

## PROGRAM RESULTS ASSESSMENT

### I. Program Results Framework

1. **Country results framework.** The Government of Indonesia uses three kinds of results frameworks for national development planning: (i) the National Long-Term Development Plan (*Rencana Pembangunan Jangka Panjang Nasional* [RPJPN]) 2005–2025;<sup>1</sup> (ii) the 5-year National Medium-Term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional* [RPJMN]), the targets of which align with the RPJPN; and (iii) the sector plans of ministries and line agencies.<sup>2</sup> The RPJMN 2020–24 promotes inclusive economic and environmentally sustainable growth, and among its priorities are energy security and equitable growth, with a particular focus on Eastern Indonesia, where poor infrastructure for electricity services, transport, and communications constrains the region’s enormous potential for growth.<sup>3</sup> To address this, the government has made it a priority to boost and accelerate investment in infrastructure significantly, especially in the “outer” and eastern regions of the country (footnote 3).

2. **Sector goals and targets.** The government’s Energy Sector Action Program is linked with its infrastructure and environment action programs. The RPJMN’s stated goal is “enhanced energy security.” Measures to achieve this include expanding energy infrastructure and investments, increasing energy efficiency and accessibility, diversifying the energy mix with new and renewable energy sources, reducing greenhouse gas emissions, and increasing private participation. The plan includes an increased electrification ratio from 89% in 2016 to near 100% by 2024, 56 gigawatts of new power generation capacity by 2028, and an increased share of renewable energy in the national energy mix from 13% in 2016 to 23% in 2025.<sup>4</sup>

3. **National electricity planning.** The overall goal of the State Electricity Corporation (Perusahaan Listrik Negara [PLN]) is to enhance the quality of life in Indonesia through the use of electricity. The Electricity Power Supply Business Plan (*Rencana Usaha Penyediaan Tenaga Listrik* [RUPTL]) provides rolling 10-year electricity development plans; the RUPTL 2019–2028 outlines PLN’s targets in Kalimantan, Maluku and Papua, including an increase in customers from 5.2 million in 2018 by an additional 2.6 million by 2028.<sup>5</sup> The RUPTL also aims to promote new and renewable energy in the energy mix to 23.2% by 2028, and accelerate rural electrification: at the end of 2017, more than 2,380 villages were not yet electrified.<sup>6</sup>

4. **Supporting results areas for the State Electricity Corporation.** In addition to these goals and targets, PLN tracks five corporate results areas, which support PLN in its progress towards planned national targets:

- (i) **Results area 1: Enhanced customer focus and services.** This is tracked through key performance indicators (KPIs) on customer satisfaction, number of customers, recovery time, wait times for connections to medium- and low-voltage networks, system average interruption duration index, system average interruption frequency index, and the number of feeder technical interruptions;
- (ii) **Results area 2: Increased product and process effectiveness.** This is tracked by KPIs on electricity sales, distribution losses, the frequency of interruptions per 100 kilometers,

<sup>1</sup> Government of Indonesia. 2005. *National Long-Term Development Plan, 2005–2025*. Jakarta.

<sup>2</sup> A. S. Alisjahbana. 2014. *Presentation at the International Conference on Economic Modelling Bali*. 18 July.

<sup>3</sup> Government of Indonesia. 2015. *National Medium-Term Development Plan, 2020–2024*. Jakarta.

<sup>4</sup> Ministry of Energy and Mineral Resources. 2017. *National Energy Master Plan*. Jakarta; PLN. 2018. *Electricity Power Supply Business Plan, 2018–2027*. Jakarta.

<sup>5</sup> PLN. 2019. *Electricity Power Supply Business Plan, 2019–2028*. Jakarta.

<sup>6</sup> Ministry of Energy and Mineral Resources, 2018. *Statistik Ketenagalistrikan*. Jakarta.

- and the proportion of transformers not operating or out of service;
- (iii) **Results area 3: Enhanced human resource management.** This include KPIs on the productivity of employees, human capital readiness, and organizational capital readiness.
  - (iv) **Results area 4: Improved financial management.** This is measured by KPIs on operating expenditures, production costs, the average sale price per kilowatt-hour, the accounts receivable collection period, inventory turnover, and progress in project and contract implementation.
  - (v) **Results area 5: Enhanced leadership performance.** This is tracked by assessing the implementation progress of various leadership programs.

5. **Program focus and rationale.** Indonesia comprises about 17,504 islands spread across three time zones. The energy system comprises separate island grids, which in Eastern Indonesia are isolated, of poor quality, and underdeveloped. Papua is the poorest and least developed region, with 27.768% of population living below the poverty line of \$33 per person per month.<sup>7</sup> Kalimantan, despite a high provincial GDP per capita, has many remote subdistricts where up to a fifth of the population are poor,<sup>8</sup> with consumption levels below \$55 per person per month. Electrification ratios are lagging—households classified as “not electrified” or only “poorly electrified” account for 56% of all households in Papua, 15% in West Papua, 20% in both Maluku and North Maluku, 28% in Central Kalimantan, 18% in North Kalimantan, and 21% in West Kalimantan, compared to a nationwide average of 4%.<sup>9</sup> Development and gender indices are especially low. Papua, West Papua, and West Kalimantan have among the lowest human development indices in Indonesia. All provinces, except Maluku, have low gender development indices, with Papua, West Papua, and East Kalimantan, North Kalimantan, and West Kalimantan having the lowest levels in Indonesia. Women’s share of income is low in all provinces, with the lowest share in East (23%) and North (26%) Kalimantan versus a national average of 37%.

6. The proposed Sustainable Energy Access in Eastern Indonesia—Electricity Grid Development Program phase 2 aims to increase access to reliable electricity services by strengthening and expanding electricity distribution networks in the nine provinces in Kalimantan, Maluku and Papua.<sup>10</sup> This will enhance livelihood and education opportunities and economic growth, improve health services, and help reduce poverty and enhance the quality of life in Eastern Indonesia.

7. **Financing modality.** A results-based lending (RBL) modality will finance a portion of the overall grid development in Eastern Indonesia. The RBL modality is appropriate as it would (i) reduce high transaction costs associated with scattered small investments; (ii) increase accountability and incentives for delivering and sustaining results (e.g., by ensuring that community-level solar installations are functioning); (iii) provide incentives to PLN to consolidate gains in institutional strengthening from earlier RBL programs, including on safeguards; (iv) fit with the government’s fast-expanding electrification strategy; and (v) stimulate financing and harmonization with other development partners.

8. **Program results framework: Impact and outcome.** The program’s impact is aligned with the RUPTL’s national goal of enhancing the quality of life in Indonesia through electricity. The outcome will be sustainable, equitable and reliable access to electricity for the population in

<sup>7</sup> All data are from [BPS-Indonesia](#) and refer to the year 2017, unless otherwise stated.

<sup>8</sup> [Statistics from the National Team for Acceleration of Poverty Reduction.](#)

<sup>9</sup> Expensive and intermittent electricity from diesel gensets or poorly maintained solar photovoltaic plants.

<sup>10</sup> The nine provinces are Central, East, North, South, and West Kalimantan; Maluku and North Maluku; and Papua and West Papua.

Kalimantan, Maluku, and Papua enhanced. The outcome is linked to the results areas in the national electricity results framework and the KPIs by which PLN tracks its results areas (i.e., number of customers and frequency of feeder line permanent interruptions). Separate indicators for poor households and poor households headed by women will ensure that the most vulnerable groups are included in electrification. Increased electrification has been shown to improve development outcomes: (i) in Viet Nam, through increased income, higher school attendance, and improved time use by women for productive and educational activities; and (ii) in Bhutan, through increased school completion, increased income, reduced respiratory illness, time savings and a greater role for women in household decisions.<sup>11</sup> The improvement in time use, income and education opportunities will be measured by a baseline study and impact evaluation.

9. **Outputs.** Three output-level results make up the results chain below the outcome level. If the outputs are fully achieved and the risks managed well, the outcome will be achieved.

- (i) **Output 1. Power distribution network strengthened and expanded.** This output will help address the need for an expanded and strengthened distribution system, and consequently, improve access to electricity and address reliability issues for households and businesses.
- (ii) **Output 2. Renewable energy use increased.** This output will address the need for the expanded use of renewable energy sources, especially in remote, off-grid communities. The program will support power generation from small solar photovoltaic (<10 megawatts), mini and micro-hydro (<1 megawatt), and small biogas (<100 kilowatts) plants, with a community-based training component (at least 30% of participations will be women).
- (iii) **Output 3. Institutional capacity strengthened and social monitoring enhanced.** Output 3 focuses on improving PLN's asset and waste management systems, which currently have weaknesses; on enhancing social and gender aspects of PLN's work; and on accelerating the integration of e-procurement with PLN's financial system. Resource person(s) financed by a grant will support PLN training workshops on safe and productive energy use, with women accounting for at least 30% of participants.

10. The program's results framework was developed to fit with the RUPTL, 2019–2028 and align with the broader national planning frameworks of the 10-year RPJPN, 2015–2025, and the 5-year RPJMN, 2020–24. The results chain also includes three indicators not linked to disbursement: (i) on the RBL program's social and gender outcome, (ii) on enhancing PLN's capacity for gender-sensitive social monitoring, and (iii) on community-based training on solar PV maintenance.

## II. Disbursement-Linked Indicators

11. All eight DLIs (Table 1) will be independently verified and indicate the areas crucial for the successful implementation of the RBL program. The DLIs contain three outcome indicators and five output indicators. DLI 1 and DLI 2 measure enhanced and equitable access to electricity, focusing on all customers (DLI 1), and on poor households (DLI2), including a target for poor households headed by women. DLI 3 measures the reliability of the electricity supply; achieving this outcome requires physical components (outputs 1 and 2), as well as institutional improvements (output 3). The progress toward each of these outputs is tracked by five DLIs. The expansion and strengthening of the power distribution network will be tracked by the installed

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<sup>11</sup> S. Khandker et al. 2008. *Welfare Impacts of Rural Electrification: Evidence from Vietnam*. World Bank, Washington DC; and Asian Development Bank, 2010. *Asian Development Bank's Assistance for Rural Electrification in Bhutan—Does Electrification Improve the Quality of Rural Life?* Manila.

length of medium-voltage distribution lines (DLI 4). The increase in renewable energy use will be tracked by power generation from solar photovoltaic, mini and micro-hydro, and small biogas plants (DLI 5). Progress in improving corporate practices on asset and waste management will be monitored by DLI 6, which comprises a series of institutional actions. The enhancement of the social and gender aspects of PLN's work will be tracked through DLI 7 on safe and productive energy use, with at least 30% female participation (DLI 7). The integration of e-procurement within PLN's financial management and accounting systems which use the SAP- integrated software, will be tracked by DLI 8.

**Table 1: Disbursement-Linked Indicators**

	<b>Disbursement Linked Indicators</b>	<b>ADB Financing (\$ million)</b>	<b>Share of ADB Financing (%)</b>
<b>Outcome</b>			
DLI 1	Number of PLN customers in Kalimantan, Maluku, and Papua increased to reach at least 6.77 million customers by 2024.	150	25.0
DLI 2	An additional 112,428 poor households provided with PLN electricity by 2024, with data disaggregated by sex of households head; at least 10% of households to be headed by women: 2.1. All poor households <sup>a</sup> 2.2. Poor households headed by women	60 15	10.0 2.5
DLI 3	Feeder line permanent interruptions <sup>b</sup> in the distribution system reduced to reach less than 17.12 per 100 ckm by 2024.	90	15.0
<b>Outputs</b>			
DLI 4	Installed length of MV distribution lines increased to reach at least 63,692 ckm by 2024.	120	20.0
DLI 5	Power generation from solar photovoltaics (<10 MW), mini and/or micro-hydro (<1 MW), and small biogas plants (<100 kW) increased by 5.1. an additional 40,000 MWh annually by 2025 <sup>c</sup> 5.2. a further additional 48,000 MWh annually by 2025	30 20	5.0 3.3
DLI 6	Asset and waste management improved, with (i) 90% of used PLN-owned equipment in Kalimantan, Maluku and Papua included in the disposal inventory as of the end of 2019 safely disposed by 2025, and (ii) 25 additional warehouses having obtained permits from DLH <sup>d</sup>	65	10.8
DLI 7	By 2024, consumer education workshops on safe and productive energy use implemented by 5 UIW and 29 UP3 offices, with a minimum of 30% female participation for each workshop (supported by a JFPR grant) based on a scoring system to promote female participation.	30	5.0
DLI 8	E-procurement and SAP systems are integrated and rolled out by 2020, and 80% of contracts in financial value are recorded in the E-procurement–SAP system by 2024.	20	3.3
	<b>Total</b>	<b>600</b>	<b>100 <sup>e</sup></b>

ckm = circuit-kilometer; DLH = provincial and/or district environmental agency; DLI = disbursement-linked indicator; JFPR = Japan Fund for Poverty Reduction; MWh = megawatt-hour; MW = megawatt; PLN = Perusahaan Listrik Negara (State Electricity Corporation); SAP = Systems, Applications, Products in Data Processing (integrated business software); UIW = Unit Induk Wilayah (PLN administrative region); UP3 = Unit Pelaksana Pelayanan Pelanggan (Customer Service Implementation Unit).

<sup>a</sup> Supported by a \$3 million JFPR grant.

<sup>b</sup> PLN defines permanent interruptions as those over 5 minutes in duration.

<sup>c</sup> Supported by a grant of \$3 million from the Asian Clean Energy Fund.

<sup>d</sup> Environmental Permit and License to Operate Hazardous Waste Disposal.

<sup>e</sup> Numbers may not sum precisely due to rounding.

Sources: Asian Development Bank estimates, PLN management reporting information system, and PLN. 2019. *Electricity Power Supply Business Plan, 2019–2028*. Jakarta.

12. Overall, the DLIs and other performance indicators provide fairly ambitious but achievable measures of progress toward the program's outcome and outputs. The experienced planners at PLN helped in selecting DLIs and setting targets that balance robustness and realism. The DLI

targets are as close as possible to the government's RUPTL targets, while carefully considering PLN's actual performance during 2012–2018. All DLIs will be verified by an independent verification agent. Some DLIs are already tracked by PLN's management information systems; procedures to measure the remaining DLIs are being built on existing PLN monitoring systems, which will eventually strengthen the capacity of PLN in monitoring and evaluation.<sup>12</sup> The program design and monitoring framework is in Appendix 1 of the report and recommendation of the President.

### III. Managing Risks and Improving Capacity

13. The program is the third RBL energy program in Indonesia. While counterparts are now more familiar with the approach, the program's focus on social and gender aspects introduces some additional risks. Overall, the program-related risks range from low to substantial. The substantial risks include the following (risk mitigation measures are proposed elsewhere):<sup>13</sup>

- (i) Institutional pressure to achieve established targets may lead to inconsistent reporting.
- (ii) A significant proportion of poor households, including female-headed households, may be unable to connect to electricity mainly because of the depth of poverty and remoteness; these factors are compounded by the lack of central and local government funding in these areas to support poor households.
- (iii) There may be insufficient commitment and government support to increase renewable energy use in the RUPTL through a focus on small-scale solar, hydro and biogas plants.
- (iv) Undue delays in government approval processes may hold up the institutional actions necessary for the achievement of outputs and indicators.
- (v) As a result of the new emphasis on social and gender aspects, an additional risk is linked to PLN's commitment to adapt its monitoring systems to track the connection of poor-households and female-headed households.

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<sup>12</sup> Program Monitoring and Evaluation Assessment (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).

<sup>13</sup> Integrated Risk Assessment (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).