

INTEGRATED RISK ASSESSMENT AND MITIGATING MEASURES

1. The following risk matrix summarizes the findings of the integrated risk assessment and the mitigating measures for the Asian Development Bank's Sustainable Energy Access in Eastern Indonesia—Electricity Grid Development Program Phase 2. The following risk assessment and mitigating measures are informed by the Asian Development Bank's guidelines.

Summary of Integrated Risk Assessment and Mitigating Measures

Risks	Ratings	Key Mitigating Measures
Development. Institutional pressure to achieve established targets leads to inconsistent reporting.	Substantial	ADB will mobilize an independent verification agent to crosscheck the reported results (e.g., by comparing them with tariff collection data).
Program Scope. A significant proportion of poor households, including households headed by women, may be unable to connect mainly due to depth of poverty and remoteness.	Substantial	PLN will use the JFPR-focused grant to support in-house wiring costs for poor households. The loan and Asian Clean Energy Fund grant will support PLN in connecting remote villages using small and/or mini grids with distributed renewable energy and hybrid systems.
Insufficient commitment and government support to increase small renewable energy use in the RUPTL.	Substantial	PLN will propose additional community-scale renewable energy investments in future RUPTL updates. PLN, with support from ADB, will engage with MEMR throughout the program.
Debt servicing and financing. PLN's free cash flow is insufficient to meet its debt servicing requirements and it fails to source capital at an acceptable cost to fund their capital expenditure program.	Substantial	PLN and ADB will undertake quarterly financial monitoring of loan covenants and PLN will provide ADB rolling 3-year financial projections to monitor early indicators of heightened credit stress. PLN and ADB will track initiatives to ensure PLN's continued financial sustainability. ADB and PLN will closely coordinate with the Ministry of Finance to discuss budget support requirements during program implementation.
Fiduciary. PLN struggles with initiatives to strengthen internal controls.	Substantial	The e-procurement system will be used to track contract awards and detect any problem areas. Any issues identified will be discussed with PLN's management team and relevant government authorities as appropriate.
Limited market capacity to ensure adequate supply	Moderate	The procurement monitoring and spending profile should be actively used to assess the market, determine which items have few participating suppliers, and undertake deeper analysis in order to improve the supplier base for those items.
PLN has inadequate institutional procurement capacity	Moderate	PLN should undertake regular procurement assessments within the procurement directorate. Although audits are performed periodically, a procurement assessment would more directly focus on procurement systems and processes, management of contracts, and feedback from stakeholders.
Fraud and corruption	Substantial	Audit findings should be taken together with procurement assessments and analyzed with respect to procurement and contracts monitoring documents. Specifically, spending analysis could help detect problems.
Safeguards. The issuance of government approvals for the disposal of assets and wastes and licensing of warehouses is delayed.	Substantial	PLN and ADB will coordinate closely with the MSOE and MOEF during program implementation.
Used equipment may be contaminated with PCBs ^a and may require storage at warehouses beyond the allowable storage period, given the absence of PCB identification and destruction capacity.	Moderate	PLN will seek UNIDO's support to train relevant staff in Kalimantan, Papua, and Maluku on PCB screening and sampling of transformers. PLN will coordinate with UNIDO on use of the PCB destruction facility, expected to become operational in 2020. Meanwhile, PLN was advised by MOEF to temporarily and safely store hazardous waste at its facilities.

Risks	Ratings	Key Mitigating Measures
Environmental permits for proposed activities are not secured due to low awareness of PLN units on preparation of UKL, UPL and DLH requirements.	Low	PLN will hire EHS staff at PLN UIWs, UP3, and UP2K and provide training on preparation of UKLs and UPLs. ADB will support PLN in preparing templates for UKLs and UPLs for distribution lines, solar photovoltaic systems, and biogas facilities for PLN guidance.
Ability of vulnerable groups (poor households, women, children/youth, and customary communities) to access and participate in the programs is relatively weak	Moderate	PLN will strengthen meaningful consultations with affected persons, paying special attention to vulnerable groups, and will provide information (beginning in planning-stage consultations) on cost estimates for electricity connections and procedures for accessing the free electricity program.
Voluntary land donation (ownership), land use permission, and negotiated land acquisition for the program may raise potential complaints from land owners, including customary communities in the future	Moderate	PLN will improve transparency for negotiated land acquisition and voluntary donations. PLN will secure written agreements on land donation and land use from land owners, and engage an independent party to confirm that the negotiated land acquisition and donation do not severely affect the income and livelihood of affected persons. PLN will improve its grievance redress mechanism and strengthen participation of women and youth customary communities in consultations.
Capacity of regional staff (UIW, UP3, UP2K, ULP) to manage safeguards is relatively weak	Low	PLN will (i) appoint environment and social safeguard focal persons in PPT, HSSE, UIW, UP2K, and UP3; (ii) train focal persons and other staff dealing with safeguards; and (iii) provide briefings to contractors.
Public health and safety: people are unfamiliar with safe practices with respect to electricity and new customers are injured.	Moderate	DLI 7 supports safe electrification by facilitating education workshops, and the JFPR grant supports instructive materials for consumer's in-home safety precautions.
Monitoring & Evaluation Systems. PLN does not yet have the means to monitor DLI 2, notably connections by poor households and households headed by women. Information exists on poor households in the system but not on female heads of households; both have to be integrated within PLN's regular information flow systems.	Substantial	(i) PLN will need to establish a procedure between MoSA, MEMR and PLN to include data on households headed by women in MEMR's annual updates sent to PLN, (ii) PLN will add the data field for households headed by men and women in an interface module between the TNP2K database and AP2T application. PLN should consider eventually integrating the reporting on DLI 2 into PLN systems, so that future PLN work will benefit from this institutional change.
PLN's real time M&E systems are not yet fully automated for the regions outside Java-Bali, thus exposing the system to risks of manual errors and time lag in data updates	Moderate	PLN should strengthen the coordination between its regional offices and headquarters, by establishing clear roles and accountabilities for regular quarterly reviews of RBL program implementation, DLIs, other indicators and PAP action points, including a comparison of KPIs between SILM and UIW data.
PLN does not have a dedicated system for fully monitoring DLIs 6 and 7.	Low	PLN should establish procedures and accountabilities within PR-KAL and PR-MP and UIW offices in the field to track these indicators.
Technical performance. Long lengths of distribution lines could cause reduction of service quality (voltage drop and reduction of reliability).	Moderate	PLN will increase regular maintenance patrols in each UIW, conduct proactive operation and maintenance, and prepare voltage drop reduction measures, including review of use of automatic step voltage regulator.
Institutional capacity. Limited institutional capacity prevents new technologies from being absorbed into operations.	Moderate	Grant financing is available to support PLN's adoption of new solar photovoltaic components, including technical design, implementation, and co-development of procedures for operation and maintenance.
Operating environment. Earthquakes, volcanic eruptions, tsunamis, and extreme weather events, including those related to climate change, in the Kalimantan,	Low	Natural disaster management procedures will be discussed with PLN and improved if needed before infrastructure work begins for the program.

Risks	Ratings	Key Mitigating Measures
Maluku and Papua area could negatively impact the progress of the program and the energy infrastructure.		
Overall RBL program risk	Moderate	

ADB = Asian Development Bank, AP2T = Aplikasi Pelayanan Pelanggan Terpusat (centralized customer services application), DLH = Dinas Lingkungan Hidup (provincial or district environmental agency), DLI = disbursement-linked indicator, HSSE = PLN health, safety and environmental division, JFPR = Japan Fund for Poverty Reduction, KPI = key performance indicators, MEMR = Ministry of Energy and Mineral Resources, MOEF = Ministry of Environment and Forestry, MoSA = Ministry of Social Affairs, MSOE = Ministry of State-Owned Enterprises, M&E = Monitoring and Evaluation, PAP = program action plan, PCB = polychlorinated biphenyls, PLN = Perusahaan Listrik Negara (State Electricity Corporation), PPT = Perijinan dan Pertanahan (PLN land and permit division), PR-KAL = Pengembangan Regional Kalimantan (PLN Kalimantan regional planning division), PR-MP = Pengembangan Regional Maluku Papua (PLN Maluku and Papua regional planning division), RBL = results-based lending, RUPTL = Rencana Usaha Penyediaan Tenaga Listrik (Electricity Power Supply Business Plan), SILM = Sistem Informasi Laporan Manajemen (Management Reporting Information System), TNP2K = Tim Nasional Percepatan Penanggulangan Kemiskinan (National Team for the Acceleration of Poverty Reduction), UIW = Unit Induk Wilayah (PLN administrative region), ULP = Unit Layanan Pelanggan (Customer Services Unit), UNIDO = United Nations Industrial Development Organization, UP2K = Unit Pelaksana Proyek Ketanagalistrikan (electrification project implementation unit), UP3 = Unit Pelaksana Pelayanan Pelanggan (Customer Service Implementation Unit).

Note: Risk factors are assessed against two dimensions: (i) the likelihood that the risk will occur, and (ii) the impact of the risk on the outcome. Rating scale: low = low likelihood and low impact; moderate = substantial to high likelihood, but low to moderate impact; substantial = low to moderate likelihood, but substantial to high impact; high = high likelihood and high impact.

^a PCBs are persistent organic pollutants, and have been banned under the Stockholm Convention on Persistent Organic Pollutants; Indonesia is a signatory to the Convention, and the government has developed a program to eliminate PCBs in the country (MOEF's PCB Management Guidelines became effective in June 2019).

Source: ADB.