Kepulauan Riau (RKR) revealed several non-compliance issues regarding the implementation of national legislation and PLN's ESMS on the ground. Specifically, non-compliances identified included insufficient space for hazardous waste storage at the Binjai warehouse, where used transformers were stored without proper containment, and improper storage of used batteries at the Banda Aceh warehouse, posing environmental risks. Additionally, expired fire extinguishers and low-pressure fire safety equipment in the Keramasan Warehouse, expired fire extinguishers and occupied assembly point by cable material in the Banda Aceh Warehouse and no barricade for the danger zone of working at height area during maintenance of distribution electrical cable indicated gaps in emergency preparedness and Occupational Health and Safety (OHS) compliance. Furthermore, 11 out of 13 electric vehicle (EV) charging stations in South Sumatra and 3 out of 12 electric vehicle (EV) charging stations in Aceh were found to be operating without mandatory regulatory permits. There were also deficiencies in the management of hazardous materials, such as incorrect labeling and inadequate storage of materials on soil without containment. Prior to disposal, transformer oil will be tested at the external Laboratory by each UID to identify the polychlorinated biphenyl (PCB) content. If PCB is detected in the oil, the subsequent treatment involves disposal of the waste through licensed third parties in compliance with the standard operating procedure (SOP) for PCB waste management (PT-K3L-30, issue date 17 March 2021), categorizing it as hazardous waste. These findings underscore the need for improved coordination, enhanced training, and more stringent monitoring to ensure full compliance with both

national regulations and PLN's ESMS.

In regard to off grid Solar PV or Pembangkit Listrik Tenaga Surya (PLTS), UID RKR has operated PLTS since early 2024 in Pulau Geranting, Pulau Jaga, Pulau Nuja, Pulau Panjang, Pulau Akar and Pulau Sebung with total capacity 775 kWp. These Solar PVs consist of PV Panel (Monocrystalline type), Battery / BESS (Lithium), PV inverter (STP Core 1 type), and Battery inverter (SI 8.0H). Based on this specification of PLTS, there are some potential safety and environmental risks such as fire and explosion incident from BESS, leaks incident and disposal of used BESS. At the moment, some references are being used for operation and maintenance of off-grid Solar PV in UID RKR, e.g.:

- Guidelines of Off-grid Solar PV's operation and maintenance from Directorate general of renewable energy and energy conservation, Ministry of energy and mineral resource (ESDM).
- Off-grid Solar PV's maintenance and troubleshooting SOP from vendor (PT. Surya Energy Indotama)
- Off-grid Solar PV's setting bidirectional inverter SOP from vendor (PT. Surya Energy Indotama)
- Hazardous material management procedure from PLN UID RKR Integrated System Management.

The Environmental, Health, and Safety (EHS) aspects outlined in the Guidelines of Off-Grid Solar PV Operation and Maintenance focus on mitigating electrical and non-electrical hazards associated with Solar PV systems. Key risks include electric shocks, thermal effects (fire risks), explosions, and electromagnetic field exposure, which may result from high voltage, short circuits, and improper equipment handling. Mitigation measures include grounding systems, the use of surge arresters, and regular maintenance of electrical components like inverters and batteries.

Additionally, the guidelines emphasize personal protective equipment (PPE) such as helmets, gloves, and safety shoes to reduce injury risks during installation and maintenance. Fire safety is addressed using appropriate extinguishers, while chemical hazards from batteries (e.g., acid burns or hydrogen explosions) necessitate strict safety protocols and proper ventilation. Comprehensive grounding and lightning protection systems are critical for avoiding over-voltage damage caused by lightning strikes. For retired solar PV panels and BESS batteries, the guidelines highlight the recycling, or disposal should be conducted through licensed facilities specializing in hazardous waste. These measures collectively ensure safe operations and maintenance practices in off-grid Solar PV installations, adhering to national safety standards and reducing environmental and occupational hazards.

Guidelines of Off-Grid Solar PV Operation and Maintenance from Ministry of Energy and Mineral Resources, Directorate of new, renewable and energy conservation has specified how to mitigate the fire risk of BESS. Specific regulatory requirements to prevent and manage fire and explosion risks are Manpower regulation no. 04 year 198 on Requirement on fire extinguisher installation and maintenance.

Meanwhile, PLN has a specific procedure to identify, investigate, and address the risks of soil contamination at PLN's transmission and distribution that encompass the existing substations. This procedure (PT-K3L-32, issue on March 17, 2021) has specified the soil contamination criteria, investigation process to identify the magnitude of contamination, mitigation and disposal of soil contamination. Based on the result of investigation, the contaminated soil will be cleaned up and disposed to the authorized third party or will be treated on site through bioremediation.

3.4.2 Management of Social Effects of RBP

PLN to Contractor. PLN corporate unit instructed all PLN units (UIDs) in Sumatra encouraging/recommending them to include a social safeguards clause in the contractor contract. However, not all UIDs have accommodated the recommendation[8] . This social clause relates to the contractor's responsibility to assist PLN in conducting meaningful consultation and addressing

[8] UID West Sumatera has included that clause in the contractor contract, but UID P2JB has not.

complaints/grievances. The template clauses are from the SNT RBL's programs[9]. The monitoring social clause implementation is weak due to the no social focal persons under the UIDs and its units.

If a distribution line is installed at the request of a community, the village head must submit a statement letter on behalf of the community group (including affected persons) signed by the community representatives, with a written commitment to bear any costs, damages, or any other impacts incurred due to the project without any compensation whatsoever. In this case, no compensation is provided to the affected persons. In other cases, if utility poles are to be located on private land, only a verbal agreement from the landowner is necessary. Contractors handle arrangements for the use of land and affected trees or crops based on negotiated settlements referring to the local market rates of the assets. All these indicate that PLN does not engage itself directly/ meaningfully with the local communities, rather, leaves it to the Contractors. With the results decisions taken are at times ad-hoc and subjective.

While initial surveys are conducted to determine the most direct and efficient route or site based on factors including topography; location of existing roads, dwellings/buildings, trees, and crops; settlement pattern and land use, etc. that may affect the construction of distribution lines and village-level power plants, no explicit screening and categorization of risks is conducted for involuntary resettlement; and type and scope of remedial measures to be undertaken are not specified.
Consultation is conducted primarily through the village heads, and not all affected persons are involved in decision-making for the distribution line alignment and design. There is no special attention to gender and vulnerable groups in the consultation process and the participation of women is still limited. Interviews with some affected persons during the site investigations revealed that not all of them were knowledgeable about the project or its implications and consequences.

If a distribution transformer needs to be located on private land, PLN requires that written permission for the use of the land be obtained from the landowners.[10] However, in many cases, no such written agreement has been obtained from affected persons. In some cases, the landowners were only made aware that the distribution transformers would be located on their own lands only when the contractors arrived at the site and began construction work, and some owners who live away from their land only became aware of this after the transformers were installed.

The construction of village-level solar PV will be either accommodated on PLN's existing premises or on government land to be donated to PLN for this purpose. PLN will prioritize land donation from the local government. If these options are not available, PLN will seek a donation from the community (represented by the Village Government and/or customary leaders) or land purchase (willing seller – willing buyer) with compensation based on valuation by independent appraisers. If no agreement is reached with the landowner, PLN will identify an alternative location for the activity. There will be no compulsory land donation or coercive land acquisition when voluntary land donation from the community does not happen. Therefore, written agreements on donations are obtained from the land. When land cannot be secured through donation and negotiated land acquisition, the people who rejected these procedures are still entitled to be included as potential beneficiaries of the electricity program.

The PLN's Contractor Safety Management System (CSMS) which covers the management of contractors and suppliers focuses on the EHS aspects and does not address labor rights aspects including forced labor as part of supply chain management. Considering PLN's limited direct role in the overall RSPV (Rooftop Solar Photovoltaic) business, the enhanced measures to prevent allegations of forced labor in the supply chain will be built into the relevant document from PLN to RSPV customers, which will require the RSPV facilities to adhere to the Indonesian law, which includes the prohibition of forced labor. A specific declaration will also be required from PLN's direct

[9] The results-based lending program under the Sustainable Energy Access in Eastern Indonesia—Electricity Grid Development Program dedicated to West Nusa Tenggara, East Nusa Tenggara, and Sulawesi, financed by ADB.

[10] Following Technical Guidelines, HSSE No. 27/ 2021, Safeguard Procedure for Distribution Works for Partners (Prosedur Perlindungan Pekerjaan Distribusi oleh Mitra Kerja) and *PLN Decree No. 0605/2010 Regarding Construction Standard for Power Distribution Substation*[2] PLN. 2010. *Lampiran Keputusan Direksi PT PLN (Persero)/Nomor:605.K/DIR/2010 Buku 4–Standar Konstruksi Gardu Distribusi Dan Gardu Hubung Tenaga Listrik.*

contractors if PLN is implementing or procuring RSPV.

Since most environmental and social impacts of activities result from activities directly under the control of contractors and will be mitigated directly by the same contractors, requirements for EHS and Social capacity, including having sufficient competent resources and a suitable ES management system, and introduction of detailed EHS and Social clauses in contracts will be required. This shall include monitoring mechanisms of PLN over its contractors, as well as reporting mechanisms of contractors to PLN.

Grievance Mechanism. PLN has a structured complaints management system through (i) call center 123, which can be accessed by anyone anywhere in Indonesia through the website, email, telephone, and social media; (ii) online by using an integrated complaint-solving application (APKT); and (iii) through frontline, i.e., customer services. PLN regional offices and units immediately act on community complaints including those related to construction impacts, environment, community health and safety, and resettlement issues (limited to trimming trees), by deploying PLN technical service responders.

4. STAKEHOLDER ENGAGEMENT AND GRIEVANCE REDRESS

4.1 Stakeholder Engagement during ESSA Preparation

During the ESSA preparation, key stakeholders have been identified subject to the impacts of activities, interest in the activities, and power of influence on decisions, mainly including PLN staff, community stakeholders, landowners, Indigenous peoples (IP) groups, and IP leader, village officers, and the contractors. The results of the documentation review were verified through a series of interviews with selected PLN representatives as detailed below:

a. Representatives from the PLN Finance Division
b. Representatives from the Human Development and Talent
c. Representatives from the Division of Energy Transition and Sustainability
d. Representatives from the Directorate of Distribution (Planning Strategic Division, Distribution for Sumatra & Kalimantan Division and Rural Electricity Development)
e. Representatives from Main Distribution Unit (UID) Sumatera Selatan, Jambi and Bengkulu
f. Representatives from Main Distribution Unit (UID) Sumatra Utara
g. Representatives from Main Distribution Unit (UID) Sumatra Barat
h. Representatives from Main Distribution Unit (UID) Aceh
i. Representatives from Main Distribution Unit (UID) Riau and Kepulauan Riau
j. PLN Corporate University

In addition, consultations were also carried out with the affected community stakeholders including:

- Landowners who donated their land for the distribution transformer (in UID S2JB, UID West Sumatra, and UID Pekanbaru)
- Vulnerable households (poor HHs and women)- rural electricity customers under UID S2JB and UID Aceh
- IP community and IP Leaders in Padang West Sumatra
- Rural IP, IP leaders, and village officials.
- Contractor of distribution works in West Sumatra

The key discussions during the interviews were around the following topics:

- Awareness of the ES system within the organization
- How the ES system was implemented on the ground
- Challenges of the ES system implementation
- How the ES system had been implemented in the local context (within particular wilayah (region) or units)

Some key feedback provided include:

- PLN expected Bank support on broader dissemination of the ESMS within the operational unit under RBP.
- Adopted relevant ES templates[11] from previous and or ongoing result-based programs from ADB / WB/KfW for ease of implementation by the operational unit and supervision by the relevant division within PLN HQ.
- Clarity on roles and responsibilities of division within the PLN HQ and operational units
- The consulted IPs have no objection to donating their land and trees for distribution networks, however, they remind PLN to involve the whole IP members in the consultations before using/donating the land.
- The head of Village PLN, community leader, and IP leader confirmed that PLN conducted consultations before using the land for distribution networks, but no written agreement was made.
- All UIDs met during the preparation of ESSA clarified no record of complaints related to impacts on community livelihood due to construction activity. Further, they informed that no compensation is provided to the affected trees/crops cutting for installation of MVL/ LVL or off-grid RE (PLTS). During the discussion with customers of UID S2JB and UID Aceh, they informed that their several productive trees were cut due to the installation of LVL without

[11] The templates include list of attendances, ES screening specific for RPB, etc.

compensation. The customers confirmed that the number of cut trees is minor compared with the total number of trees owned by the households and has no impact on their livelihood. They have no objection since they got significant benefits from the electricity connection.

- One of the contractors met by the team stated that one of the key factors for successful project implementation is the right approach to the community. Appropriate mapping of community leaders and their roles is crucial. Therefore, PLN often appoints the same contractor to work at the same location for a long time so that they already have ties with the local community and their socio-culture.

The summary of the stakeholder engagement activities conducted is presented in **Annex 8**.

4.2 ESSA Disclosure and Consultation

A consultation meeting was held on 17 October 2024 in Jakarta with representatives of PLN headquarters to obtain their opinions on the first draft ESSA, followed by meetings in Aceh and Pekanbaru with representatives of PLN headquarters and regional offices and units between 21 to 24 October to obtain their views, suggestions, and recommendations on the preliminary assessment findings and proposed actions to address gaps. The ESSA has been revised to respond to the comments received. Additional consultation on the revised ESSA will be carried out and the ESSA report in English and summary in Bahasa Indonesia will be disclosed on AIIB's website before the appraisal of the RBP.

4.3 Grievance Redress Mechanism

PLN has established a comprehensive contact center available to the public, which can be accessed through multiple channels. The public can reach out via telephone at 123, Twitter @pln_123, Facebook at PLN 123, and engage on Instagram @pln123_official. Additionally, inquiries can be directed to the email address pln123@pln.co.id. This contact center is prominently featured on both the PLN website and its social media platforms, making it easily accessible to the public. Furthermore, PLN has developed an ESMS manual, which includes guidelines for implementing a Grievance Redress Mechanism (GRM) within the organization. This manual serves as a foundational document, outlining procedures for addressing grievances and ensuring that community concerns are effectively managed.

Although the current GRM is not specifically tailored to the project, the existing contact center and the ESMS manual provide a framework for handling complaints and facilitating communication between PLN and stakeholders. The assessment observed that the complaints received and handled are not well documented either at UID or the units below. Strengthening the existing grievance handling system and record/report resolution of cases is required. The grievance report should cover any complaints, not only limited to customer complaints about electricity disruption. As the project progresses, there may be opportunities to enhance the GRMs further, ensuring that stakeholder feedback is systematically integrated into project planning and execution.

Project-affected People's Mechanism (PPM). The PPM has been established by AIIB to provide an opportunity for an independent and impartial review of submissions from Project-affected people who believe they have been or are likely to be adversely affected by AIIB's failure to implement its ESP in situations when their concerns cannot be addressed satisfactorily through the project-level GRM or the processes of AIIB's management. For information on AIIB's PPM, please visit: https://www.aiib.org/en/about-aiib/who-we-are/project-affected-peoples-mechanism/how-we-assist-you/index.html

5. RECOMMENDATIONS AND ACTIONS

5.1 Conclusions of ESSA

National Legal Framework
Indonesia's ES regulatory framework is generally aligned with international standards, particularly in environmental protection, labor laws, and public consultation. However, some gaps exist in specific areas, including detailed guidelines for Indigenous Peoples' consultations, livelihood restoration for resettlement cases, and enforcement of biodiversity protection outside designated protected areas.

PLN's ESMS
PLN has developed an ESMS compared with that is consistent with many international environmental and social standards in terms of quality and coverage. However, there are gaps, especially in its application, including:

- Lack of fuller awareness about the ESMS and how to apply it among the field level staff which calls for not only ensuring appropriate personnel in positions and their continuous updating and upgrading through planned capacity building measures.
- Substantial gaps slippages in between terms of conceptualization at the corporate level and the field level application of ESMS, especially in terms of; (i) stakeholder engagement and meaningful consultations; (ii) lack of planning for some dire essential components such as access roads and storage for hazardous materials; (iii) lack of guidance and procedures on access to temporary lands such as labor camps, contractor go downs; and (iv) ineffective grievance redress mechanisms;
- Lack of fuller guidance and the procedures thereof for addressing labor issues related to supply chains in solar PV subprojects.
- Effective monitoring and documentation: issues such as the lack of proper record-keeping for hazardous materials and poor documentation of social consultations highlight the need for stricter monitoring.

Institutional Capacity
PLN has significant institutional experience with multilateral development bank (MDB) projects, including projects financed by the World Bank, ADB, and KfW. However, the assessment found institutional gaps, particularly:

- Staffing and expertise: A lack of dedicated ESG and safeguard officers across many UID units, coupled with fast staff rotation, weakens the capacity to consistently implement and monitor environmental and social management plans.
- Training needs: There is a pressing need for targeted training, including regular refresher courses for PLN staff, particularly on hazardous materials management, social safeguard requirements, and documentation of consultations and community engagement.

Operational Performance
Overall, PLN's past performance in managing the ES effects of its projects indicates that it has the necessary systems, experience, and capacity to implement the RBP in compliance with AIIB's ESP. However, site observations revealed several non-compliance issues regarding the implementation of national legislation and PLN's ESMS on the ground. Specifically, non-compliances identified are related to insufficient space or improper hazardous waste storage; lack of fire safety maintenance; breach of OHS rules; EV charging stations operating without obtaining mandatory regulatory permits. There is no explicit risk screening for involuntary resettlement, and the type and scope of remedial measures are unclear. Documentation of consultations is limited, with no clarity on the participation of vulnerable groups. Some arrangements for the use or donation of private land for distribution transformers, off-grid solar PV, and EV charger stations are made verbally without written consent. Lastly, there is a lack of clauses addressing labor issues, including forced labor, in supply chain management for off-grid solar PV projects. To address these operational issues, it is essential to enhance the on-the-ground application of national laws and PLN's ESMS, particularly in the areas of compliance monitoring, permitting, and health and safety management.

In conclusion, PLN's ES management systems, while providing a structured foundation, require

enhancements in training, institutional capacity, and operational performance to fully align with international standards. Addressing these gaps will help ensure that the RBP activities are implemented in an environmentally and socially sustainable manner, in line with the AIIB's ESP.

5.2 ES Actions in the RBP AP

Table 4 below outlines the identified gaps along with the corresponding ES actions required to address these issues.

Table 4 Indicative Table for ES Actions and Measures

No.	Identified Gaps	ES Actions	Institutional Responsibilities	Timing	Completion Indicators	Action Type (DLI-DLR/AP)	Budget
1	Ineffective application of ESMS at the filed level, especially in terms of; (i) stakeholder engagement and meaningful consultations; (ii) lack of plan for some dire essential components such as access roads and storage for hazardous materials; (iii) lack of guidance and procedure on securing access to temporary lands such as labor camps, contractor godowns; (iv) ineffective grievance redress mechanisms; and (v) lack of full guidance and procedure for addressing labor issues especially related to supply chains in solar PV projects.	Enhance the ESMS, with an addendum for the RBP, to provide guidance and procedure on: (i) stakeholder engagement and meaningful consultations; (ii) planning for securing dire essential components such as access roads and storage for hazardous materials; (iii) securing access to temporary lands such as labor camps, contractor godowns; (iv) RBP-specific effective grievance redress mechanisms; and (v) for addressing labor issues especially related to supply chains in solar PV projects.	ESMS Steering Committee HSSE in UID and PLN Corporate. Div TEK, RSD, ODS, UIDs, UP3, UP2K	Develop the addendum within six months after signing the loan agreement; Implement it throughout RBP implementation.	The addendum developed and incorporated in the ESMS; Implementation record of the guidance and the procedure provided in the semi-annual ES monitoring report.	AP	PLN Budget
2	Lack of full awareness about the ESMS and how to apply it among the field-level staff: a) A lack of dedicated ESG and safeguard officers	a) Onboard ESG & Safeguard officers; b) Prepare and implement a gender balanced human resources plan ensuring that appropriate and	All UIDs/UIW of Sumatra & HTD	a) Appoint the staff within six months after signing the loan agreement;	a) ESG & Safeguard officers are appointed. A Letter of appointment provided in the Semi-annual report;	a) DLI[12] b) AP c) AP	PLN Budget

[12] Formulation of the DLI is pending discussion.

No.	Identified Gaps	ES Actions	Institutional Responsibilities	Timing	Completion Indicators	Action Type (DLI-DLR/AP)	Budget
	across many UID/UIW units, coupled with fast staff rotation; b) There is a dire need for targeted training, including regular refresher courses.	adequate personnel are in position to undertake the RBP effectively. c) Improve the training protocols in the ESMS to provide targeted training, ensuring that all the personnel, including those in the field are equipped with knowledge, skills and management practices as that of the corporate thinking outlined in the ESMS.		b) Prepare the plan within six months after signing the loan agreement; implement throughout RBP implementation. c) Prepare the training protocols within twelve months after signing the loan agreement and implement throughout RBP implementation.	b) Human resources plan is prepared. c) Training protocols are prepared, and training records provided in the semi-annual ES monitoring report.		
3	Ineffective ES monitoring and documentation: issues of not obtaining environmental permits in time; gaps in OHS and hazardous materials/waste management; poor documentation of social consultations.	Strengthen the central and local monitoring on the enforcement of national regulatory requirements, PLN's ESMS and good international practice on those aspects, and ensure ES clauses in the tendering documents and contractor/supplier's contract.	HSSE, ESG & Safeguard officers at all UIDs/UIW of Sumatra	Throughout RBP implementation.	Monitoring records provided in the semi-annual ES monitoring report.	AP	PLN Budget

5.3 RBP Implementation Support and Monitoring

5.3.1 The PLN's Roles and Responsibility

PLN's HQ and Units (Wilayah), as well as contractors, play a key role in the RBP's implementation. Unit (Wilayah) has a number of departments and units that are responsible for planning, operations construction, finance, monitoring, and supervision. The DIV KEU supported by the DIV HSSE division will be accountable for overseeing all of ESSA RBP implementation. The Division of Energy Transition and Sustainability (DIV TEK) at HQ oversees the monitoring and evaluation of Wilayah performance in environmental and social management using SILM (Sistem Informasi Laporan Management – Information System) for Management Report.

PLN Institutional arrangements for the construction of distribution networks, distribution substations, EV chargers and off-grid solar PV are summarized as follows:

- Unit Induk Distribusi (UID)/Unit Indul Wilayah (UIW) is responsible for carrying out distribution network construction in urban and rural areas and off-grid solar PV construction (<10MW). Budget planning and procurement of contractor and consultant services under the control of UID/UIW. Planning program implementation in distribution projects including the licensing and acquiring land process for distribution activity.
- In carrying out its duties, UIW is assisted by the Customer Services Unit (Unit Pelaksana Pelayanan Pelanggan/UP3) and the Electricity Power Generation Unit (Unit Pelaksana Proyek Ketenagalistrikan/UP2K).
- UP2K's scope of work is in rural areas and is responsible for installing electricity in villages and remote areas or the 3T Region (including off-grid solar PV). Maintenance of village electricity installations is not the responsibility of UP2K but is the responsibility of UP3.
- UP3 is responsible for the installation of electrical installations and their maintenance in urban areas including the maintenance of electrical installations in rural and remote areas/wilayah 3T.

The Borrower (PLN) is responsible for implementing the RBP, monitoring implementation progress, evaluating the indicators, and performing relevant commitments as per the legal documents, including the RBP AP. Such responsibilities involve the Borrower keeping the ES management systems effective, implementing monitoring plans, and identifying and solving problems in a timely and effective manner. Below describes the obligations required to be fulfilled by PLN and responsible unit.

Table 5 The Obligations Required and Responsible Unit

Roles in the implementation and Monitoring	PLN Division/Unit	
	Leading	Participation
Implement the ESMS	DIV TEK*	DIV RSD, DIV ODS, DIV LDS, DIV HSSE, UIDs/UIWs
Implement the agreed ES actions as per the RBP AP and maintain the ES management systems and implementation capacity as recommended by the ESSA	UIDs/UIWs, ODS	UP3, UP2K, Contractors**
Submit semi-annual progress reports on the RBP AP implementation to prove continuous compliance with the applicable ES management	DIV KEU	DIV TEK, DIV HSSE, DIV RSD, DIV ODS, DIV LDS

Roles in the implementation and Monitoring	PLN Division/Unit	
	Leading	Participation
mechanism		
Monitor, evaluate, and audit system performance regularly, if necessary	DIV TEK	DIV RSD, DIV ODS, DIV LDS, DIV HSSE
Review GRM performance, procedures, and results regularly and include specific grievance cases in the progress reports.	DIV TEK	DIV RSD, DIV ODS, DIV LDS, DIV HSSE
Consult the Bank for any change made to the ES systems during RBP implementation.	DIV TEK	DIV HSSE, DIV RSD

** DIV TEK: Energy Transition and Sustainability; RSD: Distribution Strategic Planning; ODS: Distribution for Sumatra & Kalimantan; LSD: Rural Electricity Development; KEU: Corporate Finance; HSSE: Health, Safety, Security, and Environment*

*** Contractor responsible for implementing environmental and social systems during the construction phase.*

5.3.2 The Bank's Role

The Bank Project Team will work with the Borrower to structure the support that the Bank provides in relation to the RBP's ES aspects during the implementation of an RBP. Implementation support includes the following:

- Reviewing implementation progress and achievement of RBP results and DLIs.
- Helping the Borrower resolve implementation issues and carry out institutional capacity building.
- Monitoring the performance of applicable ES systems, including the implementation of agreed ES strengthening measures in the RBP AP.
- Monitoring changes in RBP risks as well as compliance with the provisions of legal covenants.
- In collaboration with the Client, adapting management practice in a manner consistent with RBF principles to improve the RBP implementation or to respond to unanticipated challenges.

Supporting Annexes and Reference Documents

Annex 1 Environmental and Social Baseline

Environmental and Social Characteristics	Aceh	Sumatra Utara	Riau	Kepulauan Riau
Geographic distribution	located on the northern tip of the island of Sumatra, bordered by the Indian Ocean to the west and the Strait of Malacca to the north	located in the northern part of the island of Sumatra, bordered by the Malacca Strait to the west and the province of Aceh to the north	located in the central eastern part of Sumatra island, bordered by the Strait of Malacca to the east.	A province located on a series of islands off the eastern coast of Sumatra, and includes islands such as Batam and Bintan
Population *(Source: Indonesia Population Census 2020)*	Total population: 5,498,389 Male population: 2,766,634 Female population: 2,731,755 Growth rate (2010-2020): 1.71% Population density: 98.69 people/km²	Total population: 14,064,455 Male population: 7,076,296 Female population: 6,988,159 Growth rate (2010-2020): 1.56% Population density: 121.35 people/km²	Total population: 6,051,304 Male population: 3,088,134 Female population: 2,963,170 Growth rate (2010-2020): 2.25% Population density: 99.24 people/km²	Total population: 1,919,357 Male population: 1,012,006 Female population: 907,351 Growth rate (2010-2020): 3.47% Population density: 170.95 people/km²
Main economic activities	Agriculture, fisheries, and mining industries are the main economic activities in Aceh.	Agriculture and mining are the main economic activities in Sumatra Utara	Agriculture, forestry, and palm oil industries are the main economic activities in Riau.	Fisheries, trade, and services industries are the main economic activities in Kepulauan Riau
Topography	Aceh is located on the northern tip of Sumatra and has a varied topography with mountainous regions, coastal areas, and river valleys. The highest peak in Aceh is Mount Leuser, which is part of the Leuser Mountain Range	The topography of Sumatra Utara is mostly mountainous, with several peaks reaching heights of over 2,000 meters. The province is also home to several large lakes, including Lake Toba, the largest volcanic lake in the world	Riau is a lowland province located on the eastern coast of Sumatra. The topography is characterized by flat, swampy areas and coastal plains	Kepulauan Riau is an archipelago province consisting of hundreds of islands. The topography is characterized by coastal areas and hilly terrain
Temperature and rainfall (*sources BPS (Bada Pusat Statistik) dalam angka* 2022 *in every province*	Average temperature: 26,5-28,6°C Average rainfall: 1772-3,872 mm per year Rainfall days: 117-212 days per year	Average temperature: 19.9-29.6°C Rainfall intensity: 10.5-660.4 mm per month Rainfall days: 2-25 days per month	Temperature range: 22.1-33.4°C Rainfall intensity: 31-431 mm per month Rainfall days: 5-20 days per month	Temperature range: 20-36.8°C Average rainfall: 2,132-3,968 mm per year Rainfall days: 154-225 days per year
General description of natural habitats	Aceh is home to the Gunung Leuser National Park, which is one of the last places on earth where Sumatran orangutans, tigers,	Sumatra Utara is home to the Bukit Barisan Selatan National Park, which contains some of the last remaining lowland rainforests	Riau is home to the Tesso Nilo National Park, which is a critical habitat for Sumatran elephants and tigers.	Kepulauan Riau is an archipelago located in the western part of Indonesia. Its natural habitats include mangrove

Environmental and Social Characteristics	Aceh	Sumatra Utara	Riau	Kepulauan Riau
	rhinoceroses, and elephants coexist in the wild.	on the island of Sumatra.		forests, coral reefs, and sandy beaches.
Native animals and plants	Animals: Sumatran elephant, Sumatran tiger, Sumatran orangutan, Malayan sun bear, helmeted hornbill Plants: Rafflesia arnoldii (world's largest flower), pitcher plant, tropical hardwoods like meranti and ramin	Animals: Sumatran tiger, Sumatran elephant, Sumatran orangutan, Malayan tapir, clouded leopard Plants: Rafflesia arnoldii, Amorphophallus titanum (corpse flower), tropical hardwoods like meranti and ramin	Animals: Sumatran tiger, Sumatran elephant, Malayan tapir, clouded leopard, sun bear Plants: Rafflesia arnoldii, tropical hardwoods like meranti and ramin, rattan palms	Animals: dugong, green sea turtle, hawksbill sea turtle, coconut crab, saltwater crocodile Plants: mangroves, sea grapes, pandan, coconut palms
Presence of Conservation Area	Gunung Leuser National Park	Batang Gadis National Park Gunung Leuser National Park Bukit Barisan Selatan National Park -	Bukit Tigapuluh National Park – Tesso Nilo National Park	Tanjung Putri Mangrove Forest Nature Reserve – Bintan Island Mangrove Forest Nature Reserve
Presence of Endangered Species	Sumatran orangutan Sumatran tiger Sumatran rhinoceros Sumatran elephant Crested monkey	Sumatran orangutan Sumatran tiger Sumatran rhinoceros Sumatran elephant Crested monkey Nias Parrot	Sumatran orangutan Sumatran tiger Sumatran rhinoceros Sumatran elephant Sumatran Betta Fish	Hawksbill turtle Green turtle Olive ridley turtle Leatherback turtle
Indigenous people territory (source : Indigeneous Territory Registration Body-Badan Registrasi Wilayah Adat)	Identified 20 IP teeritory among others are Mukim Blang Mee Gampong Tuwee Kareung Gampong Ruyung Gampong Meunasah Gampong Alue Krueng Gampong Arongan Gampong Bintah Gampong Krueng Tho Gampong Lok Bhot Gampong Lok Buya Gampong Lampegue Gampong Lambadeuk Gampong Beurandeh Gampong Ranto Sabon Gampong Pasie Timon Gampong Panggong Gampong Panga Pucok	Identified about 100 IPs territory, among others as below : Golat Naibaho Golat Simbolon Bius Hutaginjang Nagahulambu Keturunan Ama Raja Medang Simamora Onan Harbangan Simataniari Hutabalian Sigapiton Huta Natumingka Huta Tornauli Huta Bona Ni Dolok Aek Godang Huta Lontung Sigalagala Lobunauli	Identified 23 IP territory among others are : Kenegerian Domo Luhak Tambusi Turotak Kenegerian Tulok Salo Kenegerian Talumbo Lohak Talang Sungai Parit Talang Sungai Limo Kanagerian Batu Sanggan Lohak Rio Sanglap Lohak Kebatinan Pembubung Kenegrian Kuntu Toeroba	No IP territory identified

Environmental and Social Characteristics	Sumatra Barat	Sumatra Selatan	Lampung
Geographic distribution	located in the western part of the island of Sumatra, bordered by the Indian Ocean to the west.	Located in the southern part of the island of Sumatra, bordered by the Indian Ocean to the west and the province of Bengkulu to the south.	Located on the southern tip of Sumatra island, bordered by the Sunda Strait to the west and the province of Bengkulu to the north.
Population *(Source: Indonesia Population Census 2020)*	Total population: 5,500,163 Male population: 2,759,191 Female population: 2,740,972 Growth rate (2010-2020): 1.27% Population density: 146.35 people/km²	Total population: 8,719,401 Male population: 4,412,520 Female population: 4,306,881 Growth rate (2010-2020): 1.47% Population density: 157.06 people/km²	Total population: 8,536,351 Male population: 4,300,787 Female population: 4,235,564 Growth rate (2010-2020): 1.68% Population density: 238.98 people/km²
Main economic activities	Agriculture and mining industries are the main economic activities in Sumatra Barat.	Agriculture and mining industries are the main economic activities in Sumatra Selatan.	Agriculture and forestry industries are the main economic activities in Lampung.
Topography	Sumatra Barat is located on the west coast of Sumatra and has a varied topography, including mountains, highlands, and coastal areas. The highest peak in the province is Mount Kerinci, which is also the highest volcano in Indonesia	The topography of Sumatra Selatan is characterized by lowlands and coastal plains. The province is also home to several mountain ranges, including the Bukit Barisan Range	Lampung is located on the southern tip of Sumatra and has a varied topography, including mountains, hills, and coastal areas. The highest peak in Lampung is Mount Pesagi, which is part of the Bukit Barisan Range.
Temperature and rainfall (*sources BPS (Badan Pusat Statistik) dalam angka* 2022 *in every province*)	Temperature range: 19.4-35.1°C Rainfall intensity: 5,332 mm per year Rainfall days: 257 days per year	Average temperature: 29.1 C Rainfall intensity: 2598 mm per year Rainfall days: 235 days per year	Average temperature: 27.1°C Rainfall intensity: 33.4 – 384.2 mm per month Rainfall days: 7-21 days per month
General description of natural habitats	Sumatra Barat is home to the Kerinci Seblat National Park, which is the largest national park on the island of Sumatra. The park is known for its high levels of biodiversity and is home to numerous endangered species, including the Sumatran tiger, elephant, and rhinoceros.	Sumatra Selatan is home to the Bukit Barisan Selatan National Park, which is a UNESCO World Heritage Site. The park contains some of the last remaining lowland rainforests on the island of Sumatra.	Lampung is home to the Way Kambas National Park, which is a critical habitat for the Sumatran elephant and rhinoceros.
Native animals and	Animals: Sumatran	Animals: Sumatran	Animals: Sumatran tiger,

Environmental and Social Characteristics	Sumatra Barat	Sumatra Selatan	Lampung
plants	tiger, Sumatran elephant, Malayan tapir, clouded leopard, banded langur, flying squirrel Plants: Rafflesia arnoldii, Amorphophallus titanum, tropical hardwoods like meranti and ramin	tiger, Sumatran elephant, Malayan tapir, clouded leopard, banded langur, mountain deer Plants: Rafflesia arnoldii, Amorphophallus titanum, tropical hardwoods like meranti and ramin	Sumatran elephant, Malayan tapir, clouded leopard, banded langur Plants: Rafflesia arnoldii, Amorphophallus titanum, tropical hardwoods like meranti and ramin
Presence of Conservation Area	Kerinci Seblat National Park	Bukit Barisan Selatan National Park Kerinci Seblat National Park Sembilang National Park	Bukit Barisan Selatan National Park Way Kambas National Park
Presence of Endangered Species	Sumatran orangutan Sumatran tiger Sumatran rhinoceros Sumatran elephant	Sumatran orangutan Sumatran tiger Sumatran rhinoceros Sumatran elephant	Sumatran orangutan Sumatran tiger Sumatran rhinoceros Sumatran elephant
Indigenous people territory (source : Indigeneous Territory Registration Body-Badan Registrasi Wilayah Adat)	Tiop Salapak Tolou Longgo Polak Teteu Muntogat Parak Batu Polak Muntogat Suku Mentawai Gotap Sababalat Polak Muntogat Saureneu Langgai Goiso Oinan Langgai Rokot Malalo	Marga Semangus Marga Ujan Mas Marga Benakat	No IP teritory identified

Annex 2 Matrix to Define RBP and Screen ES Effects

Activities in Government programs	Relevance to Key RBP Result Areas	Potential ES Effects (Risks, impacts and benefits)	ES Categorization	Conclusion	Justification
Construction of medium-voltage (MV) lines, transformers, low-voltage (LV) lines, and smart meters	Increase access to electricity, improve system reliability, and efficiency.	Potential land acquisition through land use or donation arrangements. Customary communities/Indigenous Peoples (IP) may own some land, but significant impacts on productive trees/crops or physical displacement are not expected. Low risks on SEA/AH **Construction Phase**: Temporary impacts such as noise, dust, solid waste, vegetation clearance, disturbance to fauna and traffic, OHS risks during construction. **Operation Phase:** Enhanced access to electricity, improved system reliability. disturbance to communities and wildlife due to regular maintenance; risk of fire with splash of fuel from routine maintenance and underlying growth left unchecked; risk to birds, primates and bats through collisions and electrocutions, which may also result in power outage and fire; electric magnetic fields (EMF) impacts.	Category B	Include	Align with RBP goals, manageable ES risks
Rehabilitation of aging infrastructure to improve reliability	Improve system reliability and efficiency	No involuntary resettlement impact **Construction Phase:** Localized impacts such as noise and minor environmental	Category B	Include	Align with RBP goals, manageable ES risks

Activities in Government programs	Relevance to Key RBP Result Areas	Potential ES Effects (Risks, impacts and benefits)	ES Categorization	Conclusion	Justification
		disruptions during rehabilitation. **Operation Phase**: Long-term improvement in system reliability and efficiency.			
Deployment and upgrade of SCADA systems to enhance monitoring and control	Improve operational efficiency and system reliability	No IR impact anticipated **Construction Phase**: Minimal physical impact, likely confined to existing infrastructure locations. **Operation Phase:** Long-term benefits for system monitoring, control, and reliability improvement.	Category C	Include	Align with RBP goals, low ES risks
Installation of reclosers, load break switches for automated control	Improve system flexibility and operational efficiency	No IR impact anticipated **Construction Phase**: Minimal physical impact, confined to existing infrastructure. **Operation Phase:** Enhances system flexibility and operational control.	Category C	Include	Align with RBP goals, low ES risks
Installation of Automatic Meter Reading (AMR) system and Advanced Metering Infrastructure (AMI)	Improve operational efficiency, reduce losses, enhance monitoring	No IR impact anticipated **Construction Phase:** Minimal ES risks, as installations are typically on existing infrastructure. **Operation Phase:** Benefits include reduced losses, improved system monitoring, and energy efficiency.	Category C	Include	Align with RBP goals, low ES risks
Development of	Support	Land will be strategically located on PLN	Category B	Include	Align with RBP

Activities in Government programs	Relevance to Key RBP Result Areas	Potential ES Effects (Risks, impacts and benefits)	ES Categorization	Conclusion	Justification
charging infrastructure for electric vehicles	decarbonization and energy transition	premises or local government/customer-owned lands. **Construction Phase**: Low environmental risk, requires small plots of land (42 m²). **Operation Phase:** Supports clean energy transition, low ongoing environmental impacts.			goals, low ES risks
Off-grid Solar PV and BESS	Support decarbonization and energy transition	**Construction Phase:** limited land clearing and construction nuisance of noise and emissions. **Operation Phase:** water consumption for solar panel cleaning and wastewater generation; fire and explosion risks associated with BESS; disposal of hazardous wastes including end-of-life solar panels and batteries.	Category B	Include	Align with RBP goals, manageable ES risks
Associated facilities (e.g. hazardous waste storage expansion)	Essential for RBP implementation	**Construction Phase:** can impact local ecosystems and communities (biodiversity, land acquisition, increased traffic). **Operation Phase:** road safety and soil/water contamination.	Category B	Include	Necessary for the project, manageable ES impacts

Annex 3 National ES Legislative and Regulatory Framework

The national legislative and regulatory framework is described in the following subsections.

Environmental and Social Assessment

Indonesian laws and regulation on environmental and social assessment that applicable for the project are as follows:

- Omnibus Bill/Job Creation Law/Undang-Undang Cipta Kerja or UUCK 6/2023 (Government Regulation in Lieu of Law No. 2 Year 2022).
- Government Regulation No. 22 Year 2021 on Implementation of Environmental Protection and Management.
- Government Regulation (GR) No. 5/2021 on Implementation of Risk-Based Business Licenses.
- Minister of the Environment and Forestry Regulation No. 4 Year 2021 on Business and/or Activity types that require an AMDAL, UKL-UPL, or SPPL.
- Minister of the Environment and Forestry Regulation No. 16 Year 2012 on Guidelines for Preparation of Environmental Documents.
- Minister of the Environment and Forestry Regulation No. 17 Year 2012 on Guidelines for Public Participation.
- Spatial Planning Law 26 Year 2007 on Spatial Planning and province/City level Law on spatial plans (RTRWs)/detailed spatial plans (RDTRs).
- Minister of the Environment and Forestry Regulation No. 26 Year 2018 on Guidelines for Preparation and Assessment and Examination of Environmental Documents in the Implementation of Electronically Integrated Business Licensing Services (OSS).
- Ministry of Energy and Mineral Resources (MEMR) regulation No. 11 Year 2021 Implementation of Electricity Business.

The following table shows the reference of each type of the subprojects' environmental document that needs to be obtained according to Minister of the Environment and Forestry Regulation No. 4 Year 2021.

Table Determination of Environmental Document Type for Each Activity

No	KBLI No	Type of Activities	EIA/AMDAL Scale	UKL-UPL Scale	SPPL Scale	AMDAL Scientific Reason	AMDAL Category/UKL-UPL Category
Distribution Network Development							
	35113, 35115, 35117, 35118	a. Medium/Low Voltage Airline	-	1 kV ≤ voltage < 35 kV (in protected area)	100 V ≤ voltage < 35 kV		B
		b. Medium Voltage Submarine Cable Channel	-	1 kV ≤ voltage < 35 kV	-		B
		c. Medium/Low Voltage Cable Channels			100 V ≤ voltage < 35 kV		B
		d. Low Voltage Sea Cable Channel			100 V ≤ voltage < 35 kV		B
		e. Medium voltage substation		1 kV ≤ voltage < 35 kV			B
Public Electric Vehicle Charging Station							
		Public Electric Vehicle Charging Station (SPKLU)/Public Electric Vehicle Battery Exchange Station (SPBKLU)		all sizes			

Recent developments in Indonesia's regulatory framework for Public Electric Vehicle Charging Stations (SPKLU) have streamlined the business licensing process through the Online Single Submission (OSS) system, integrated with the AMDALNET system. Under the previous framework, SPKLU construction and operation fell under medium-to-high environmental risk activities, requiring a detailed environmental assessment. However, with the new OSS and AMDALNET integration, SPKLU activities have been downgraded to medium-low risk, where the UKL-UPL is issued automatically without a thorough verification process before operation[13]. This shift has expedited the issuance of business licenses but has raised concerns that some SPKLU operators are bypassing environmental compliance, specifically the need for robust UKL-UPL documentation. As of September 2023, 977 SPKLU units were reported to be operational across Indonesia, with many expected to have been licensed automatically through the new system. The automatic issuance of environmental permits through OSS-RBA, while an efficient approach, may result in some SPKLU operators neglecting the specific UKL-UPL requirements. This could lead to potential environmental impacts that are not adequately managed, especially in areas where electricity infrastructure development must comply with stringent environmental standards.

Labor and Working Conditions

Indonesian laws and regulation on labor and working condition that applicable for the project are as follow:

- Law 13 year 2003 on Employment Law.
- Omnibus Bill/Job Creation Law/Undang-Undang Cipta Kerja or UUCK (Government Regulation in Lieu of Law No. 2 Year 2022).
- Law 7 Year 1984 on Ratification of the Convention on the Elimination of all Forms of Discrimination Against Women.
- Law 1 Year 1970 on Work Safety.
- Law 8 Year 2016 on Persons with Disabilities.
- Law 4 Year 1979 on Child Welfare.
- Law 23 Year 2002 on Child Protection as last amended by Government Regulation in lieu of Law 1 Year 2016.
- Law 21 Year 2000 on Labor Unions.
- Ministry of Energy and Mineral Resources (MEMR) regulation No. 11 Year 2021 Implementation of Electricity Business.
- Ministry of Energy and Mineral Resources (MEMR) regulation No. 26 Year 2021 on Roof Solar Power Plant Connected to the Electric Power Network License Holders of Electricity Supply Business License for Public Interest.
- Ministry of Manpower Regulation No. 5 Year 2018 on Occupational Health and Safety in a Workplace Environment.
- Ministry of Manpower Regulation No. 3 Year 1998 on Procedures to Report and Investigate Accidents.

Resource Efficiency and Pollution Prevention and Management

Indonesian laws and regulation on Resource Efficiency and Pollution Prevention and Management that applicable for the project are as follow:

- Law No. 32 Year 2009 on Environmental Management and Protection.
- Government Regulation No. 22 Year 2021 on Implementation of Environmental Protection and Management.

[13] https://www.menlhk.go.id/news/perizinan-berusaha-kegiatan-stasiun-pengisian-kendaraan-listrik-umum-spklu-kini-semakin-mudah/

- Law No. 30 Year 2007 on Energy.
- Law No. 18 Year 2008 on Solid Waste Management.
- Government Regulation No. 22 Year 2021 on Implementation of Environmental Protection and Management.
- Government Regulation No. 81 Year 2012 on Management of Household Waste and Waste.
- Minister of the Environment Regulation No. 5 Year 2014 on Wastewater Standards stipulates the limit or level of pollutants and/or amount of pollutants in wastewater that is discharged by businesses and/or development activities.
- Government Regulation No. 70 Year 2009 on Energy Conservation.
- Ministry of Energy and Mineral Resources (MEMR) regulation No. 10 Year 2021 on Electricity Safety.
- Ministry of Environment and Forestry Regulation 6 Year 2021 on Procedures and Requirements for Management of Hazardous and Toxic Waste.

Community Health and Safety

Indonesian laws and regulation on Community Health and Safety that applicable for the project are as follow:

- Law No. 32 Year 2009 Concerning Environmental Protection and Management.
- Law No. 22 Year 2009 Concerning Road Traffic and Government regulation No. 32 Year 2011 Concerning Management and Engineering, Impacts Analysis, and Traffic Management.
- Law No. 28 Year 2002 Concerning Buildings regulates the requirements for fully functional buildings applicable to both public and private facilities.
- Government Regulation No. 22 Year 2021 on Implementation of Environmental Protection and Management.
- Government Regulation No. 30 Year 2021 on Implementation of Road Traffic and Transportation Sector.
- Government Regulation No. 16 Year 2021 Concerning Buildings.
- Ministry of Energy and Mineral Resources (MEMR) regulation No. 11 Year 2021 on Implementation of Electricity Business.
- Ministry of Energy and Mineral Resources (MEMR) regulation No. 10 Year 2021 on Electricity Safety.
- Ministry of Health Decree 876/MENKES/SK/VIII/2001 on Technical Guidelines for Analysis of Environmental Health Impact.

Land Acquisition and Resettlement

Indonesian laws and regulation on Land Acquisition and Resettlement that applicable for the project are as follow:

- Law No. 2 Year 2012 on Land Acquisition.
- Job Creation Law No. 6/2023
- Government Regulation No. 19 Year 2021 on the Implementation of Land Acquisition for Development for Public Interest and its amendment Government Regulation No. 39/2023
- Minister of ATR/BPN (MAA) Regulation No. 19/2021 which provides technical procedure/provisions to implement the Government Regulation No. 19/2021 regarding Land Acquisition for Public Interest.
- Government Regulation No. 18 Year 2021 on Management Rights, Land Rights, Flats Units, and Land Registration.

- President Regulation No. 62 Year 2018 on Social Impact Management in Land Procurement for National Development and its amendment Presidential Regulation No. 78 /2023.
- Minister of Agrarian and Spatial Planning (MASP)/National Land Agency (BPN) No 6/2020, provided further detailed provisions to implement the Presidential Regulation (PP) no 62/2018
- Minister of Energy and Mineral Resources (MEMR) Regulation No. 11 Year 2021 Implementation of Electricity Business.
- Regulation of the Minister of Energy and Mineral Resources No. 13 of 2021 for compensation for land, buildings, and or plants that are under the free space (right of way) of the electric power transmission network.
- Technical Guidelines for Land Acquisition and Resettlement, November 2019 (Draft Final) defined the steps and provisions for undertaking involuntary land acquisition and resettlement process (separated in two parts, for land procurement below and above 5ha). The guideline was intended to be applied for all PLN units/projects and allowing the Indonesia government stages consisted of four (4) stages of: planning, preparation, implementation and submission of completion results. The Technical Guidelines for Land Acquisition and Resettlement also include provisions for managing socioeconomic impacts from the land procurement including impacts on non-titled land occupants, eligibility and entitlements of compensation, as well as additional livelihood restoration for the vulnerable groups and severely impacted people. The Guideline has also covered the procedure for acquiring land through voluntary land donation (VLD). PLN intends to further expand and adopt the Guidelines as part of the ESMS,

Perdir 153/2019 concerning' application of PLN's Safeguard System to projects financed by ADB (PLN also applied this regulation to all projects receiving international financing). This regulation states that the land acquisition and resettlement process should be avoided wherever possible or minimized by reviewing alternative projects and other designs if not possible.

Biodiversity Conservation and Sustainable Management of Natural Resources

Indonesian laws and regulation on Biodiversity Conservation and Sustainable Management of Natural Resources that applicable for the project are as follow:

- Law No. 18 Year 2013 on the Prevention and Eradication of Forest Degradation.
- Omnibus Bill/Job Creation Law/Undang-Undang Cipta Kerja or UUCK (Government Regulation in Lieu of Law No. 2 Year 2022).
- Law 5 Year 1990 on Conservation of Living Natural Resources and their Ecosystems.
- Government Regulation No. 23 Year 2021 on Forestry.
- Minister of Environment Regulation No. 29 Year 2009 on Guidelines for Biodiversity Conservation.
- Ministry of Environmental and Forestry Regulation 8 Year 2021 on Administration of Forest and Forest Management Plan, Utilization of Protected Forest and Production Forest.
- Ministry of Environmental and Forestry Regulation 9 Year 2021 on Administration of Social Forest.

Forest Area Use

In accordance with Permen LH 7/2021 concerning Forest Planning, Change of Designation, and Function of Forest Areas, as well as the Utilization of Forest Areas, Article 367 stipulates that electricity activities, including power generation installations, transmission, electricity distribution,

substations, and new and renewable energy technologies, are categorized as Forest Area Utilization Activities. These activities require Forest Area Utilization Approval through a decision issued by the Minister of Environment and Forestry.

Furthermore, under Article 384, the installation of village electricity lines with a voltage equal to or less than 70 kV, underground telecommunication lines, and telecommunication lines using poles similar to those used for village electricity lines are not considered activities under Forest Area Utilization. These activities follow a different mechanism through Cooperation Approval (Perjanjian Kerja Sama or PKS).

In the context of compliance with Indonesia's forest utilization regulations, particularly under Permen LH No. 7/2021 regarding forest area planning and the use of forest areas for infrastructure development, several cooperation agreements (PKS) have been formalized between PLN and relevant forest authorities. These agreements pertain to the development of electricity transmission and distribution networks within designated forest areas, which are crucial for rural electrification and infrastructure improvement efforts, particularly in remote and protected regions.

The following table presents the cooperation agreements obtained by various PLN Unit Induk Distribusi (UID) for the utilization of forest areas, detailing the approval type, the location, and the specific UID responsible for the agreement.

No	UID	Description
1	UID Sumatra Selatan & Jambi (S2JB)	Cooperation approval for PLN's 20 kV line in SM Gunung Raya, South Sumatra
2		Cooperation approval between BKSDA South Sumatra and PT PLN UID S2JB for forest area usage
3		Cooperation approval for the usage of forest areas in Desa Sindang Laya and Mukti Karya
4		Cooperation approval for the usage of forest areas in Ogan Komering Ilir (OKI) Regency
5	UID Sumatra Barat	Cooperation approval for strategic development related to power generation and network operation in Taman Nasional Siberut, Mentawai Islands, West Sumatra
6	UID Sumatra Utara	Cooperation approval for PLN's 20 kV line within forest areas in Toba Regency, North Sumatra
7		Cooperation approval for unavoidable development of transmission networks in conservation areas, Sumatra Utara
8		Cooperation approval for PLN's network development in forest production areas, Sumatra Utara

Indigenous Peoples

Indonesian laws and regulation on Indigenous Peoples that applicable for the project are as follow:

- Law No. 41 Year 1999 on Forestry, which has been amended by Law No. 19 Year 2004. The Constitutional Court has reviewed the Law No. 41 Year 1999 on the forest rights of MHA through the Constitutional Court Decree No. 35 Year 2012 which confirms that adat forests are no longer state forests.
- Basic Agrarian Law No. 5 Year 1960 determines the applicability of adat law over land and customary rights (hak ulayat). This is the first law that introduced the concept of conditionality in the recognition of Indigenous Peoples which was further adapted through various laws governing land and natural resources
- Law No. 6 Year 2014 on Villages. acknowledges the existence and rights of MHA, provided that they are recognized, and MHA could opt to establish adat villages with their own institutional structures and authority.
- Law No. 27 Year 2007 on Coastal Zone and Small Island Management acknowledges the existence of MHA provided they are recognized and requires consultations with MHA for any development in coastal areas. This is the only Indonesian law that explicitly requires free, prior, and informed consultations for affected MHAs
- Law No. 11 Year 2010 on Cultural Heritage recognizes MHA as the owners of their cultural heritage and grants them authority to manage it.
- Law No. 23 Year 2014 on Local Government recognizes the existence of adat institutions (lembaga adat) by giving them rights to “empowerment”. Secondly, the Law determines that adat law is an additional rule for use in particular purposes, such as village elections
- Law No. 21 Year 2001 on Special Autonomy for Papua Province on the statutory recognition of the indigenous people in Papua
- Government Regulation No. 11 Year 2022 on National Register and Preservation of Cultural Heritage.
- Government Regulation No. 23 Year 2021 on Management of Forestry.
- President Regulation No. 186 Year 2014 on Social Empowerment of Remote Indigenous People.
- Minister of Environment and Forestry Regulation No. 9 Year 2021 on Social Forestry Management.
- Minister of Environment and Forestry Regulation No. 17 Year 2020 on Titled Forest and Indigenous Peoples Forest.
- Minister of Agrarian Affairs and Spatial Planning/National Land Agency Regulation No. 18 Year 2019 on Procedures for Customary Land Administration as part of a Customary Law Community.
- Minister of Home Affairs Regulation No. 52 Year 2014 on Guidelines for Recognition and Protection of Indigenous People.
- PLN internal Standards, named PerDir 153/2019 regulate that risk screening and document preparation on land acquisition and resettlement issues should be based on meaningful consultations with affected people, especially vulnerable groups including Indigenous Peoples and other relevant stakeholders throughout project stages, from project planning to construction and operational stages.

Cultural Heritage

Indonesian laws and regulation on Cultural Heritage that applicable for the project are as follow:

- Law No. 5 Year 2017 on the Cultural Advancement.
- Law No. 11 Year 2010 on Cultural Heritage.
- Government Regulation No. 11 of 2022 on National Register and Preservation of Cultural Heritage.
- President Regulation No. 78 Year 2007 on ratification the UNESCO Convention for Safeguarding of the Intangible Cultural Heritage.

Stakeholder Engagement and Information Disclosure

Indonesian laws and regulations on Stakeholder Engagement and Information Disclosure that applicable for the project are as follow

- Law No. 14 Year 2008 on Public Information Disclosure.
- Law No. 32 Year 2009 on Environmental Protection and Management.
- Law No. 7 Year 1984 on the Enactment of the Convention on the Elimination of All Forms of Discrimination Against Women.
- Government Regulation No. 22 Year 2021 on Implementation of Environmental Protection and Management.
- President Regulation No. 38 Year 2015 on Cooperation between Government and Business Entities in the Procurement of Infrastructure.
- President Instruction No. 9 Year 2000 on Gender Mainstreaming in National Development emphasizes women's participation in development processes.
- Minister of Environment and Forestry Regulation No. P.26 /MENLHK/SETJEN/KUM.1/7/2018 Guidelines for Preparation and Evaluation and Examination of Environmental Documents in the Implementation of Electronically Integrated Business Licensing Services.
- Minister of Environment and Forestry Regulation P.22/MENLHK/SETJEN/SET.1/3/2017 on Procedures for Management of Complaints of Pollution and/or Environmental Damage and/or Forest Damage.
- Minister of Environment and Forestry Regulation No. 16 Year 2012 on Guidelines for Preparation of Environmental Assessment Documents.
- Minister of Environment and Forestry Regulation No. 17 Year 2012 on Guidelines on Community Engagement in the Process of Environmental Impact Analysis and Environmental Permit.
- Ministry of Energy and Mineral Resources (MEMR) regulation No. 10 Year 2021 on Electricity Safety.

Annex 4 Gaps Between AIIB ESP- Core Principles & Elements and Government/PLN Regulations

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	PLN ESMS	Gaps Identified
Core Principle 1: Promote environmental and social sustainability in the RBP's design.	(a) Operate within an adequate legal and regulatory framework to guide ES impact assessments, mitigation, management, and monitoring at RBP level.	PLN ES management systems require early screening of potential ES impacts and it's a part of the Borrower's program design. The first phase ES screening was conducted during the selection of Project Investment PLN screens all potential projects to select the projects which will be included in the PLN's investment pipeline in the General Plan of Electricity Development (RUPTL). PLN's ESMS is built on a foundation of national laws and regulations, including environmental permits, social safeguards, and guidelines for project development. It is aligned with international standards like World Bank requirements.	The ESMS Manual and Guideline issued in May 2024 align with the core principle and elements described in the ESP and the Guidance Note. Despite a robust framework, challenges include inconsistent implementation across different units (UIDs) and occasional delays in integrating new regulatory updates into the ESMS. It was noted that ESMS induction training for UIDs/UIWs in Sumatra was conducted during 16-18 October 2024; However, the majority of the unit representatives present were not ESG officers but from other divisions, as ESG officers have not yet been appointed in those units. The induction training only covered 3 out of 11 management guidelines, i.e management guideline on land acquisition and resettlement; indigenous people, and biodiversity
Core Principle 2: Avoid, minimize, or mitigate adverse impacts and promote informed decision-making relating to the RBP's environmental and social impacts.	(b) Incorporate recognized elements of good practice in ES assessment and management, including:	The ESMS includes elements like stakeholder engagement, risk assessment, and impact mitigation plans. It emphasizes the importance of considering environmental and social risks at each project stage. The PLN standard of screening for investment will use the following key indicators: land (20%), technical (60%), social (10%), and environmental (10%). Relevant stakeholders, particularly the	The application of good practices is uneven, with gaps in continuous staff training and some units lacking full awareness of recent changes in the ESMS. UID SU is unaware of ESG & Safeguard officer requirements, highlighting gaps in personnel readiness.

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	PLN ESMS	Gaps Identified
		potentially affected communities, be able to give feedback for the project's design, including inputs on the proposed project design which may affecting their livelihood, their concern on project impacts, and expectations toward project benefits.	
	(i) Early screening of potential impacts.	Screening processes are well-defined and include criteria for environmental and social impacts at the project initiation phase, using GIS tools and local data.	Some distribution projects may cross biodiversity areas, but the UID lacks a list of projects and associated forest types, indicating potential risks of non-compliance with biodiversity conservation requirements.
	(ii) Consideration of strategic, technical, and site alternatives (including the "no action" alternative).	The ESMS process requires consideration of project alternatives, including different site locations and technical solutions to minimize impacts.	Documentation/report on the analysis of alternatives, particularly the "no project" option, is limited, making it challenging to verify if these alternatives were fully explored in practice. Associated facilities (AF), such as access roads, may not be identified and mitigated, indicating gaps in comprehensive assessment.
	(iii) Explicit assessment of potential, induced, and cumulative impacts.	PLN's ESMS includes the need for cumulative impact assessments, especially for projects like distribution networks that could have broader regional effects.	Site visit findings revealed that cumulative impacts were not consistently considered during assessments, and there was limited focus on induced impacts, such as changes in land use due to infrastructure projects. This includes a lack of specific consideration for associated facilities and potential biodiversity impacts.
	(iv) Identification of measures to mitigate adverse environmental or social risks and impacts	The ESMS includes clear protocols for developing mitigation measures tailored to specific risks identified	Improper storage of used transformers was observed in Binjai's warehouse (e.g., stored without cover on broken concrete and outside

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	PLN ESMS	Gaps Identified
	that cannot be otherwise avoided or minimized.	during impact assessments.	designated spill trap channels), highlighting issues in implementing containment measures.
	(v) Clear articulation of institutional responsibilities and resources to support implementation of plans.	ESMS manual and guidelines clearly outline the institutional responsibility and resources to support the implementation of ES plan for the programs financed by MDBs PLN BOD Decree requested each UID should appoint an ESG& Safeguards Officer. Each division is allowed to request a capacity building relevant to their needs. The division which need the training will send a complete request with TOR and an estimated budget to PLN HQ – Human Talented Division (HTD). HTD will assigned to PLN University to conduct the training or can also hire the expert as a keynote speaker. The budget for the specific training should be allocated by the division requesting the training.	During site visits, it was found that some UIDs lacked sufficient staff or ES specialists, such as an absence of ESG officers and social focal persons, which led to delays in implementation and monitoring of ES practices. UID SU's unawareness of ESG & Safeguard officer requirements further indicates a gap in clear communication of responsibilities. PLN staff including UID staff is not aware of the ESMS as the policy just issued and dissemination conducted into limited units.
	(vi) Responsiveness and accountability through stakeholder consultation, timely dissemination of the RBP information, responsive grievance redress mechanisms, and access to independent accountability mechanisms.	ESMS Stakeholder Engagement Guideline (Guideline No 9) is also considered equivalent to the AIIB stakeholder engagement principles. PLN should disclose comprehensive information related to project purpose, impact and mitigation measures as early as possible (since the feasibility study stage and pre-construction	Gaps were identified in the consistency of stakeholder engagement activities, particularly in regions where vulnerable groups were not adequately involved, and grievances were not always systematically recorded. Some UIDs are not effectively engaging with stakeholders on the potential environmental and social risks associated with new project locations. 1. No clear participation of

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	PLN ESMS	Gaps Identified
		phase) and in a time frame that enables meaningful consultations with stakeholders on project design. PLN has an effective complaint management system where responses are made through its call center 123, online application, customer center. Requirement to set up a GRM also mentioned in the ESMS manual and guideline	women, youth, and other vulnerable groups 2. Most of consultations are conducted without documentations/records (only photos) 3. Grievances are currently handled manually and are not well documented
Core Principle 3: Avoid, minimize, or mitigate adverse impacts on natural habitats and cultural resources resulting from the RBP.	(c) Identify and screen for adverse impacts on potentially important biodiversity and cultural resource areas and provide adequate measures to avoid, minimize, or mitigate adverse impacts.	The ESMS includes a biodiversity screening process and provisions for cultural heritage preservation. It requires assessments to identify and mitigate impacts on protected areas.	Site visits revealed improper documentation of biodiversity assessments and a lack of a comprehensive project list intersecting with sensitive ecosystems, like forest areas.
	(d) Support and promote protection, conservation, maintenance, and rehabilitation of natural habitats; avoid significant conversion or degradation of critical natural habitats.	PLN's ESMS encourages habitat conservation and limits activities in critical areas. It includes exclusion criteria for projects in critical natural habitats.	Practical enforcement of conservation measures varies, with some projects proceeding without complete documentation of compliance, as observed in the lack of clear procedures for handling associated facilities like access roads. In some cases, the UID has not fully identified and mitigated risks for associated facilities.
	(e) Take into account potential adverse impacts on cultural resources and provide adequate measures to avoid, minimize, or mitigate these impacts.	ESMS mandates identification and protection of cultural heritage sites, requiring engagement with cultural preservation authorities.	The ESMS manual has procedures for screening the cultural resources.
Core Principle 4: Protect public and worker safety.	(f) Promote adequate community, individual, and worker health, safety, and security through the safe design, construction, operation, and maintenance of the RBP.	Health and safety guidelines are detailed within the ESMS, including protocols for hazardous material handling and fire safety.	Site visits noted that two fire extinguishers are expired and have low pressure in the Keramasan Warehouse, indicating weaknesses in routine safety audits and equipment maintenance.

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	PLN ESMS	Gaps Identified
	(g) Promote the use of recognized good practice in the production, management, storage, transport, and disposal of hazardous materials generated under the RBP.	ESMS includes protocols for safe storage, handling, and disposal of hazardous materials, such as transformer oil and batteries.	Issues were found in the storage conditions of used transformers in Binjai's warehouse, where they were placed on broken concrete without cover. There are also missing disposal records for forklift oil and batteries, indicating gaps in record-keeping.
	(h) Promote the use of integrated pest management practices.	The ESMS does not specifically address integrated pest management (IPM) practices.	The lack of IPM guidance and training represents a gap in managing potential risks from pest control activities related to infrastructure development.
	(i) Include measures to avoid, minimize, or mitigate risks in areas prone to natural hazards.	The ESMS requires screening for natural disaster-prone areas, incorporating GIS tools to identify risks like floods and earthquakes.	The ESMS manual has procedures for screening the natural disaster risk.
Core Principle 5: Manage land acquisition and loss of access to natural resources.	(j) Avoid or minimize land acquisition and related adverse impacts.	The objectives, scope and triggers, and policy principles stipulated in the ESMS guidance on land acquisition are equivalent to AIIB ESP	No compensation provided for the loss of trees/crops for MV and LV distribution lines construction/extension.
	Provide compensation sufficient to purchase replacement assets.	PLN Decree No. 0344/2016 is silent (not mentioned) cash compensation for land use or lost trees/crops for MV and LV distribution lines construction. .	Land required for the program activities is not large and the impacts will be minor. No physical relocation is expected and no impact on affected persons livelihood. However the capacity of respective units to identify involuntary resettlement impacts and exclude any potential activities that will trigger cat A is limited.
	Include measures to ensure informed participation of those affected.	ESMS emphasizes the importance of informed participation through stakeholder consultations, particularly in cases of land acquisition.	The engagement with stakeholders is not always consistent, with some regions not fully following up on consultations with vulnerable peoples, affecting documentation of stakeholder inputs.
Core Principle 6: Consider cultural appropriateness and equitable access.	(k) Address gender aspects, children, and disability in consultations.	ESMS consultations in the early stage of programs with the participation of women, youth, and other vulnerable groups are required.	1. No clear participation of women, youth, and other vulnerable groups 2. Most of consultations are conducted without documentations/records (only photos)

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	PLN ESMS	Gaps Identified
	(l) Meaningful consultations with Indigenous Peoples.	ESMS Indigenous People Management and Guideline (Guideline No 7) aims to manage the risk and impact on Indigenous people groups equal to AIIB ESP Consultations with the IP need to be conducted, to get their consent for the programs	PLN encounters difficulties in screening for Indigenous peoples on project sites No clarity on participation of women, IP and other vulnerable groups in the consultations
	(m) Provide for participation by the Indigenous Peoples in devising opportunities to benefit from exploitation of customary resources or indigenous knowledge.	A separated consultations with women and other vulnerable groups including IP is required to capture suggestions and concerns	Most of consultations were done without any appropriate documentations/ records. Taking records in the consultations with the IP community may become a challenge
	(n) Take special measures to promote equitable access.	The ESMS requires UIDs to identify and address the needs of vulnerable groups, ensuring their participation and access to project benefits. This includes provisions for targeted communication and engagement strategies.	However, gaps exist in the effective implementation of these measures, as some UIDs are not effectively engaging with vulnerable groups, leading to potential inequities in access and participation.
Core Principle 7: Avoid exacerbating social conflict.	(o) Consider conflict risks.	The ESMS includes considerations for potential social conflicts in project areas, especially in areas with diverse social and ethnic compositions. It emphasizes stakeholder engagement to reduce potential tensions.	However, gaps exist in the effective implementation of these measures, as some UIDs are not effectively engaging with vulnerable groups, leading to potential conflict risk

Annex 5 Checklists for Assessing the ES management systems against core principles and core elements[14]

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
Core Principle 1: Promote environmental and social sustainability in the RBP's design.	(a) Operate within an adequate legal and regulatory framework to guide ES impact assessments, mitigation, management and monitoring at RBP level.	• What relevant ES laws, regulations, procedures, decrees, or other mandatory legal instruments (national, regional, and sectoral/program levels) are applicable to the RBP activities and their associated risks and impacts? o Enlisted in Annex 3 above. • Are critical adjustments and measures to the regulatory framework needed before the start of the RBP? o Not required. • Do the relevant ES management systems include mechanisms, where appropriate, to ensure objective or independent assessment of ES impacts? o Yes, PLN has its own Environmental and Social Management System (ESMS), which includes mechanisms to ensure the objective assessment of environmental and social impacts where appropriate. o Yes, PLN screens all potential projects to select the projects which will be included in the PLN's investment pipeline in the General Plan of Electricity Development (RUPTL). The PLN standard of screening for investment will use the following key indicators: land (20%), technical (60%), social (10%), and environmental (10%). Social indicator include land size, IP existence. Screening and scoping exercises for a project site prioritization/ selection are straightforward, desk-based exercises based on the experience and professional judgment of PLN social specialists. o Upon a Project making it through screening for inclusion within the RUPTL and the development process commencing, it will be subject to detailed impact screening for potential land acquisition/donation and resettlement impacts and risks to scope up work required to complete a social impact assessment as part of LARAP preparation. PLN unit assigned with the help of experts (as needed to identify potential ES Risk.
Core Principle 2: avoid, minimize or mitigate adverse impacts and promote informed decision-making	(b) Incorporate recognized elements of good practice in ES assessment and management, including: (i) early screening of potential impacts;	• Do the applicable ES management systems require early screening of potential ES impacts. o Yes, 1st phase ES screening was conducted during Selection of Project Investment PLN screens all potential projects to select the projects which will be included in the PLN's investment pipeline in the General Plan of Electricity Development (RUPTL). The PLN standard of screening for investment will use the following key indicators: land (20%), technical (60%), social (10%), and environmental (10%).

[14] Gap analysis done with the ESMS Manual and guideline issued by PLN in 2024

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists

relating to the RBP's environmental and social impacts.		• Do relevant procedures require ES screening/assessment of activities associated with the RBP?
		  o Yes, the relevant procedures require Environmental and Social (ES) screening and assessment of activities associated with the Results-Based Project (RBP). PLN's Environmental and Social Management System (ESMS) mandates that all projects undergo an initial environmental and social screening to identify potential risks and impacts.
		• Are ES screening procedures comprehensive?
		  o Yes, Project Screening and Categorization process in the ESMS is meant to be limited to ES risk management process and is separated from engineering or technical risk management process. A separate screening may need to be conducted to cover risk management from an engineering or technical perspective.
		• Does screening lead to ES assessments that are proportional in depth and scope to the identified adverse impacts and risks (e.g., does it apply ES risk categories?)
		  o Yes, the objective of the Project Screening and Categorization includes identifying major ES risks of the potential project at the earliest possible stage determine project category based on preliminary assessment of the potential ES risk. The probability of risk/impact occurrence is expressed in five scales from the highest of Very High (5) to the lowest of Very Low (1) to occur and the criteria in general for each level is described in chapter 5.3.1.Initial Identification of Potential ES Risk and Impact of ESMS.
		  o The results of screening and risk categorization are preliminary in nature and will be expanded and revisited as part of the Impact Assessment, when more information about the nature and the scope of the project becomes available or when project definition and circumstances change (e.g., screening of subprojects identified during project implementation, project restructurings, activation of Contingency Emergency Response Components, etc.). This is in line with the adaptive risk management approach.
		• Do screening procedures include opportunities for stakeholder involvement in the identification of priority ES risks and impacts?
		  o Yes, the ES screening will be conducted by PLN unit with the help of experts (as needed to identify potential ES Risk.
		  o Relevant stakeholders, particularly the potentially affected communities, be able to give feedback for the project's design, including inputs on the proposed project design which may affecting their livelihood, their concern on project impacts, and expectations toward project benefits.
		• Do these requirements specifically apply to the Program to be supported by the RBP operation? Has screening for, and estimation of, ES effects been a part of the Borrower's program design?

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		○ Yes, the ES risk screening and categorization and the engineering or technical risk management process, though conducted in parallel, should nonetheless inform each other that ES risks may be lowered by adjusting engineering. designs which may increase technical risks, or vice versa, so that the project risk can be optimized at the project level, rather than the technical or ES level. ○ Throughout the Impact Assessment process, alternative project designs or project design adjustments will be proposed based on the identified impacts and strategies for mitigating/correcting them. These alternatives will help reduce the overall project risk and reduce the cost of mitigating them, and will also help address stakeholder concerns and reduce potential stakeholder risks to the project. • Has RBP screening identified potential subprojects under the Environment and Social Exclusion List (ESEL)? If such activities have been identified, have the activities been excluded from the program? ○ No subprojects under the ESEL.
	(ii) consideration of strategic, technical, and site alternatives (including the “no action” alternative);	• Do the applicable ES management systems require the consideration of alternatives or other forms of options assessments to avoid or minimize potential impacts and risks? I.e., are strategic, technical, and site-selection alternatives considered, including a “do nothing” option? ○ Yes, risk screening and classification will be an integral part of processes towards determining project designs and locations, and allow adaptive management during implementation, by allowing the application of the principle of mitigation hierarchy, to firstly avoid significant ES risk and impact, then to reduce the risk and impact when they are unavoidable. • Which other forms of strategic planning, such as sectoral master planning, are used to identify ES risks and impacts? Do they consider relative ES costs and benefits? ○ The social indicators considered in the screening process include information about regional spatial planning and maps, which are used to determine whether potential projects comply with regional spatial planning guidelines. ○ Yes, PT PLN uses several strategic planning tools, including the Forest Area Map issued by the Ministry of Environment and Forestry (MOEF), the Indicative Map for Business Permit Termination (PIPPIB), spatial plans issued by local Development Planning Agencies, and protected rice field areas designated by the Ministry of Agrarian and Spatial Planning. • Has RBP screening considered site alternatives? ○ Yes, the screening and categorization process will consist of (i) initial Identification of potential risks and impacts, including through Site Screening; (ii) exclusion of projects with

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
		unacceptable risks and impacts; and (iii) determination of relevant ES risks and impacts (subject to detailed Impact Assessment process).
	(iii) explicit assessment of potential, induced, and cumulative impacts;	• Do RBP procedures require the consideration of induced and cumulative impacts as part of screening, options assessment, and/or ES Impact Assessment? o Yes, RBP procedures in PLN ESMS require the consideration of induced and cumulative impacts as part of the screening, options assessment, and Environmental and Social Impact Assessment (ESIA). • Do the procedures allow for, or promote, the use of tools (such as strategic ES impact assessments and/or strategic management plans) to help identify and evaluate such impacts? o Yes, the procedures for the RBP allow for and promote the use of tools such as Strategic Environmental and Social Impact Assessments and strategic management plans to help identify and evaluate such impacts. • Do the procedures include measures for evaluating critical environmental issues such as transboundary pollution, biodiversity loss, international waterways, and climate change? If so, do they consider the implications to and from RBP activities (i.e., double materiality)? o Yes, the procedures in PLN ESMS include measures for evaluating critical environmental issues such as transboundary pollution, biodiversity loss, international waterways, and climate change. These measures are integrated into the Environmental and Social Impact Assessment (ESIA) process. • Do RBP systems require assessing the risks from natural disasters and/or human emergencies? o Yes, PLN ESMS require assessing the risks from natural disasters and human emergencies, and this is closely linked to the screening process for natural disaster-prone areas. During the Environmental and Social Impact Assessment (ESIA), potential project locations are evaluated. • Does the RBF assessment provide adequate opportunities to engage stakeholders on induced, cumulative, and transboundary impacts? o Yes, PLN's ESMS provides adequate opportunities to engage stakeholders on induced, cumulative, and transboundary impacts through its structured stakeholder engagement process.
	(iv) identification of measures to mitigate adverse environmental or social risks and impacts that cannot be otherwise avoided or minimized;	• Do the applicable systems effectively promote the application of the mitigation hierarchy (e.g., avoid, minimize, mitigate, compensate/offset)?

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		○ Yes, PLN ESMS applied mitigation hierarchy: avoid – minimize – restore – offset, from most desirable to least preferred strategy. • Are mitigation/management measures under the system relevant and realistic? Do they require time-bound actions, clear targets, and clear assignment of responsibilities for implementation? ○ Yes, the PLN ESMP will cover ▪ result of impact analysis; ▪ required mitigation measures that have to be implemented; ▪ measure to enhance positive impact, where possible; ▪ performance indicator; ▪ estimated timeline to implement the mitigation plan; ▪ monitoring and evaluation plan (with schedule); ▪ resources to implement the mitigation measures; ▪ roles and responsibilities in ESMP implementation; and ▪ requirements to conduct regular review of the ESMP to determine whether the ESMP should be amended or not, and by whom the changes (or no changes) should be made. • Do the applicable systems include clear and appropriate repercussions and remedies in case ES mitigation measures are not applied? ○ Yes, PLN ESMS include monitoring and evaluation.
	(v) clear articulation of institutional responsibilities and resources to support implementation of plans; and	• Are RBP entities responsible for ES aspects adequately resourced and staffed—in terms of skills, qualifications, and number of staff—to ensure effective administration, planning, design, implementation, and monitoring functions? ○ No social focal person under all UIDs. Any social problem will be handled by (the Social and Environmental Responsibility-TJSL& Communication section and the activities are more on providing aids (CSR) and communication outreach. Any issue related to the impact on the community will be the responsibility of the construction section under UP3 in collaboration with the contractor. ○ PLN BOD Decree requested each UID should appoint an ESG& Safeguards Officer, but not all units have appointed the officer yet. UID P2JB has appointed one of two assigned staff (one of them has been appointed), while UID West Sumatra has not appointed the officer. ○ Based on consultations with UIDs, observed the staff in UIDs has weak awareness on social aspect. ○ Key findings include the lack of ESMS awareness training, unawareness of ESG & Safeguard officer requirements at UID SU, improper management of hazardous materials,

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		and inadequate monitoring of fire safety and hazardous waste disposal. These issues suggest a need for enhanced staffing, more comprehensive training, and better allocation of resources to ensure effective administration, planning, design, implementation, and monitoring of ES aspects. • If the RBP does not include sufficient in-house capacity for the Client, what other alternative arrangements (e.g., coordination with other agencies, use of consulting services) are available to promote program effectiveness? If present, what arrangements are in place to ensure effective and timely coordination? If none, what needs have been identified for supplementary support and/or capacity strengthening? o The HR will map employee needed and hired for ESMS implementation (such as ES specialist, biodiversity specialist), the capacity building is also identified in ESMS. o Each division is allowed to request a capacity building relevant to their needs. The division needs the training to send a complete request with TOR and an estimated budget to PLN HQ – Human Talented Division (HTD). HTD will assign PLN University to conduct the training or can also hire an expert as a keynote speaker. The budget for the specific training should be allocated by the division requesting the training. • Are the RBP entities effective at applying their ES frameworks in practice? Are "adaptive management" processes in place to respond to unanticipated ES management issues? o No, the RBP entities are not fully effective at applying their ES frameworks in practice. The identified gaps, such as expired fire extinguishers, improper storage of hazardous materials, missing ESMS training, and lack of awareness about ESG & Safeguard officer requirements, indicate that while systems may be in place, they are not consistently implemented or monitored. The ESMS contains requirement on adaptive management, but its implementation effectiveness is yet to be demonstrated. • Do RBP entities have access to contingency funds for unexpected impacts or budget shortfalls? o Information is not sufficient to answer this question. • With the screening results on potential ES impacts, if the agency has any issues with budget for managing the potential impacts. o Agency need financial support to implement the program.
	(vi) responsiveness and accountability through stakeholder consultation, timely dissemination of the RBP information, responsive grievance redress mechanisms and	• What mechanisms do program entities use to ensure that stakeholders are identified and that their views, concerns, and suggestions are systematically considered? o Stakeholder engagement in compliance with national regulations.

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
	access to independent accountability mechanisms.	○ ES impact assessment require involvement of relevant stakeholders including community surrounding project, be able to give feedback for the project's design, including inputs on the proposed project design which may affecting their livelihood, their concern on project impacts, and expectations toward project benefits. ○ PLN will conduct stakeholder engagement in an inclusive manner and pay particular attention to vulnerable group as well as indigenous people so they can give their feedback during project design project implementation. Stakeholders may include: (a) people affected or likely to be affected by the project (project-affected parties); and (b) those who may have an interest in and affect the project (other interested parties). • Does the Borrower consult with stakeholders on various aspects of RBP design and operation? ○ Yes, see above. However, most of the consultations are without any records (usually only photos). Women, youth and other vulnerable groups may also not participate in the consultations. ○ Good practice founded in UID West Sumatra, the consultations held involved the village leader, IP leader and religious leader. • What are the implementation practices of the agency in disclosing relevant RBF information? ○ Following national regulations, disclosed on PLN website. ○ In the current practice any information related to the project including ES impacts verbally informed during consultations. For distribution line, consultation (socialization) with APs will be conducted in close coordination with relevant local government agencies because the distribution line mainly will be constructed along the public roads. The agenda of the consultations includes project plan, cable stringing that may require cutting trees, and obtainment of agreement from land owners for use of land in case poles need to be located on private land. • What are the implementation practices of the agency in managing complaints/grievances? ○ PLN has an effective complaint management system where responses are made through its call center 123, online application, customer center, and PLN staff on the ground or vendors. Within the UID West Sumatra area, there were WhatsApp (WA) groups dedicated to addressing any complaints /grievances. The members included the village leader, IP leader, religious leader, and PLN-ULP officer. ○ However, it has no system for collecting/documenting grievances and maintaining records of grievances after these are resolved. Strengthening the existing grievance handling system is required. • Does the Borrower have specific laws or regulations on information disclosure and grievance address?

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		○ Yes, specified in Annex 3 above. ○ Requirement in the PLN ESMS PLN should disclose the following information as early as possible (since the feasibility study stage and pre-construction phase) and in a time frame that enables meaningful consultations with stakeholders on project design : (i) The purpose, nature, and scale of the project; (b) The duration of proposed project activities; (c) Potential risks and impacts of the project on local communities, and the proposals for mitigating these, highlighting potential risks and impacts that might disproportionately affect vulnerable and disadvantaged groups, and describing the differentiated measures taken to avoid and minimize these; (d) Potential risk and impacts that stakeholders including CSOs and parties who may not be directly affected by, but have some interests in, the project, whose actions may affect the project performance and cause reputational risks to the PLN; (e) The proposed stakeholder engagement process highlighting the ways in which stakeholders can participate; (f) The time and venue of any proposed public consultation meetings, and the process by which meetings will be notified, summarized, and reported; and (g) The process and means by which grievances can be raised and will be addressed.
Core Principle 3: avoid, minimize, or mitigate adverse impacts on natural habitats and cultural resources resulting from the RBP**.**	(c) Identify and screen for adverse impacts on potentially important biodiversity and cultural resource areas and provide adequate measures to avoid, minimize, or mitigate adverse impacts.	• Has RBP screening identified potential impacts on modified, natural, or critical natural habitats? If such impacts involve the significant conversion or degradation of critical natural habitats, have the activities been excluded from the program? ○ Yes, RBP screening has identified potential impacts on modified, natural, or critical natural habitats, particularly in the case of distribution projects that may cross biodiversity areas, including protected forests or conservation zones. However, it was noted that UID lacks a complete list of projects and associated forest types, which makes it difficult to fully assess these impacts. Activities involving the significant conversion or degradation of critical natural habitats have been flagged, and there is a suggestion to exclude such projects from the RBP if they do not constitute the majority of projects, in line with environmental permits and regulatory compliance requirements. • Will the RBP activities affect environmentally sensitive habitat areas with local importance, such as streams, wetlands, ponds, and vegetated riparian areas? ○ Yes, RBP activities have the potential to affect environmentally sensitive habitat areas with local importance, such as streams, wetlands, ponds, and vegetated riparian areas. During the site visit, it was identified that some distribution projects may cross biodiversity areas, including protected or sensitive ecosystems. However, specific details on affected streams, wetlands, or riparian areas were not fully documented during the visit, and it was suggested that projects in such sensitive habitats should be excluded from the RBP if they pose significant risks or if they do not form the majority of projects.

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		• Would RBP activities lead to the fragmentation of existing habitat areas, both at the level of localized Program activities and at larger landscape levels? o Yes, RBP activities could potentially lead to the fragmentation of existing habitat areas, both at localized and larger landscape levels. For example, distribution projects, particularly those that may cross biodiversity areas such as protected forests or conservation areas, have the potential to fragment habitats. • Do management plans require appropriate conservation and mitigation measures to be in place, including those required to maintain ecological services? o Yes, PLN ESMS requires management plan regarding ecological impact
	(d) Support and promote protection, conservation, maintenance, and rehabilitation of natural habitats; avoid significant conversion or degradation of critical natural habitats; and if avoiding the significant conversion of natural habitats is not technically feasible, include measures to mitigate or offset the adverse impacts of RBP	• Does the RBP include management measures to protect, conserve, or rehabilitate habitats that are at risk? Are these measures consistent with recognized international good practice, including internationally recognized standards of sustainable forest management and use? o Yes, PLN ESMS requires management plan regarding habitats impact. • Are monitoring measures in place to determine the extent to which habitats are affected under the RBP? o Yes, PLN ESMS requires monitoring and evaluation. • Have the relevant management authorities and other key stakeholders for such protected areas been consulted or otherwise involved in decisions that may affect the legal status or habitat values of the area? o Yes, relevant management authorities and other key stakeholders for protected areas have been consulted or involved in decisions that may affect the legal status or habitat values of the area. • If RBP activities may cause conversion or degradation of non-critical natural habitats, do Environmental Impact Assessment procedures include consideration of measures to avoid or minimize the severity of impacts? o Yes, if RBP activities may cause conversion or degradation of non-critical natural habitats, Environmental Impact Assessment procedures include consideration of measures to avoid or minimize the severity of impacts. • Do plans require appropriate conservation offset measures to be in place, including measures to maintain ecological services? o Yes, the measures will be based on mitigation hierarchy approach
	(e) Take into account potential adverse impacts on cultural	• Does the screening review involve careful attention to avoiding impacts on resources of archaeological, paleontological, historical, architectural, religious, or cultural significance?

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
	resources and provide adequate measures to avoid, minimize, or mitigate these impacts.	○ Yes, the screening review involves careful attention to avoiding impacts on resources of archaeological, paleontological, historical, architectural, religious, or cultural significance. • Is the mitigation hierarchy principle applied in the management of potential adverse impacts on physical cultural property, such as management measures to avoid, minimize, or mitigate? ○ Yes, the measures will be based on mitigation hierarchy approach. • Do Borrower systems include "chance find" procedures to take effect whenever RBP activities result in discovery of, or disturbance to, physical cultural resources? ○ Yes, PLNS ESMS has chance find procedure.
;Core Principe 4: protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the RBP; (ii) exposure to toxic chemicals, hazardous wastes and other dangerous materials under the RBP; and (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.	(f) Promote adequate community, individual, and worker health, safety, and security, through the safe design, construction, operation, and maintenance of the RBP or, in carrying out activities dependent on existing infrastructure, incorporate safety measures, inspections, or remedial works as appropriate; promote measures to address child and forced labor.	• Does the RBP have a legal framework that addresses and promotes workplace safety? Are there mandatory measures that compel contractors and facility operators to operate equipment and facilities in a manner that protects individuals and communities? ○ Yes, based on PLN ESMS Labor and Working Condition Management Guidelines and national regulations. • Does the Borrower require measures to help protect individuals and/or communities from violence, intimidation, harassment, criminal activity, or other negative interactions with contractors, laborers, operators, or other workers associated with a Program activity? ○ Yes, based on PLN ESMS Labor and Working Condition Management Guidelines and national regulations. • Does the Borrower have specific laws or regulations to avoid the use of child and forced labor in the implementation of Program activities? ○ Yes, based on PLN ESMS Labor and Working Condition Management Guidelines and national regulations.
	(g) Promote the use of recognized good practice in the production, management, storage, transport, and disposal of hazardous materials generated under the RBP.	• Does the Borrower have specific laws, regulations, procedures, standards, etc., to effectively evaluate and manage the potential effects of hazardous or toxic materials in the workplace? ○ Yes, based on PLN ESMS Hazardous Materials Management Guidelines and national regulations. • Does the RBP include safety measures and standards for pre-existing civil works or works under construction that pose potential hazards to people or the environment? ○ Yes, based on PLN ESMS Labor and Working Condition Management Guidelines and national regulations. • Are emergency preparedness plans implemented and periodically reviewed? If plans are deficient, what safety measures or remedial works do Program entities need to undertake?

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
		○ Based on the identified gaps, emergency preparedness plans appear to be deficient in some areas. For example, fire extinguishers in Keramasan Warehouse were found to be expired and under low pressure, indicating a lack of regular inspection and maintenance, which is a critical aspect of emergency preparedness. Additionally, the absence of proper disposal records for hazardous materials, such as forklift oil and batteries, and the lack of certified forklift operators suggest inadequate Occupational Health and Safety (OHS) management practices.
	(h) Promote the use of integrated pest management practices to manage or reduce pests or disease vectors; and provide training for workers involved in the production, procurement, storage, transport, use, and disposal of hazardous chemicals in accordance with the relevant international guidelines and conventions.	• Where relevant, do RBP systems promote the use of integrated pest management practices to manage or reduce pests or disease vectors? ○ No, the RBP systems do not currently promote the use of integrated pest management practices to manage or reduce pests or disease vectors. However, the RBP do not support any activities that have related impacts. • Does the RBP include appropriate technical guidelines and training for the safe production, storage, transport, use, and disposal of hazardous pesticides or other chemicals? ○ Yes, included in Hazardous Material Management Guideline.
	(i) Include adequate measures to avoid, minimize, or mitigate community, individual, and worker risks when the RBP is located in areas prone to natural hazards such as floods, hurricanes, earthquakes, or other severe weather or affected by climate events.	• As relevant, does the RBP include measures to ensure that people or the environment would not be put at increased risk from natural hazards? ○ Yes, the PLNS ESMS require Cumulative Impact Assessment which assess the Valuable Environmental Components (VECs). • Does the Borrower assess the climate change risks associated with RBP activities, such as the estimation of the RBP's GHG emissions or the inclusion of appropriate mitigation and/or adaptation measures under the RBP operation? ○ Yes, the ESIA will assess the project GHG emissions.
Core Principle 5: manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected	(j) Avoid or minimize land acquisition and related adverse impacts; identifyand address economic and social impacts caused by land acquisition or loss of access to natural resources, including those affecting people lacking full legal rights to	• Does the RBP screen all planned activities to determine if they may require involuntary land acquisition, relocation of residences or businesses, or restrictions to natural resources? ○ Yes, since feasibility, site selection will be considered to minimize impact on the community asset by rerouting or realigning. ○ PLN does minimize impact of resettlement through the following ways: ▪ Determine most efficient or direct distribution line route (alignment) during preliminary location survey that also avoids or minimizes as much as possible economic displacement (loss of productive trees or crops or loss of assets).

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
people in improving, or at a minimum restoring, their livelihoods and living standards;	resources they use or occupy; provide compensation sufficient to purchase replacement assets of equivalent value and to meet any necessary transitional expenses, paid before taking land or restricting access; provide supplemental livelihood improvement or restoration measures if taking of land causes loss of income-generating opportunity (e.g., loss of crop production or employment); restore or replace public infrastructure and community services that may be adversely affected by the RBP; and include measures in order for land acquisition and related activities to be planned and implemented with appropriate disclosure of information, consultation, and informed participation of those affected.	▪ Avoiding areas with productive trees/crops both for distribution line ▪ Installing poles or distribution transformers close to the boundary between public land and private land or along the public road; ▪ Realigning the distribution line if the landowners refuse to give permission even after further consultations and mediation by the local government; ▪ Realigning the line to avoid protected forest areas, as this will require a land use permit from the Ministry of Environment and Forestry, which takes time; and using insulated cables to minimize the trimming / cutting of trees; ▪ Avoid culturally sensitive areas such as graves, sacred sites (*kawasan keramat*); o The PLN ESMS manual and guidelines align with this criterium, the screening form is also available. However since the ESMS was just issued and dissemination is still limited, it was observed that the capacity of respective units in conduct the ES screening is still limited • Do RBP processes require identification and mitigation of all land-related impacts? Significantly, do systems adequately protect individuals and communities against “forced evictions”? o Yes, land required for the program activities is not large and the impacts will be minor. No physical relocation is expected. • As relevant, does screening consider impacts on various property regimes, including common property resources, customary or traditional rights to land or resource use, those who lack title or any recognizable claim, and Indigenous Peoples rights? Accordingly, do the processes require identification and mitigation of all significant impacts affecting informal users or occupiers of land (or other resources)? o Yes, however if the ES risk is considered high, the activities will be avoided. • Do the RBP systems support livelihood restoration and support measures, including the necessary institutional provisions to ensure the effective implementation of such measures? o Yes, the impact of the program activities is not likely to affect the income and livelihood status of the APs. Deterioration of APs’ livelihoods is not foreseen. o For distribution line, contractors provide “cutting cost” or compensation for the other non-land assets with the APs based on negotiated settlement only upon a request. • If not, can the RBP provide supplemental payments to meet this requirement? o PLN does not provide compensation for lost assets from for MV and LV distribution line construction. In practice, it was found that requests for compensation are settled in three different ways depending on the amount of compensation requested: ▪ Where the requested amount for compensation is manageable (small number of AHs and/or small amount of compensation), vendors settle compensation.

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
		▪ Where vendors (contractors) are not able to cope with the scope of compensation (or customary demands), vendors report to PLN who in turn approach local Government to assist in addressing compensation or resolving any customary issues. - A third and less common solution is where a village or community of program beneficiaries decides to apply their annual development budget allocation (*Dana Desa*) towards settling compensation demands by non-beneficiary AHs. • Does the Borrower's system recognize the need to restore or replace public infrastructure lost because of RBP activities? If not, what mechanisms are in place to address such concerns? o Yes, there mechanism to restore or replace public infrastructure lost in PLN ESMS • Do land acquisition procedures include appropriate requirements for the informed participation of affected people? Does information on land acquisition and/or resettlement provide sufficient notification of the rights of those affected, including rights to timely resolution of grievances? o Yes, the requirement above is stipulated in the ESMS Guideline on land acquisition. However, the awareness of the relevant units responsible in conducting LA is considered weak.
Core Principle 6: give due consideration to the cultural appropriateness of and equitable access to RBP benefits, giving special attention to the rights and interests of Indigenous Peoples and to the needs or concerns of vulnerable groups.	(k) Provide for identification, analysis and promotion of measures to address gender aspects (including children) and disability in RBP consultations, design and implementation processes.	• Do ES impact screening procedures include participation of females, children, disable persons? ● ESMS Manual and Guideline stipulated requirement on participation of vulnerable groups in the impact assessment/consultations. However in the practice no participation of the vulnerable groups is included. o But the current practice, mostly do with no participation of women and other vulnerable groups. • Do the conducted consultations on the RBP include females, children, and disable persons? o Yes, consultations on the RBP programs should include participations of vulnerable groups including women, children, and disabled persons. During preparation programs, consultations held with women, elderly, IP members and IP leaders. • Does the stakeholder engagement on the RBP have separated consultations with females, children, and disable groups. o Yes, to ensure meaningful consultations are met consultations with females, children, and disabled groups can be done separately. In the current practice this not common been done.

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
		• Is the RBP AP include any actions to address the identified gender aspects and the issues of children and disable persons. o Yes. • Are there any gender indicators in the DLIs of the RBP? o No.
	(l) Provide for meaningful consultations if Indigenous Peoples are potentially affected (positively or negatively), to determine whether there is broad community support for the RBP.	• Do consultations include a representative cross-section of groups affected by the RBP (including women, Indigenous People, the poor, or other groups that might be underrepresented)? o Yes, during preparation programs, consultations held with poor HHs, the elderly, women, IP members and IP leaders. • Does screening identify different property regimes, including common property resources, customary or traditional rights to land or resource use, and the rights of Indigenous Peoples? o Yes, ESMS manual and guidelines require the differentiation the property regimes. However in the current practice, the capacity of relevant units to do the appropriate screening is still weak. • Are issues and concerns raised during the consultations resolved and documented systematically? o No. Most consultations are without written documentation, only photos. Witten documentation is only prepared when there is an agreement on land use permits and land or tree donations for electricity poles (MV lines).
	(m) Provide for participation by the Indigenous Peoples in devising opportunities to benefit from exploitation of customary resources or indigenous knowledge.	• Do RBP entities regularly review and consider consultation results to obtain or broaden community support? o Yes PLN's practices promote meaningful consultation (socialization) with stakeholders including APs. For distribution line, consultation (socialization) with APs will be conducted in close coordination with relevant local government agencies because the distribution line will be constructed along the public roads. The agenda of the consultations includes project plan, cable stringing that may require cutting trees, and obtainment of agreement from land owners for use of land in case poles need to be located on private land. • Does the RBP exclude activities involving: adverse impact on natural resources to which Indigenous Peoples have traditional ownership or customary use rights; resettlement from or restriction to such communities' access to such lands; or the commercial exploitation of Indigenous Peoples cultural heritage? o Yes, the RBP excludes activities involving adverse impacts on natural resources to which Indigenous Peoples have traditional ownership or customary use rights, as well as activities that would result in resettlement or restrictions on access to such lands. Additionally, the

Criteria set out in the ESP (Core Principles)	Criteria set out in RBF IGN (Core Elements)	Indicative Checklists
		RBP excludes projects that involve the commercial exploitation of Indigenous Peoples' cultural heritage without obtaining Free, Prior, and Informed Consent (FPIC), in alignment with PLN's exclusion criteria.
	(n) Give attention to vulnerable groups and, if necessary, take special measures to promote equitable access to RBP benefits.	• Is there consideration of distributional equity, affordability, and cultural, racial, ethnic, or gender constraints to access or participation? o Yes, there is consideration of distributional equity, affordability, and cultural, racial, ethnic, or gender constraints to access or participation. PLN places emphasis on engaging vulnerable and disadvantaged groups, ensuring their feedback is considered during the project design and implementation phases. • Does the incentive structure within RBP agencies promote outreach measures to encourage equitable and affordable access to Program benefits? o No, there is no explicit mention of an incentive structure within RBP agencies that promotes outreach measures to encourage equitable and affordable access to Program benefits. • Does it consider how to alleviate cultural, racial, ethnic, financial, or physical barriers that hamper the participation of socially marginalized or disadvantaged groups? o Yes, the stakeholder engagement process does consider how to alleviate cultural, racial, ethnic, financial, or physical barriers that hamper the participation of socially marginalized or disadvantaged groups, by specifically focusing on inclusive consultation and engagement with these group.
Core Principle 7: avoid exacerbating social conflict.	(o) Consider conflict risks.	• Is the RBP being implemented in areas of recognized fragility or in post-conflict zones? o No, the RBP is not being implemented in areas of recognized fragility or post-conflict zones, as no such areas have been identified based on the provided screening guidelines. • Do the screening and design of RBP activities consider the risks of creating or exacerbating social conflict, including conflicts with ethnic or racial dimensions? o Yes, the screening and design of RBP activities consider the risks of creating or exacerbating social conflict, including conflicts with ethnic or racial dimensions, as the screening guidelines include assessments for social and security risks, with attention to vulnerable and Indigenous groups. • Are RBP agencies open to discussion with the Bank and consultation with stakeholders on potentially sensitive issues? o Yes, RBP agencies are open to discussion with the Bank and consultation with stakeholders on potentially sensitive issues, as highlighted in the guidelines for stakeholder engagement, which emphasize inclusive consultations and transparency.

Annex 6 Functions, Responsibilities, and Capacities of PLN's Division and Subdivision for the ESMS Implementation

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
• TEK Division, with support from K3L Division.	Environment and Social (ES) Team	• Identifies or confirms roles, responsibilities, and required capacities of other divisions and units in PLN that considered relevant in the ESMS process of foreign-funded projects, particularly PP Team, PC Team, and PO Team; • Arranges disclosure of the ESMS and held training on ESMS process to ensure standardized understanding by all relevant divisions and units; • Coordinates with abovementioned divisions or units to ensure that the ESMS is being followed accordingly; • Reviews and provides feedback on documents, reports, records, or any other deliverables produced by PLN or external resources in relation with ESMS implementation; • Validates documents, reports, records, and deliverables prior to approval from PP/PC/PO Team; • Works with PP Team to develop TORs of Impact Assessment and ESMP Development and determines robust evaluation criteria for selection and hiring of external ES consultant; • Coordinates reporting on ESMS implementation done by all teams; • Advises PC and PO Team in monitoring and reviewing ES Management Plans implementation; • Leads the management review process of the ESMS implementation (and ES Management Plans implementation, specifically for project construction and operation)	• Deep understanding on the ESMS document and ES requirements in the internationally- applicable standards for ES, e.g., World Bank's ESS, IFC PS, IFC EHS Standards, ADB Standards, etc.; • Understand PLN organizational structure, roles and responsibilities of each division and unit based on PerDir 54/2022 and KepDir 067/2024; • Ability to screen and propose relevant training materials for ESMS in the training modules; • Ability to conduct gap analyses of produced documents, reports, records, or any other deliverables against the ESMS principles and internationally-applicable standards.
• Various New Renewable Energy ("MEB") Division;	Project Planning (PP) Team	• Develops project plan (activities, resources, timeline, budget, etc.) that includes ESMS process and its relation with the overall Project Design; • Works with Financing Team on budgets for ES planning;	• Understand the ESMS process flow at pre-construction stage, e.g., Project Screening, Risk Categorization, Impact

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
• Geothermal (“MPB”) Division. • Engineering and Procurement Planning (“MEP”) Division; • Generation Strategic Planning (‘RSK’) Division; • Distribution Strategic Planning ('RSD’) Division; • Transmission Strategic Planning ('RST’) Division.		• Works with ES Team to develop TORs of Impact Assessment and ESMP Development and determines robust evaluation criteria for selection and hiring of external ES consultant; • Works with Procurement Team to include the TORs of Impact Assessment and ESMP Development in the Tender Document for hiring external ES consultant and to do evaluation of the candidates and approve the selection; • Manages the services conducted by design and Impact Assessment consultants; • Establishes/appoints Project Screening and Risk Categorization Team; • Establishes/appoints Impact Assessment Team; • Ensure (and finances) ES studies carried out at the planning and pre-construction stages; such as, Pre-Feasibility Study, Feasibility Study, Impact Assessment, etc.; • Determines ES information that need to be covered in Pre-Feasibility Study and Feasibility Study, conducted by Main Units; • Reviews deliverables of the ES studies and approve them once validated by the ES Team; • Decides if additional or another round of ES studies need to be done; • Updates Project Design with action items prescribed in PLN’s ES Management Plan (ESMP); • Provides PC and/or PO Team on the results of Impact Assessment and ES Management Plans Development.	Assessment, Management Plan, etc.; • Able to take account the risk identified in project screening and categorization in decision making process on how the project should be undertaken or worse, to be dropped from the list.
• Construction Sumatra, Kalimantan, dan Sulawesi (“MKS”) Division;	Project Construction (PC) Team	• Reviews results of Impact Assessment and ES Management Plans applicable for construction stage provided by PP Team and approves it; • Works with Financing Team on budgets for ES Management Plans implementation in construction stage;	• Understand the ESMS process flow at construction stage, e.g., implementation and review of ES Management Plans, etc.;

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
• Construction Java, Madura, Bali, Maluku, Papua and Nusa Tenggara ("MKJ") Division. • Project Management Office ('PMO') Division		• Works with Procurement Team to include the ES Management Plans in the Tender Document for hiring construction contractors and to do evaluation of the candidates and approve the selection; • Works with ES Team to determines robust evaluation criteria for selection and hiring of construction contractor; • Develops project construction plan following Project Design and ES Management Plan and supervises performance of Main Units and construction contractors in doing the construction activities; • Supports coordination between ES Team, Main Units, and construction contractors during construction stage; • Provides direction and budget as required to Main Unit involved in construction to ensure implementation of Project's ESMP at the construction stage; • Establishes a Monitoring and Evaluation Team that include representative of the ES Team and conduct a regular monitoring for the overall project construction process, including ES Management Plans implementation.	• Able to support coordination between Main Units and other divisions on ESMS implementation during construction; • Able to give direction to contractor on PLN's ES Management Plans; • Able to evaluate appropriateness of contractor's detailed ES Management Plans for construction.
• Distribution for Java, Madura, and Bali ('ODJ') Division; • Distribution for Sumatra and Kalimantan ('ODS') Division; • Distribution for Sulawesi, Maluku, Papua, and Nusa Tenggara ('ODM') Division;	Project Operation (PO) Team	• Reviews results of Impact Assessment and ES Management Plans applicable for operation stage provided by PP Team and approves it; • Works with Financing Team on budgets for ES Management Plans implementation in operation stage; • Works with Procurement Team to include the ES terms and conditions in the Tender Document for hiring contractors for operation stage and to do evaluation of the candidates and approve the selection; • Works with ES Team to determines robust evaluation criteria for selection and hiring of contractor for operation stage;	• Understand the ESMS process flow at operation stage, e.g., implementation and review of ES Management Plans, etc.; • Able to support coordination between Main Units and other divisions on ESMS implementation during operation;

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
• Operation of Generation and Independent Power Producer (OKI) Division; • Portfolio Management ('PFM') Division.		• Coordinates with Main Unit handling the project on implementation of ES Management Plans related with operation stage; • Supports coordination between ES Team and Main Units during operational stage; • Takes decision or gives direction to Main Units to provide maximum effort possible to implement PLN's ES Management Plans; • Collects and reviews reports, records, or other documentations from Main Units related with ES Management Plans implementation and evaluate it together with ES Team on its appropriateness; • Assigns Main Units to obtain external resources when needed; • Establishes a Monitoring and Evaluation Team that include representative of the ES Team to conduct a regular monitoring for the overall project operational process, including ES Management Plans implementation.	
• Procurement of Generator and IPP ('IPP') Division; • Procurement of Transmission, Main Power House and Materials ('MPT') Division; • Procurement Planning and Execution Manager of each Main Units.	Procurement Team	• Ensure that TORs developed by PP, PC, and PO Team to hire third-party consultant/contractor to conduct Pre-Feasibility and Feasibility Studies, Screening and Categorization, Impact Assessment, ES Management Plans development, and execute construction work are included in Tender Document; • In procurement of construction contractor (and supply chain vendors when directly handled by PLN), incorporate ability and commitment to follow PLN's ES Management Plans that relevant to their scope of work as qualification component in bidding; • Ensure that commitment to follow PLN's applicable ES terms and conditions is included in contractual agreement with the contractor;	• Understand the importance for ESMS in procurement and contractual process; • Knowledge in legal aspect in relation with contractual and procurement process; • Negotiation skill with contractors on contractual clauses.

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
		• Works with PP, PC, and PO Teams in evaluating bidders to select consultant, contractor, or supplier needed; • Conduct time to time coordination with the PP Team, PC Team, Main Units, and ES Team as necessary on the procurement process.	
• Talent Development Division; • Training Centre (Pusat Pendidikan dan Latihan).	Human Resource Development (HRD) Team	• Work with Safeguards Team, and other teams as needed, to develop and present ES training programs, and to provide advice on trainers and trainees. • In coordination with ES Team to identify if such trainings are available in the existing syllabus of PLN or instead have to be developed; • Identify trainers from internal PLN organization or from external source that qualified to deliver the training modules relevant for respective team; • Ensure that each training modules already include mechanism to evaluate capacity and competency for training participants; • As much as possible, provide an online training module to allow easier access with online system to trace and provide reminder on the training progress for each role; • With Safeguards Team, develops a training program to introduce the ESMS to PLN management and supervisory personnel, including its refresher training; • If PLN reorganizes it structure, to trace new divisions, sub-divisions, or units that is suitable to replace previous one in its ESMS role.	• Able to coordinate development of training modules or update them as necessary • Able to find internal and external resources with certain expertise needed; • Able to develop evaluation system that is acceptable with regards to each modules expectation but at the same time comparable with general PLN evaluation process; • Skill on web-based media to provide online training system equipped with proper reminders and recording.
• Budget (“ANG”) Division	Finance Team	• Provide options on possible funding scheme during or prior to Project Screening and Categorization to allow the IA Sub-Team set up the project criteria accordingly; • Include activities needed to implement ESMS in the budgeting of the project.	• Understand the overall ESMS process and have understanding on budget for the typical assessment needed for ESMS implementation, such as

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
		• Working with safeguards team and with PP, PC, and PO Teams to develop budgets for ES planning and ES aspects of construction and operation.	Impact Assessment process, baseline survey, etc..
• Representative of Main Unit • Representative of PP Team • Representative of PC Team • Representative of PO Team	PP's Impact Assessment Sub-Team (can be supported by third-party ES consultant)	• Conducts project screening and categorization to all of project candidates based on the ESMS; • Consult with ES Team on adequacy of undertaken process of project screening and categorization; • Present result of the project screening and categorization process to the PP Team once the result validated by the ES Team; • Conduct follow-up or correction actions related with project screening and categorization process, if any, as per direction from PP Team and/or ES Team. • Develop Term of Reference (ToR) for Impact Assessment needed for the projects based on their respective categories from the categorization process; • Determine if the Impact Assessment could be managed by the team itself or need support from external third-party consultant (for example, for comprehensive Impact Assessment). For the latter case, the team will coordinate with Procurement Team to make contract with experienced third-party consultant to conduct the Impact Assessment; • Supervise consultants involved in the IA process; • Support (by provision of data, access to do baseline survey, access for stakeholder interview, etc.) and monitors Impact Assessment works conducted by the third-party consultant; • Determine (or in case third-party consultant is involved, gives input) action plan to manage or mitigate identified risk and impact (ESMP);	• Have experience in developing or involved in an impact assessment and familiar with its general process and development of action plan; • Familiar with International ES standards; • Have experience in reviewing baseline study results; • Have ability to identify action plan to be taken to mitigate risk and impact; • Able to coordinate with wider PLN divisions in determining resources to implement the ESMP.

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
		• Consult with ES Team on adequacy of undertaken process of Impact Assessment; • Present result of the Impact Assessment and ESMP development process to the PP Team once the result validated by the ES Team; • Conduct follow-up or correction actions related with Impact Assessment and ESMP development, if any, as per direction from PP Team and/or ES Team.	
• Development Main Unit (*Unit Induk Pembangunan*); • Tanjung Jati B Generation Main Unit (*Unit Induk Pembangkitan Tanjung Jati B*); • Java, Madura and Bali Load Controller Center Main Unit (*Unit Induk Pusat Pengatur Beban Jawa, Madura dan Bali*); • Sumatra Load Control Centre Main Unit (*Unit Induk Pusat Pengatur Beban Sumatra*); • Transmission Main Unit (*Unit Induk Transmisi*);	Main Unit	• Works with PP Team and ES Team to conduct Pre-Feasibility or Feasibility Study (or stand-alone studies to supplement the KKP)[15] covering ES-related information; • Participates in teams established by PP Team in Project Screening and Categorization and Impact Assessment; • Oversees daily activities of contractor for selected construction and operation • If needed, procures additional support from consultant or contractor to support them in implementing the ES Management Plans; • Review contractor's ES Management Plans if any; • Monitor daily implementation of PLN's ES Management Plans and contractor's ESMP in construction and operation stage through field inspection, audit, etc.; • Provides timely updates on implementation of ESMS during construction and operation to PC Team or PO Team.	• Understand the ESMS process flow at all project stage; • Have experience in developing a Pre-Feasibility and Feasibility Study; • Able to include ES-related parameters in the Pre-Feasibility and Feasibility Study; • Familiar with International ES standard; • Have knowledge and resourceful to conduct, review, analyze, and evaluate activities in alignment with ESMS principles.

[15] See *Section 5*.

PLN Division/Sub-Division/Main Unit	Function for ESMS Implementation	Responsibilities	Required Capacities
• Main Unit for Electrical Load Distribution and Regulation (*Unit Induk Penyaluran dan Pengatur Beban*); • Distribution Main Unit (*Unit Induk Distribusi*); • Area Main Unit (*Unit Induk Wilayah*)			

Annex 7 Gaps Between Existing ES Training Curriculum and ESMS Requirements

Relevant ES Training Topic	Status of Training Material	Relevant Available Training Material	Training to be Developed	Remarks (Justification and suggested action)	Parties Developing the Training
General ES					
ES Risk and Impact Assessment, Management, and Monitoring	Partially Available	• Safeguards Document Development Basic • Policy of ES for Project Financing • ES Reporting and Monitoring • Evaluation of Safeguard Document (IFC, ADB, KfW standards)	The following topics are not available: • Developing strategic, technical, and site alternatives (including 'no site' alternative) • Assessing potential induced (such as changes in land use due to infrastructure projects), cumulative, and transboundary impacts • Identifying measures to mitigate adverse ES risks and impacts • Impacts towards Affected Communities including vulnerable group • Risk screening criteria for biodiversity, health and safety, land acquisition and involuntary resettlement, indigenous people, and cultural heritage[16] • Institutional responsibilities and resources to support implementation of ES plans for Project Financing	Justification: Vulnerable group is required to be involved during baseline data collection and stakeholder engagement process as they are the one who experienced the most of the project's impact such as loss to land access. Suggested action: Elaboration on Vulnerable group's definition and how to engage them during stakeholder consultation should be prioritized.	ES specialist hired by HRD Team per request (Training Needs Analysis) and ToR developed by ES Team

[16] Tangible/physical and intangible cultural heritage

Relevant ES Training Topic	Status of Training Material	Relevant Available Training Material	Training to be Developed	Remarks (Justification and suggested action)	Parties Developing the Training
Environmental					
Biodiversity Assessment and Management	Partially Available	- Safeguard Screening Mechanism (KfW-ADB)	Gaps on existing training material for topics of: ● Explanation on the development of mitigation measures to avoid, minimize, or mitigate adverse effect of biodiversity ● Biodiversity exclusion list mechanism ● Support and promote the protection, conservation, maintenance, and rehabilitation of natural habitats ● Avoiding significant conversion or degradation of critical natural habitats, or mitigate or offset if not technically feasible ● Ecosystem services and the use of living natural resources, such as fisheries and forests ● Documentation of affected biodiversity areas and sensitive ecosystems	General introduction of key biodiversity needs to be included to ensure PLN's personnel who will be assigned into ES related task or conduct screening will have adequate knowledge regarding key biodiversity or protected area under national system, as well as aligned with the technical guideline for biodiversity screening made by the DFI. More detailed materials will also need to be available, to provide training on mechanisms to avoid, minimize, mitigate adverse effects of biodiversity or how to offset if not technically feasible.	Biodiversity specialist hired by HRD Team per request (Training Needs Analysis) and ToR developed by ES Team
Labor and Working Condition					
Labor and Working Condition	Partially Available	- Workshop of Collective Labor Agreement - Introduction of Industrial Relations - Contactor Safety Management System	Training materials for prevention of **child/forced labor** ensuring its prevention, awareness and screening mechanism, as well as monitoring mechanisms are not available Delivery for labor and working condition trainings to be tailored to the needs of the workers receiving the training, including the vulnerable workers (e.g., women, workers with disabilities).	Justification: PLN in the corporate level may implement a minimum working age of 18 years old based on UU No 13, year 2003 on Human Resource. It is mentioned that 15 years old is the minimum age for a worker with certain requirements. Conditions where forced labor/child labor exists may happen along the PLN's supply chain and business lifecycle (especially during construction of	Labor Management specialist hired by Human Resources Team per request (Training Needs Analysis) and TOR developed by ES Team

Relevant ES Training Topic	Status of Training Material	Relevant Available Training Material	Training to be Developed	Remarks (Justification and suggested action)	Parties Developing the Training
				a new project sites). Training should be designed to enable participation and to engage all workers, including vulnerable workers who may need special engagement or delivery methods. Suggested action: Develop a material training on protocols for detecting, reporting and responding to complaints or suspicions of violations of worker rights including the sign of child/forced labor. Provide training access for contractors of PLN working on construction. Develop training methods and tools (e.g., interactive materials, training expert, guidance, training of trainers) to engage various working groups, including the vulnerable workers, to ensure participation and effective delivery of the training.	
Community Health, Safety and Security					
Security and Human Rights	Partially available	- Management of social vulnerability mapping - Supervision on vulnerability identification and	Training materials to include topics of international good practice principle of human rights (UN Guiding Principles on Business & Human Rights, Voluntary Principles on Security and Human Rights, United Nation Basic Principles on the Use of Force and Firearms by	Justification: PLN business has direct correlation to human rights aspects such as right to access, right to health and safety, right to information and participation, right to privacy, right to non-	Security and Human Rights specialist hired by HRD Team per request (Training Needs Analysis) and TOR developed by ES

Relevant ES Training Topic	Status of Training Material	Relevant Available Training Material	Training to be Developed	Remarks (Justification and suggested action)	Parties Developing the Training
		security disturbance	Law Enforcement Officials), how to deal with community, NGO, and media; how to involve armed authority (police, army, etc.); etc.	discrimination, and right to clean environment. Suggested action: develop module and campaign on human rights aspects especially human rights topics related to PLN Business process.	Team

Relevant ES Training Topic	Status of Training Material	Relevant Available Training Material	Training to be Developed	Remarks (Justification and suggested action)	Parties Developing the Training
Social					
Land Acquisition and Involuntary Resettlement for Project Finance (International Standards)	Partially Available	Land Acquisition for Public Interest	Currently available modules relevant to land acquisition and involuntary resettlement are: ● Land acquisition process based on Act No. 11 of 2020; ● Land acquisition planning stage; ● Land acquisition preparation stage; ● Land acquisition execution and result provisions; ● Procedure in land certification; ● Small land parcel procurement procedure; ● Technical row and study for property/land ownership transfer. Those modules have not described how impact from land acquisition and involuntary resettlement have to be managed. While, those topics are required as per internationally applicable standards. Some topics that will be included are about economic displacement, involuntary resettlement, loss of access to the communal property and adverse impact on natural resource utilized by the affected persons are not available. There are also no training materials for topics of voluntary land donation.	Justification: The impact of land acquisition should be monitored as livelihood loss due to land acquisition process might worsen the livelihood condition of project affected people (PAP) compared to livelihood condition before the land acquisition process. Voluntary land donation is common thing to happen when developing electricity facility in remote area or along the distribution line. PLN and its contractor should have a mechanism in place to implement and record this process. Suggested action: Design the livelihood restoration activities should be based on social baseline data and impact caused by land acquisition process. Adequate allocated budget should be available to implement LRP. Monitoring and evaluation should be designed to show the project can restore (make the livelihood better) the PAP's livelihood.	Land Acquisition and Resettlement specialist hired by HRD Team per request (Training Needs Analysis) and TOR developed by ES Team
Stakeholder Engagement	Partially Available	- Management of Stakeholder (corporate level measures for general	The following topics are not available: ● ES stakeholder engagement ● Stakeholder analysis and planning	Justification: Stakeholder engagement process in project level should be well designed and documented properly so that	Stakeholder Engagement specialist hired by HRD Team per request (Training

Relevant ES Training Topic	Status of Training Material	Relevant Available Training Material	Training to be Developed	Remarks (Justification and suggested action)	Parties Developing the Training
		stakeholder management) - Meaningful Consultation and Gender Mainstreaming Environmental Documents Preparation	● Managing and planning a focus group discussion for vulnerable people including indigenous people (see below for FPIC related training) ● Targeting and designing tailored engagement and consultation depending on the needs of stakeholders ● Disclosure and dissemination of information ● Consultation and participation in grievance redress mechanism ● Ongoing reporting to Affected Communities ● Community engagement/participation in benefit sharing and the use of customary resources and indigenous knowledge	targeted stakeholders can be engaged and involved along project lifecycle. Getting stakeholders input and participation in stakeholder engagement process must be done in a way that culturally sensitive and contextually acceptable. Vulnerable groups have to be involved during baseline data collection and stakeholder engagement process as they are the one who experienced the most of the project's impact such as loss to land access. Suggested action: Develop a curriculum that includes all materials mentioned and practical applications, utilizing a variety of interactive elements and resources such as case studies, guidelines, and expert collaborations.	Needs Analysis) and TOR developed by ES Team
Indigenous People & Cultural Heritage	Partially Available	Safeguard Screening Mechanism (KfW-ADB)	● The available screening criteria of cultural heritage need to be updated and aligned with the national and international standard, as well as adding the information on availability of exclusion list. The gap also exist in topics of:	Justification: ● Not all cultural heritage (physical/tangible or intangible) is registered. It is possible that valuable cultural heritage might not yet be registered in the government's record.	Social specialist on IP and Cultural Heritage hired by HRD Team per request (Training Needs Analysis) and TOR developed by ES Team

Relevant ES Training Topic	Status of Training Material	Relevant Available Training Material	Training to be Developed	Remarks (Justification and suggested action)	Parties Developing the Training
			● Process of identifying various types of physical and cultural property that is important for local communities, including the intangible cultural heritage (e.g., practices, representations, expressions, knowledge, and skills), archaeological sites and material, built heritage, natural features with cultural significance, and movable cultural heritage ● Identification of potential risks, impacts and mechanism to avoid, minimize and mitigate impacts to physical and cultural properties ● Indigenous people screening and free prior informed consent (FPIC) training for stakeholder engagement with indigenous people	● Projects located in remote area or impacted indigenous people area should consider a way to consult with Indigenous People and to gain their consent when being significantly impacted by the project activities. Suggested action: ● Identification on the value and how to preserved the cultural heritage impacted by the project should be prioritized (regardless the cultural heritage is recorded in the government's record or not). ● In Indonesia not all indigenous people group is registered or identified by national government, indigenous peoples screening helps to identify indigenous peoples' characteristic and directly identify the requirement when FPIC is applied or not.	

Source: PLN's Environmental and Social Management System Manual

Annex 8 Stakeholder Consulted in the Preparation of ESSA

No	Event	Stakeholder	Date	Discussion Topics
1	Bank Preparation Mission	PLN (HQ and UIDs/UIW)	30 May – 6 June 2024	• Geographic scope of the Program • Complete data for technical, fiduciary, and ES assessment • Reviewed the performance of the Sumatra electricity distribution program in the past several years Two days' workshop continue with site visit to UID S2JB and UID Sumatra Utara
2	Field investigation of existing distribution lines and logistics warehouses	PLN HQ, UID P2JB, UID Sumatra Utara, UID Sumatra Barat	2-5 September 2024	Gather information on their perspectives about PLN's safeguard implementation practices for distribution lines.
3	Field consultation	IP and IP leaders in Padang (UID West Sumatra)	5 September 2024	The consulted IPs have no objection to donating their land and trees for distribution networks, however, they remind PLN to involve the whole IP members in the consultations before using/donating the land.
4	Field consultation	Vendors of distribution works	5 September 2024	Key factor for successful project implementation is the right approach to the community. Appropriate mapping of community leaders and their roles is crucial.
5	Field consultations	Customers of UID S2JB and UID Aceh	3 September and 21 October 2024	The customers informed that their several productive trees were cut due to the installation of LVL without compensation. The customers confirmed that the number of cutting trees is minor compared with the total number of trees owned by the households and has no impact on their livelihood. They have no objection since they got significant benefits from the electricity connection.
6	ES Discussion with PLN	PLN HQ, PLN Corporate University	6 September 2024	Further discussion to (i) assesses existing ES capacity building programs and modules; (ii) roles

No	Event	Stakeholder	Date	Discussion Topics
				and responsibilities of division in PLN HQ
7	Preliminary consultations draft ESSA	17, 21-24 Oct 2024	PLN HQ, UID Aceh, UID Pekanbaru	Obtained views, suggestions, and recommendations on the preliminary assessment findings and proposed actions to address gaps
8	2nd round of ESMS Induction	16-18 October 2024	PLN HQ and regionals including representation of UIDs/UIW in Sumatra,	Dissemination of ESMS Manual and three Management Guideline (LAR, IP and Biodiversity)

Consultations With Community and IP Stakeholders

Consultations with Head of Village and IP Leaders

Consultations with Distributions Vendors

Consultations with IP Land Owner (their land used for Distribution Transformer)

Consultations with Poor Households (Customers of Lisdes)

Annex 9 Summary of Previous Stakeholder Engagement Conducted by PLN

No	Event	Stakeholder	Date	Discussion
1	Socialization	Stakeholder in Idanotae Subdistrict	18 July 2024	Socialization activities on the dangers of electricity and related permits for land/tree release before the construction of the electricity network
2	Cooperation Agreement	BKSDA of Sumatra Utara Province	31 May 2023	Strategic development that cannot be avoided in the context of utilizing and developing electricity networks, operating electricity networks, and maintaining medium voltage overhead power lines and low voltage overhead power lines in the Conservation Area of the Sumatra Utara BKSDA Region.
3	Cooperation Agreement	Dishut	24 March 2023	The use of forest areas for the construction of a 20 km village electricity network covering an area of approximately 2.6 hectares in the protected forest area between the DLHK of Sumatra Utara Province and PT PLN UID Sumatra Utara in Toba Regency, Sumatra Utara Province.
4	Cooperation Agreement	Dishut	14 June 2022	The use of forest areas for the construction of village electricity networks in production forest areas remains the business permit area for the utilization of PT Sinar Belantara Indah's forests in Sei Meranti Village, Torgamba Subdistrict, Labuhan Batu Selatan Regency, Sumatra Utara Province.
UID Sumbar				
5	Cooperation Agreement	Siberut National Park Office	2022	Strategic development that cannot be avoided in the context of the construction, operation and maintenance of networks and power plants in Siberut National Park, Mentawai Islands Regency, Sumatra Barat Province.
6	Land Acquisition Statement	Community of Nagari Sungai Kunyit, Sangir Balai Janggo Subdisctrict, Solok Selatan Regency	2020	Statement that there will be no claim/request for compensation if the land and plants are affected by the construction work/construction of the installation of the Jorong Sungai Lesung Line by PLN in Nagari Sungai Kunyit Barat.
UID S2JB				

No	Event	Stakeholder	Date	Discussion
7	Socialization	Community of Sebalik village, Tanjung Lago Subdistrict, Banyuasin Regency	2023	Socialization of Jardis Construction, K2K3, New Connections, and Cleaning of Growing Plants at the Nurul Huda Mosque, Sebalik Village.
8	Socialization	Community of Talang Siamang Hamlet, Aur Village	2023	Socialization of Jardis Development, K2K3, New Connections, and Cleaning of Plants Growing in Talang Siamang Hamlet, Aur Village.

Annex 10 Record of Site Visit to Sumatra Utara

PLN Unit Induk Distribusi (UID) SU (Sumatra Utara) (4-5 September 2024)

Hazardous waste symbols that are not in accordance with infectious and flammable in Binjai warehouse in UID North Sumatra.

In appropriate symbols on hazardous waste packaging in Binjai warehouse in UID North Sumatra.

Public Station for electric vehicle charging (SPKLU) in Binjai UP3 office in UID South Sumatra have been operated prior to securing a mandatory permit from the government.

The tank for waste transformer oil has no containment near the temporary storage of hazardous waste in Binjai warehouse in UID North Sumatra.

There is no date on the hazardous waste packaging inside the temporary storage of hazardous waste in Binjai warehouse in UID North Sumatra.

Used transformers with oil spills on the top are stored in Binjai warehouse in UID North Sumatra.

Diesel forklift in Binjai warehouse in UID North Sumatra and its operator do not yet have a SIO (personal license to operate forklift).

Placement of transformers that have been and have not been drained outside the area where there is a spill collection channel in Binjai warehouse in UID North Sumatra.

Used transformer storage outside and some do not have a lid in Binjai warehouse in UID North Sumatra.

Used transformer storage outside and some do not have a lid in Binjai warehouse in UID North Sumatra.

Inappropriate symbol labeling of used transformer in Binjai warehouse in UID North Sumatra.

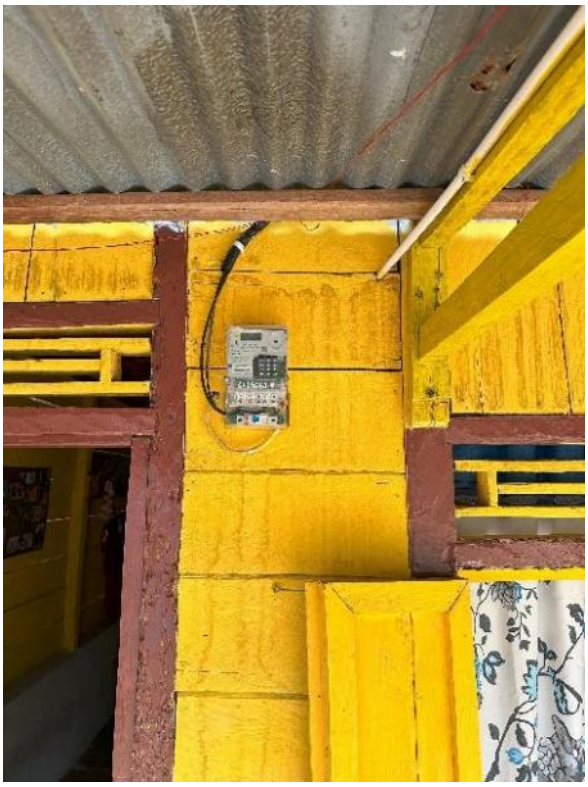
Annex 1 Record of Site Visit to Sumatra Selatan

PLN Unit Induk Distribusi (UID) S2JB (Sumatra Selatan Jambi Bengkulu)

(2-3 September 2024)

OHS Policy posted in the Keramasan Warehouse in UID S2JB

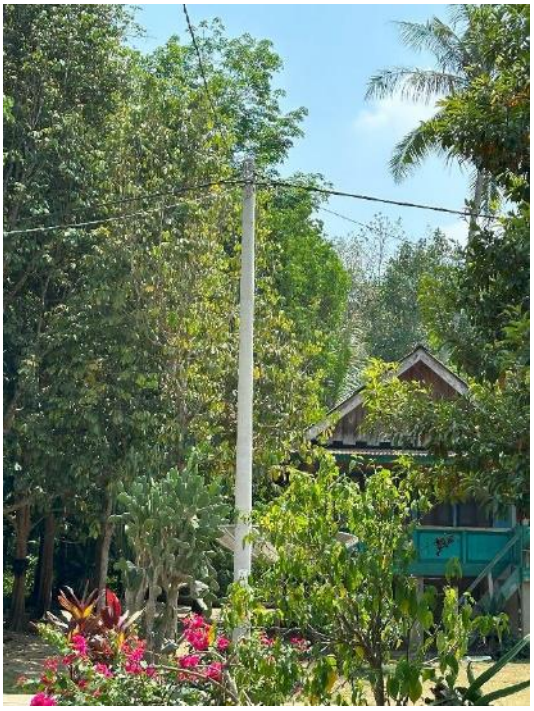
Distribution Subtations Located in the Palembang Airport in UID S2JB.



Electricity Meter in the Village Electricity Project under UID S2JB.

SPKLU or electric car charger in the South Sumatra toll rest area in UID S2JB.

Trash bin that consists of organic and non-organic waste and recycle waste in the Keramasan Warehouse in UID S2JB.



Electricity Pole in the Village Electricity Project in UID S2JB.

Temporary storage of hazardous waste (B3) in the Keramasan Warehouse in UID S2JB.

Assembly point in the Keramasan Warehouse in UID S2JB.

Expiring and no pressure extinguisher in the Keramasan Warehouse in UID S2JB.

Low pressure extinguisher in the Keramasan Warehouse in UID S2JB.

Electricity Substation in the Village Electricity Project in UID S2JB.

Annex 52 Record of Site Visit to Aceh

PLN Unit Induk Distribusi (UID) Aceh (21-22 October 2024)

Occupied Assembling Point by cable materials in Banda Aceh warehouse in UID Aceh.

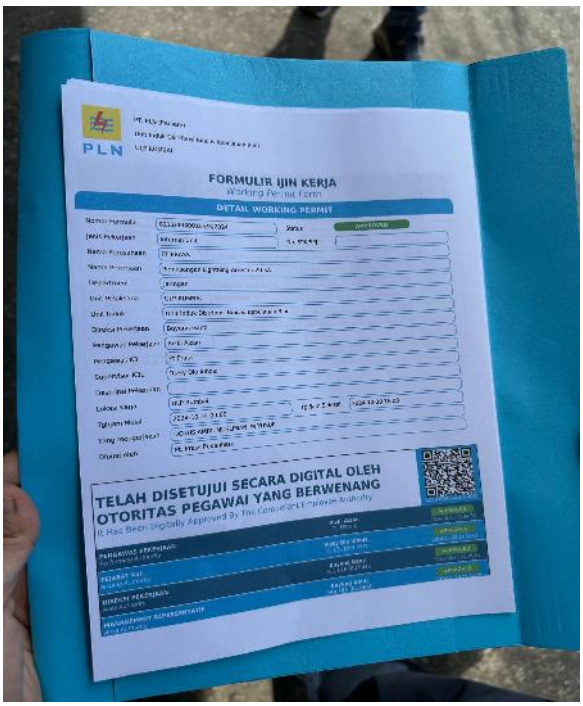
Expired fire extinguisher in Banda Aceh warehouse in UID Aceh.

Improper storage of used battery in Banda Aceh warehouse in UID Aceh.

Annex 63 Record of Site Visit to Riau

PLN Unit Induk Distribusi (UID) Riau and Kepulauan Riau (RKR) (23-24 October 2024)

Working at height without barricade during installation of lightning arrester in UID RKR.



Work Permit for working at height during installation of lightning arrester in UID RKR.