

PROGRAM EXPENDITURE AND FINANCING ASSESSMENT

1. The program expenditure and financing assessment reviews the extent to which the Electricity Grid Strengthening—Sumatra Program has a clearly defined expenditure framework for the Asian Development Bank (ADB) to support with results-based lending (RBL).

A. Expenditure Framework

2. The State Electricity Corporation (PLN) annually prepares a 10-year electricity power supply business plan (RUPTL), which serves as guidance for developing power infrastructure to meet electricity demand. The RUPTL covers electricity demand load forecasts per province; generation capacity expansion plans; and development plans related to transmission, substations, and distribution. The forecasts project the electricity needed to support the government's economic growth targets, considering population growth. Generation capacity is planned to meet electricity demand and the reserve margin, and, to the extent possible, is based on the principle of lowest cost. Development of the transmission system is planned to strike a balance between generation capacity and power requirements to meet specific reliability and quality criteria.

3. PLN's RUPTL, 2015–2024 includes an overview of the projected transmission, distribution, and generation investment needs for Sumatra, which total \$17.9 billion. The program is defined to cover transmission and distribution for 2015–2019, which the RUPTL estimates at \$7.4 billion. PLN's estimates cover engineering, procurement, and construction (EPC) costs, but do not include other expenditure items required for program operations (e.g., land acquisition, permits, consultants, project management, and overhead). ADB has therefore estimated the total program costs based on similar projects funded by ADB in the recent past.

4. The total program costs, estimated at \$10,834.5 million, comprise \$7,362.4 million of EPC costs and \$3,472.1 million of additional expenditure items (Table 1). Transmission costs account for 80% and distribution costs for 20%; the total cost allocations per year vary from 17% to 24%. The combination of EPC costs and additional expenditure items makes the full set of expenditures comprehensive and the RBL program fully operational. PLN's EPC cost figures are based on detailed calculations of electricity demand and ensuing requirements for transmission and distribution. PLN technical experts developed the technical program design, generally in accordance with internationally accepted good practice. Based on discussions with PLN on estimating the expenditures and comparing against market prices, ADB considers the program expenditures to be realistic in terms of prioritization and coverage.

Table 1: Projected Investment Summary for Broader Sumatra Grid Strengthening Program, 2015–2019
(\$ million)

Item	2015	2016	2017	2018	2019	Total	Share (%)
Transmission	1,486.1	1,569.9	1,727.6	2,130.0	1,710.6	8,624.2	79.6
Distribution	390.0	393.5	443.4	471.0	512.5	2,210.3	20.4
Total	1,876.1	1,963.4	2,171.0	2,601.0	2,223.1	10,834.5	100.0
Share (%)	17.3	18.1	20.0	24.0	20.5	100.0	

Source: Calculated based on State Electricity Corporation (PLN). 2015. *Electricity Power Supply Business Plan (RUPTL), 2015–2024*. Jakarta.

5. Table 2 shows the key expenditure composition of the RBL estimated investment needs for transmission and distribution over the full 5 years.

Table 2: Projected Investments for the Sumatra Grid Strengthening Program, 2015–2019
(\$ million)

Components	Transmission		Distribution		Total	
	Amount	Share (%)	Amount	Share (%)	Amount	Share (%)
Civil works	1,480.6	17.2	360.0	16.3	1,840.6	17.0
Equipment	4,441.8	51.5	1,080.0	48.9	5,521.7	51.0
Taxes and duties	710.7	8.2	172.8	7.8	883.5	8.2
Land acquisition	28.8	0.3	14.4	0.7	43.2	0.4
Project management	59.2	0.7	14.4	0.7	73.6	0.7
Monitoring and supervision	296.1	3.4	72.0	3.3	368.1	3.4
Environmental management	29.6	0.3	7.2	0.3	36.8	0.3
Interest	435.6	5.1	159.5	7.2	595.1	5.5
Physical contingencies ^a	703.2	8.2	173.5	7.8	876.8	8.1
Price contingencies ^b	435.6	5.1	159.5	7.2	595.1	5.5
Total	8,606.8	100.0	2,227.7	100.0	10,834.5	100.0

Note. numbers may not sum precisely because of rounding.

^a Based on 10% estimated physical contingencies, which is typical for this type of project.

^b Based on the Asian Development Bank's forecast domestic and international cost escalation factors.

Source: Calculated based on Government of Indonesia, State Electricity Corporation (PLN). 2015. *Electricity Power Supply Business Plan (RUPTL)*. Jakarta. Table 7.2.

6. Specific observations on the projected investment needs (expenditure framework) for the RBL program relate to effectiveness, efficiency and economy, and adequacy.

7. **Effectiveness.** In line with the National Medium-Term Development Plan (RPJMN), 2015–2019, the Government of Indonesia aims to expand energy infrastructure by increasing investments in the energy sector. The program will support this by strengthening the power grid in Sumatra, focusing on transmission and distribution, and improving PLN's implementation capacity. The resources will thus directly address energy security to achieve the program's development outcome of improving the regional power transmission and distribution network. The RUPTL, 2015–2024 which is the foundation for the program, is based on detailed calculations of electricity demand and the subsequent transmission and distribution requirements. The calculations were carried out in line with internationally accepted good practice. Thus the identified expenditures correspond with the planned results, and hence are likely to achieve the expected program results.

8. **Efficiency and economy.** The component-specific investment needs projected for the program (Table 2) are based on a technical design of transmission and substation high-voltage works that PLN deems to make the best use of funds available and to be the most cost-effective in terms of achieving expected results. For example, the planned 150-kilovolt (kV) transmission line upgrades will utilize high-temperature and low-sag (HTLS) conductors rather than conventional aluminum conductor steel reinforced (ACSR) conductors, despite the former costing 2–6 times more. The use of HTLS conductors reduces line losses and they can carry 2–3 times more electricity, which increases the load capacity of the transmission line, hence making it more economical. In addition, they can utilize existing infrastructure. Similarly, all extension work related to 275/150 kV and 150/20 kV substations will be contained within the existing boundaries of the substations. Also, the distribution design generally follows standard international practice, and is expected to reduce overall distribution losses (efficiency gains). While the private sector is expected to play a larger role in Indonesia's energy sector for

generation, PLN holds an actual monopoly over the distribution system and is therefore the primary agency responsible for network expansion.¹ Such tasks are thus best placed with PLN, i.e., outsourcing them is not an option.

9. **Adequacy.** PLN projected the EPC costs based on detailed calculations of electricity demand, and resulting requirements for transmission and distribution as expressed with the technical design. ADB calculated the additional cost items required to make the program fully operational (i.e., land acquisition, permits, consultants, project management, and overhead), based on best estimates and taking into account experience from previous operations in Indonesia.² The allocation of resources for the RBL program as a whole and its components was calculated to match the funding required to generate the expected results. PLN has adequate implementation capacity; absorption of funds is unlikely to become a challenge.

B. Financing Plan

10. The program financing plan for 2015–2019 is in Table 3.

Table 3: Broader Sumatra Program Financing Plan

Source	Amount (\$ million)	Share (%)
PLN	5,136.3	47.4
Asian Development Bank ^a		
Ordinary capital resources	575.0	5.3
ASEAN Infrastructure Fund ^b	25.0	0.2
Others ^c	4,071.4	37.6
Unallocated	1,026.8	9.5
Total	10,834.5	100.0

ASEAN = Association of Southeast Asian Nations, PLN = Perusahaan Listrik Negara (State Electricity Corporation).

^a The \$600 million contribution can be scaled-up with subsequent results-based lending programs.

^b Administered by the Asian Development Bank.

^c The category includes \$500 million from the World Bank, also for the Sumatra program, and may include additional loans from the Asian Development Bank and also the World Bank; a two-step loan with the Japan International Cooperation Agency; and funding from an export credit agency, bilateral partners, and the Government of Indonesia's national budget.

Sources: Asian Development Bank and PLN staff estimates.

11. PLN expects to finance 47.4% of projected program costs from a combination of internal resources (cash flows) and government subsidies. The second major financing source, "Others" (37.6%) is yet to be fully defined but includes World Bank's \$500 million program for results (PforR) and may also include additional RBL programs by ADB, additional PforR programs by the World Bank, funding from Japan International Cooperation Agency, a foreign export credit agency, and/or the government's national budget. Initial funding from development partners—ADB (5.5%) and the World Bank (4.6%)—would account for 10.1%. The ADB funding for the Sumatra program is scalable if needed.

12. PLN has requested ADB to provide a direct loan of \$575 million from ADB's ordinary capital resources and \$25 million from the ASEAN Infrastructure Fund (AIF) to help finance the

¹ More than half of the investment funding needed for 2015–2019 has been assigned to the private sector, but so far private investment has not met expectations. ADB. 2015. *Indonesia Energy Sector Assessment*. Manila. p. 19.

² The projections included in the RUPTL are for capital expenditure (physical assets) only. Based on ADB's experience with the Power Transmission Improvement Sector Project in Indonesia, implemented during 2002–2014, a breakdown of capital expenditure was made into a civil works (25% of capital expenditure; 100% local currency) and equipment (75% of capital expenditure; 90% foreign currency, and 10% local currency). Furthermore, some cost items were topped up for both transmission and distribution.

program, which together will account for 5.5% of total program funding. ADB has undertaken a brief analysis of PLN's financial performance based on recent financial statements and reviewed PLN's financial projections for 2015–2019.

13. **PLN's financial performance, 2010–2014.**³ PLN's total operating revenues increased from Rp102,973 billion in 2010 to Rp186,637 billion (compound annual growth rate [CAGR] of 16.0%) in 2014 due to year-on-year increases of revenues. The subsidies are vital to PLN's continued profitability and represent a significant portion of total revenues (34% in 2014), although down from 45% in 2011. PLN's total operating expenses also increased from Rp149,108 billion in 2010 to Rp246,909 in 2014 (CAGR of 13.4%). The combined effect was an increase in PLN's operating profit from Rp13,267 billion in 2010 to Rp45,811 billion in 2014 (CAGR of 36.3%), and the operating margin (from 7.4% in 2010 to 14.2% in 2014). However, financing costs grew from Rp6,010 billion in 2010 to Rp35,971 billion in 2014 (CAGR of 56.4%). As such, PLN's net income after tax has not increased in the same magnitude as its operating profits—net income was Rp11,741 billion in 2014, up from Rp5,426 billion in 2010 (CAGR of 3.9%). Total outstanding debt—two-step loans, government loans, bank loans, medium-term notes, and bonds payable—increased from Rp117,698 billion in 2010 to Rp200,168 billion in 2014 (CAGR of 14.2%), while lease liabilities increased from Rp61,406 billion in 2010 to Rp128,096 billion in 2014 (CAGR of 20.2%). Beginning in 2013, ADB imposed financial covenants on PLN, which were met by PLN in 2013–2014. Table 4 summarizes the key financial indicators.

14. **PLN's financial projections, 2015–2019.**⁴ PLN based its financial projections for 2015–2019 on several assumptions on future developments (macroeconomic, sales, fuel consumption holding and consolidated, fuel mix, average fuel prices, tariff increases and margins, and government equity injections). Based on these, PLN is expected to meet ADB's loan covenants except in 2019 when the debt to equity ratio is breached. Table 5 summarizes the key financial indicators based on PLN's financial projections for 2015–2019. Importantly, 60% of PLN's current debt is sovereign-backed.⁵ Therefore, while PLN, given its current debt situation, is constrained in its ability to raise further debt (as it may reach limits imposed under bond covenants), PLN will likely base its financing strategy for 2015–2019 on government-backed sovereign borrowing as this will allow access to lower cost funds at a long tenor. Also, subject to approval from the Ministry of Finance, PLN may take on sovereign-backed loans from multi- and bilateral international financial institutions. Further the government will provide equity injections of Rp35 trillion (about \$2.6 billion) to PLN during 2015–2019. PLN estimates that the Sumatra program will receive anywhere from Rp1 trillion to Rp1.5 trillion (\$75.2 million–\$112.8 million) per year from this amount.

15. In this context Moody's Investors Service in June 2014 affirmed PLN's credit ratings, with a stable outlook.⁶ This reflects PLN's stand-alone credit quality independent of any extraordinary support from sovereign support, as well as an assessment of the credit support that the government is likely to provide in a distressed situation. Moody's lowered the baseline credit assessment, which reflects PLN's strategically important position as Indonesia's only vertically integrated electric utility as well as its close linkage with the government (which has a strong incentive to support PLN in case of need). Longstanding subsidies support PLN's financial

³ Based on PLN's audited financial statements.

⁴ This paragraph is based on calculations prepared by PLN and shared with ADB.

⁵ ADB. *Note on ADB Support for PLN and Power Sector Expansion in Indonesia*. Unpublished. p. 2.

⁶ Moody's Investors Service. 2014. Rating Action: Moody's affirms PLN's ratings. *Global Credit Research*. 30 June. https://www.moody's.com/research/Moodys-affirms-PLNs-ratings--PR_303016. Issuer and senior unsecured ratings reaffirmed at Baa3 as was the (P) Baa3 senior unsecured MTN rating.

viability and soundness of operations.⁷ Moody's also noted that PLN's aggressive capital spending program, although consistent with some national strategic objectives, provides limited scope for metrics to improve in the medium term. With regard to ongoing major programs for electrical capacity additions, which add substantial capital expenditure requirements for PLN, Moody's noted that until the programs are completed (in 5–8 years), PLN will experience pressure on its key credit metrics, but that it has a track record of managing execution risks and is expected to continue to competently manage these risks.

Table 4: PLN Financial Indicators, 2010–2014
(Rp billion)

	2010	2011	2012	2013	2014
Income Statement Summary					
Total operating revenue	162,375	208,018	232,656	261,847	292,721
Total operating expenses	149,108	185,640	203,115	220,911	246,910
Operating profit	13,267	22,378	29,541	40,936	45,811
Net income after tax	10,093	5,426	3,206	(26,236)	11,742
Balance Sheet Summary					
Total non current assets	361,327	409,530	472,066	505,382	518,235
Total current assets	44,773	58,252	68,640	84,837	85,424
Total assets	406,100	467,783	540,706	590,219	603,659
Total equity	142,114	146,013	150,600	150,331	164,671
Total non current liabilities	208,590	258,219	315,503	350,582	351,430
Total current liabilities	55,397	63,550	74,603	89,306	87,558
Total liabilities and equity	406,100	467,783	540,706	590,219	603,659
Cash Flow Summary					
Net cash flow from operations	22,969	31,622	30,464	38,175	39,252
Net cash flow from investing activities	(30,721)	(40,759)	(41,760)	(34,954)	(30,399)
Net cash flow from financing activities	14,425	11,477	11,847	(331)	(7,272)
Net cash flow	6,674	2,371	552	2,890	1,582
Ending cash balance	19,717	22,088	22,640	25,530	27,112
ADB Covenant Ratios					
DSCR \geq 1.35	2.5	1.8	1.6	1.8	1.3
SFR \geq 15%	70.1%	89.8%	39.6%	80.5%	57.3%
DER \leq 3.0	1.3	1.5	1.8	2.6	2.1
Other Financial Ratios					
Current ratio	81%	92%	92%	95%	98%
Net profit margin	6.2%	2.6%	1.4%	(10.0%)	4.0%
Return on assets	2.7%	1.2%	0.6%	(4.6%)	2.0%
Return on equity	7.1%	3.8%	2.2%	(17.4%)	7.5%
Operating ratio	92.6%	89.3%	86.4%	81.1%	85.8%

() = negative

Source: Government of Indonesia, State Electricity Corporation (PLN) audited financial statements.

16. Observations of the financing plan for the RBL program focus on adequacy, and predictability and sustainability.

⁷ The electricity subsidy, based on a decree that took effect 1 January 2015, is now being gradually phased out on the basis of consumer class until 2018, when all but the poorest households will receive electricity at market prices.

17. **Adequacy.** To the extent that the financing plan is realized as outlined, including financing from various sources, it matches the projected and calculated investment needs for the RBL program. Therefore this should be sufficient to ensure that the planned results are achieved within the resource envelope.

18. **Predictability and sustainability.** The outlined RBL program financing is expected to be fully predictable for the initial funding to be provided by the development partners although failure by PLN to meet agreed disbursement-linked indicators would result in funding not being available until the conditions for disbursement are met. PLN is expected to be able to generate the required internal resources and cash flows as per the financing plan (52.9%). Therefore, since 62.4% of the resources are included in the financing plan, the funding appears to be sustainable as well as predictable. The category "Others" accounting for 37.6%, is to be derived from sources of which some are defined (World Bank's \$500 million) and some undefined adding some uncertainty to the sustainability of the program. The financing sources should be established, and contingency plans for project implementation developed if or as required.

Table 5: PLN Financial Projections 2015–2019
(Rp billion)

	2015	2016	2017	2018	2019
Income Statement Summary					
Total operating revenue	316,694	356,485	392,903	447,744	529,519
Total operating expenses	(259,791)	(282,707)	(294,069)	(330,404)	(369,376)
Operating profit	56,903	73,778	98,835	117,340	160,143
Net income after tax	8,707	20,398	31,570	35,734	49,169
Balance Sheet Summary					
Total non current assets	582,323	719,232	915,841	1,161,658	1,513,035
Total current assets	84,838	66,652	70,536	74,908	81,828
Total assets	66,716	78,588	98,638	123,657	159,486
Total equity	182,113	210,512	250,082	292,816	348,984
Total non current liabilities	396,546	480,862	639,566	835,504	1,116,480
Total current liabilities	88,501	94,511	96,730	108,247	129,399
Total liabilities and equity	667,160	785,884	986,377	1,236,566	1,594,863
Cash Flow Summary					
Net cash flow from operations	41,831	72,585	75,351	88,668	112,308
Net cash flow from investing activities	(64,254)	(143,815)	(205,998)	(195,968)	(110,445)
Net cash flow from financing activities	23,002	65,554	130,687	107,275	(1,849)
Net cash flow	579	(5,676)	40	(24)	14
Ending cash balance	27,690	22,014	22,054	22,030	22,044
ADB Covenant Ratios					
DSCR \geq 1.5	1.4	1.5	1.5	1.7	1.7
SFR \geq 15%	50.6%	71.3%	23.7%	31.5%	58.7%
DER \leq 3.0	2.1	2.3	2.5	2.8	3.2
Other Financial Ratios					
Current ratio	95.9%	70.5%	72.9%	69.2%	63.2%
Net profit margin	18.0%	20.7%	25.2%	26.2%	30.2%
Return on assets	1.4%	2.8%	3.6%	3.2%	3.5%
Return on equity	5.0%	10.4%	13.7%	13.2%	15.3%
Operating ratio	82.0%	79.3%	74.8%	73.8%	69.8%

() = negative

Source: Government of Indonesia, State Electricity Corporation (PLN).