



PLN in Crisis—Time for Independent Power Producers to Share the Pain?

Indonesia Could Emerge With a More Resilient Power System

Executive Summary

The dual blow of the COVID-19 pandemic and recession is reshaping Indonesia's outlook for 2020 and beyond in ways that seem certain to have a dramatic impact on PT Perusahaan Listrik Negara's (PLN's) future. Indonesia's national power company has enjoyed a protected position thanks to years of strong demand and installed capacity growth that has been financed by easy access to the global bond market and generous funding from North Asian export credit agencies (ECAs) to support independent power producer (IPP) financing structures.

Unfortunately, COVID-19 has upended Indonesia's financial settings and PLN's compact with the Indonesian public and global markets will need to be rebased to face new realities. This will require decisive steps by Indonesia's senior policy leaders who must consider ways to unwind PLN's high risk bet on baseload coal IPPs. These inflexible power purchase agreements (PPAs) lock the Government of Indonesia (GOI) into capacity payments that it will struggle to meet as other more crucial stabilization goals compete dominate the national agenda.

**PPAs lock the Government
into capacity payments
it will struggle to meet.**

We believe that signs of movement are already emerging as Indonesia's well-respected economic management team takes steps to plug holes in the national balance sheet and manage funding priorities. Any steps to manage risk related to PLN will need to address a core list of fundamentals related to:

1. The Ministry of Energy and Natural Resources' (MEMR's) planning disciplines;
2. The negative impact of a dramatic rise in IPP payment obligations on required subsidies in 2021; and
3. Ongoing system distortions due to excess generation capacity in the crucial Java-Bali grid and under-investment in grid management.

IEEFA’s analysis makes it clear that global funders may need to be part of the solution. Many parties have profited from Indonesia’s open book on IPPs—from project sponsors and key suppliers to banks and bond investors. The Indonesian power market has a long history of opaque dealing, with a generous mix of regional geo-politics. This has resulted in an unstable financial scenario that would best be addressed by forging a new consensus on burden-sharing with the IPPs.

Re-setting norms for Indonesia’s power system may come with a short-term cost, but if it is part of a well-managed stabilization package, Indonesia could emerge with a more resilient power system that is better aligned with more cost-effective system-level power solutions. This could open the door to more transparency and new sources of financing, especially if targeted investment in the grid and clean energy solutions could be used to unlock new sources of donor capital.

COVID-19 has resulted in sharp downward GDP growth revisions.

Financial Markets Cannot Rely on MEMR’s Planning Practices

The damaging impact of COVID-19 on Indonesia’s economic outlook has resulted in sharp downward GDP growth revisions by a broad range of financial market players, as well as Indonesia’s Ministry of Finance which presented new scenarios to the market last week. As is the case in many growing emerging economies, COVID-19 and the global recession have had immediate negative impacts with sharp cuts in 2020 growth forecasts from a combination of supply and demand shocks as well as follow on FX pressures. The forecasts in Table 1 vary both in terms of the scale of the 2020 shock and the speed of any recovery in 2021 with S&P showing more optimism about a speedy U-shaped recovery than Moody’s.

Table 1: Revised Indonesian GDP Growth Forecasts

	Previous 2020E	Revised 2020E	Revised 2021E
S&P	5.1%	4.1%	6.0%
Moody’s	5.0%	3.0%	4.3%
	2020 Budget	Revised 2020 Base Case	2020 Worst Case Scenario
MOF	5.3%	2.3%	-0.4%

Source: S&P, Moody’s, and GOI MOF.

So far, the economic risks have largely been on the downside as the synchronized global shutdown has robbed forecasters of reliable assumptions about either the course of the global pandemic or the ability of economies to re-start growth once health risks have abated. This uncertainty is accurately reflected in the Ministry of

Finance’s decision to introduce two scenarios that can be used to guide expectations as the global growth picture becomes clearer.

For PLN, slower growth will mean a dramatic fall in demand as factories and businesses shut down and urban consumers limit their activity or return to rural areas. The demand collapse in 2020 and 2021 comes at a time when the planning disciplines that sit behind the Ministry of Energy and Resources’ (MEMR’s) annual RUPTL planning document have already been under scrutiny. The RUPTL has consistently relied on exaggerated demand forecasts that have resulted in a rapid build-up of under-utilized generating capacity, particularly in the Java-Bali grid which has been the focus of most large-scale coal IPP developers.

Table 2: MEMR RUPTL Power Sales Forecasts

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Avg. YoY Growth
Forecast Sales (TWh)														
2015-2024	262	287	315	347	382	420	462	508	559	616				
2016-2025	225	244	268	292	315	340	366	394	425	457				
2017-2026	213	235	254	276	302	330	357	386	417	450	483			
2018-2027		221	239	256	276	297	317	337	359	382	407	434		
2019-2028			232	245	261	279	300	320	340	361	383	407	433	
YOY % Change														
2015-2024		9.5%	9.8%	10.2%	10.1%	9.9%	10.0%	10.0%	10.0%	10.2%				10.0%
2016-2025		8.4%	9.8%	9.0%	7.9%	7.9%	7.6%	7.7%	7.9%	7.5%				8.2%
2017-2026		10.3%	8.1%	8.7%	9.4%	9.3%	8.2%	8.1%	8.0%	7.9%	7.3%			8.5%
2018-2027			8.1%	7.1%	7.8%	7.6%	6.7%	6.3%	6.5%	6.4%	6.5%	6.6%		7.0%
2019-2028				5.6%	6.5%	6.9%	7.5%	6.7%	6.3%	6.2%	6.1%	6.3%	6.4%	6.5%
Forecast Revision: 2019 vs 2015			-26.3%	-29.4%	-31.7%	-33.6%	-35.1%	-37.0%	-39.2%	-41.4%				-34.2%

Source: RUPTL 2015, 2016, 2017, 2018, 2019.

MEMR’s exaggerated demand growth forecasts have resulted in persistent downward demand revisions averaging 34.2% over an eight-year period. These systematic planning problems have arguably created a bias toward rushed and uncoordinated decision-making. For example, RUPTL forecasts for growth in power sales in 2019 started at 10.2% as recently as 2015 but fell to 5.8% in the 2019 document. The reality, confirmed by MEMR Director General Rida Mulyana in early March, was growth of just 4.5%¹ in 2019 and a further drop to 3.8% in January 2020. For PLN, this has already resulted in a high cost mismatch between new IPP supply—with guaranteed capacity payments—in Java that will be aggravated by further falls in demand due to COVID-19.

MEMR and PLN have only just begun to address the financial and operational fallout from this planning breakdown, which is directly linked to policy directives related to the President’s 35GW electrification program. The immediate impact is that the Java-Bali grid, which had 7,784MW of IPP capacity as of yearend 2018, will be significantly oversupplied in the coming years and the problem will be made worse by the addition of another 7,365 MW of IPP capacity by 2021.

¹ Reuters. [Indonesia's PLN "Burdened" by Electricity Oversupply](#). March 5, 2020.

The scale of this problem is already financially significant. MEMR's Mulyana confirmed in early March that the Java-Bali grid could see a reserve margin of 41.5%. This is a problem that PLN is struggling to address. In recent comments, the new MEMR Minister Arifin Tasrif was quoted as urging industrial users to step up to channel their electricity demand to PLN to ensure that "there are no idle generators."² New sources of potential demand cited by the officials included new smelter projects, special economic zones, and tourism regions. It's notable, however, that all of these areas have been hit hard by the downturn and are not located in regions that will drive demand for the over-supplied the Java-Bali grid.

In a telling shift of focus, MEMR's Mulyana was also quoted as saying that in the future, PLN's investment would shift from generation to target increases in transmission and distribution. If true, this policy shift would bring PLN's forward investment into alignment with a new set of priorities, placing a new emphasis on investment that can build system-level resilience through inter-connectivity and modular clean energy capacity additions.

It also raises a question about the viability of the controversial Java 9 & 10 IPP project involving Barito Pacific, Indonesia Power, and Korea Electric Power Corporation (KEPCO). Given existing over-capacity, and MEMR's public acknowledgement that over-capacity in the Java-Bali grid is now a financial risk for PLN, it is hard to imagine the project can meet normal due diligence standards for prudent lenders or investors. With the market only just adjusting to the economic damage to PLN from COVID-19, the case will only have deteriorated further.

PLN's Budget Hole Could Require a Subsidy of USD 7.2 Billion by 2021

To put PLN's problems into a practical context, we have updated IEEFA's 2020 and 2021 PLN forecast to reflect lower demand as a result of the impact of the COVID-19 recession on demand and funding costs. Even using the most optimistic of the GDP growth forecasts available to us from S&P, it is clear that PLN's finances have reached the point where ratings agencies and bond investors will have to reassess the basis on which the GOI can continue to write a blank check for uncontrolled investment in and payments to IPPs.

IEEFA's sensitivity analysis model is designed to take a transparent approach to assessing PLN's financial position. Where possible we have used publicly available forecasts such as S&P's GDP forecast to form a basis for our unit sales growth estimate. For similar reasons, we have used a 1.0 sales growth elasticity assumption which is in line with MEMR's approach in the 2019 RUPTL.

Our forecast for purchased power, which will dominate PLN's expenses from 2021, is derived with reference to the 2019 RUPTL as well. While there may be adjustments to project delivery schedules in future years, this forecast for purchased power is likely to be robust as all projects targeted for operation in the

² Indonesia: Industry Asked to Absorb Electricity PT PLN – EUCLID Procurement, Refinitiv, 11 March 2020.

2020 and 2021 period would currently be well advanced. To provide a neutral basis for estimating the GOI's subsidy payments, we use PLN's realized operating income after subsidy from 2018 as a target when deriving our estimated subsidy amount. In the past, this approach has proven accurate in estimating the income and cash flow required to meet PLN's profit expectations and ratings agency metrics.

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Table 3: PLN’s Forecast Income Statement

(in Millions IDR)	2017 Rp	2018 Rp	2019E Rp	2020E Rp	2021E Rp
REVENUES					
Sale of electricity	246,586,856	263,477,551	275,729,970	287,034,899	304,256,993
Sales GWh	223,530	234,610	245,520	255,586	270,921
YOY% Change sales	3.5%	5.0%	4.7%	4.1%	6.0%
Customer connection fees	7,113,454	7,309,172	6,328,294	6,644,709	6,976,944
Others	1,594,933	2,111,019	2,551,132	2,704,200	2,866,452
Total Revenues	255,295,243	272,897,742	284,854,916	296,639,394	314,371,311
OPERATING EXPENSES					
Fuel and lubricants	116,947,824	137,266,678	132,617,064	128,638,552	138,415,082
Purchased electricity (IPPs)	72,426,641	84,267,611	91,453,115	119,985,166	164,517,405
Lease	6,592,161	4,272,082	3,821,186	3,821,186	3,821,186
Maintenance	19,515,606	20,737,601	18,911,588	19,384,378	19,868,987
Personnel	23,124,511	22,950,087	25,251,266	25,882,548	26,529,611
Depreciation	29,160,597	30,744,712	33,850,894	35,543,439	37,320,611
Others	7,706,754	7,950,118	7,692,990	7,692,990	7,692,990
Total Operating Expenses	275,474,094	308,188,889	313,598,103	340,948,258	398,165,873
OPERATING LOSS BEFORE SUBSIDY	(20,178,851)	(35,291,147)	(28,743,187)	(44,308,864)	(83,794,562)
Government's electricity subsidy	45,738,215	48,101,754	64,727,258	80,292,935	119,778,633
Compensation income		23,173,464			
OPERATING INCOME AFTER SUBSIDY	25,559,364	35,984,071	35,984,071	35,984,071	35,984,071
Other income -net	3,409,941	15,663,363	3,095,834	3,095,834	3,095,834
Gain (loss) on foreign exchange - net	(2,935,144)	(10,926,741)	6,297,486	(11,957,560)	1,000,000
Financial income	1,066,842	804,321	417,164	417,164	417,164
Financial cost	(18,556,931)	(21,624,176)	(24,212,666)	(25,423,299)	(26,694,464)
INCOME (LOSS) BEFORE TAX	8,544,072	19,900,838	21,581,889	2,116,209	13,802,605
TAX BENEFIT (EXPENSES)	(4,115,955)	(8,325,082)	(13,574,804)	(465,566)	(3,036,573)
INCOME FOR THE YEAR	4,428,117	11,575,756	8,007,085	1,650,643	10,766,032
KEY FORECAST ITEMS					
Unit Sales Growth	3.5%	5.0%	4.7%	4.1%	6.0%
Yearend FX	13,555	14,568	13,866	15,000	15,000
YOY% Change	-0.6%	-7.5%	4.8%	-8.2%	0.0%
Subsidy Sensitivity					
Total Subsidy Plus Tariff Freeze Compensation	45,738,215	71,275,218	64,727,258	80,292,935	119,778,633
Total Subsidy Plus Compensation -- USD millions	\$ 2,768	\$ 4,313	\$ 3,917	\$ 4,859	\$ 7,248
% Subsidy Increase			41.5%	24.0%	49.2%
Cumulative Subsidy Increase vs 2018			41.5%	75.5%	161.9%
Subsidy per Unit Sold	205	205	264	314	442
YOY% Change		0.0%	28.6%	19.2%	40.7%

Subsidies Could Jump 85% by 2021

The key conclusions from the sensitivity analysis underscore the importance of incisive policy decisions. PLN's required subsidy, paid by GOI, is poised to balloon in 2020 and 2021, rising an estimated 85.1% or IDR 55.1 trillion (USD 3.3 billion). By 2021, IEEFA estimates indicate that the required subsidy could total as much as IDR 119.8 trillion (USD 7.2 billion).

The first and most obvious conclusion from this analysis is that PLN's financial health is over-reliant on large and rapidly growing subsidies that must be paid by the GOI. It's not a new phenomenon that PLN has struggled with the issue of cost recovery via tariffs. Like many developing country power companies, PLN is strategically positioned to support broader economic growth and the ability to pay, especially for low income consumers, is an issue of national equity. What's problematic in Indonesia's case is that power tariffs were frozen in the run up to the 2019 presidential election and PLN had expected that its operating losses would have eased somewhat in 2020 with a promised tariff increase and continued healthy power demand growth.

The promised tariff increases have failed to materialize and now the urgency of economic stabilization efforts mean that it would be naïve to expect any tariff relief before 2022 at the earliest. The problem is made worse by the fact that PLN has done little to address its financial vulnerability to demand shocks thanks to its business-as-usual attitude toward planning. This is meaningful because the expectation of modest tariff relief beginning in 2020 has been a central pillar of the ratings agencies' sanguine view on PLN's standalone credit profile. While PLN's credit rating is backstopped by the government's commitment to support PLN, this setback could surprise bond investors that have failed to analyze the steady erosion of PLN's financial and operating fundamentals in recent years.

PLN's unrealistic tariff expectations are only one part of the story, however. Over the past week, there have been suggestions that the new Cabinet may shift away from the established pattern of providing tariff relief and subsidies directly to consumers via PLN. According to press reports, Erick Thohir, Minister of State Owned Enterprises stated at the end of last week that top policymakers believe that it would be more transparent to provide needed subsidies to low income groups directly, rather than passing the subsidies through the SOEs in ways that can obscure the reality of their financial performance.³ If this were to happen, PLN's ability to rely on

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³ BUMN Minister comments on subsidy payments.

a subsidy and special “compensation” to support profits and manage cash flow could be compromised.

IPP Payments Are Deepening the Budget Hole

With PLN’s financial vulnerability now out in the open, it is crucial to appreciate the extent to which PLN’s financial stress is due to ballooning purchased power payments to IPPs. As part of PLN’s 35GW push, PLN turned on the taps for extensive collaboration with domestic and overseas IPP developers eager to sell coal-fired power equipment with generous ECA backing. They have benefitted from Indonesia’s investment grade status which has given financial sponsors confidence that Indonesia would stand by power purchase agreement (PPA) terms, despite PLN’s strained fundamentals and regardless of global market trends.

Table 4: PLN’s Purchased Power Costs from IPPs

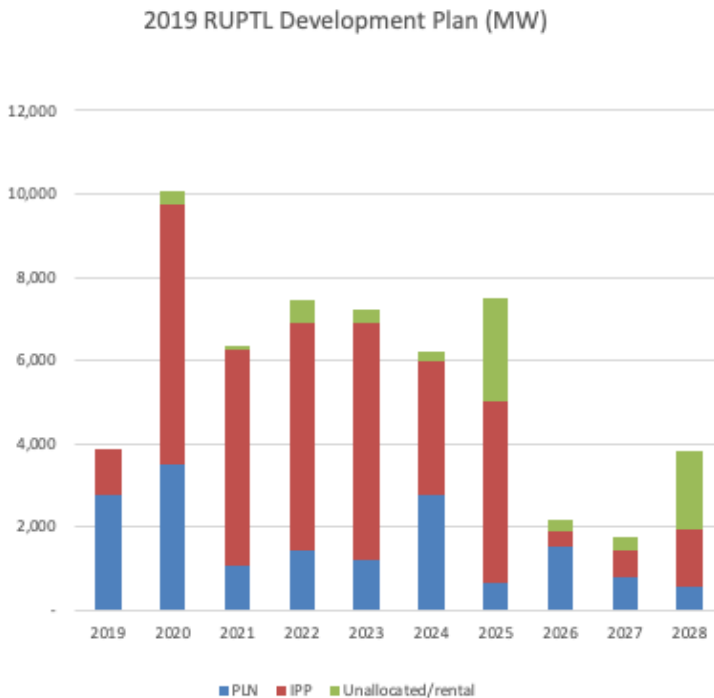
PLN IPP Costs	2017	2018	2019E	2020E	2021E
Yearend IPP Installed Capacity (MW)	10,457	11,215	12,305	18,553	23,758
Average Installed IPP Capacity (MW)	9,852	10,836	11,760	15,429	21,156
Purchased Electricity (RP mn)	72,426,641	84,267,611	91,453,115	119,985,166	164,517,405
Purchased Electricity YOY % Change		16.3%	8.5%	31.2%	37.1%
Purchased Electricity 2021E vs 2017					127.2%
IPP Cost/MW	7,352	7,777			
Per MW YOY % Change in Purchased Electricity Costs		5.8%			

Source: RUPTL 2019, PLN 2017-1H2019 results, IEEFA estimates.

The net effect of this focus on IPPs is that PLN’s operations have been transformed. IEEFA estimates of purchased power payments to IPPs are now forecast to be PLN’s largest operating expense by 2021, eclipsing direct payments to domestic fuel suppliers. The doubling of IPP payments since 2017 was something that PLN seems to have embraced despite the cost, but less has been said about the operational impact of this capacity management strategy. The crucial fact that has been omitted is PLN is now aggressively exposed to inflexible payment obligations because most PPAs include rigid capacity payment obligations that must be met regardless of whether or not PLN needs the power.

Rigid capacity payment obligations must be met.

Figure 1: PLN’s Development Plan



MEMR’S consistent over-estimation of demand has aggravated these over-capacity risks—something that will now be compounded by the COVID-19 downturn’s impact on demand. As a result, in addition to pleading with consumers to use more power, PLN could be locked into a more awkward scenario where it will be dispatching high cost IPP facilities regardless of normal merit order considerations to try to manage the buildup of these fixed costs. This is a financially damaging scenario that was not envisioned at the time the 35GW program was inaugurated to address un-met electrification needs.

More Downside Risks? No Certainties on Demand or FX

IEEFA’s modeling exercise highlights two additional risks to PLN’s outlook. While we opted to take a neutral-to-positive stance on potential demand growth, it’s important to stress that the near-term risks look to be on the downside. It was with this in mind that the Finance Minister, Sri Mulyani, presented a worst-case economic growth estimate of -0.4% for potential GDP growth in 2020. Similarly, we note that Moody’s takes a more cautious view of Indonesia’s growth potential in 2021 than S&P, forecasting a more subdued upturn with 4.3% growth in 2021. If we were to use these two forecasts in our model, the required subsidy from GOI to PLN would increase by IDR 20.5 trillion (USD 1.2 billion) over the period on top of the IDR 200.1 trillion (USD 12.1 billion) of subsidies that are already forecast to be paid by GOI.

Table 5: Indonesia GDP Growth Forecasts

	MOF 2020 Worst Case vs S&P	Moody's 2021E
GDP growth estimates	-0.4%	4.3%
% increase in required subsidy vs. IEEFA baseline	15.5%	6.7%
IDR millions	12,418,897	8,050,205
USD @ 16,525	\$ 751.5	\$ 487.2

Source: MOF, Moody's, IEEFA estimates.

A second source of risk to PLN's financial performance also comes from its exposure to hard currency payments over the course of 2020 and 2021. USD bonds have been an essential source of funding for PLN thanks to the advantageous interest rate differential in the offshore market versus domestic rupiah financing. The benefit of this trade-off can punish reported earnings and cashflow during periods of rupiah depreciation, however. With the rupiah now down almost 20.0% from year-end 2019, PLN's financial team will be working hard to find ways to manage its exposure. Although senior financial policymakers are targeting a significant rebound in the rupiah—and we are using their year-end estimate of IDR15,000—this could prove optimistic.

Credibility Will Rest on a Solution to the IPP Problem

Based on IEEFA's analysis, it's important to take a pro-active look at the steps that the GOI and PLN might take to address the company's deteriorating financials. In any financial distress situation, the list of viable options is driven by the logic of "least bad, but achievable, options". In PLN's case, it will be crucial that the company's financial exposures be managed in a way that does the least damage to Indonesia's credit rating and the company's continued access to the international bond market.

To do this, we expect that MEMR and PLN will need to re-evaluate the legal, financial, and operational norms that govern their relationship with the IPPs. While heavy reliance on IPPs has permitted PLN to manage the optics of progress on the 35GW target, this has come at a price that PLN clearly cannot pay. Indonesian analysts are aware that this reckoning has been a long time coming, given the frequency of reports concerning problems with IPP project decision-making in recent years.⁴

In 2020, urgency concerning the management of PLN's cashflow must prevail. With IPP payments accelerating, one of the few viable strategies to mitigate cash leakage is for PLN to reach out to the IPPs to explore burden-sharing strategies that would permit the company to manage immediate payments. A second option is to focus on delaying the system expenses related to the IPPs such as grid spending for remote mine-mouth IPPs in regions with low power demand. At a minimum, it would also be prudent to explore ways to delay commissioning of facilities that are in the pipeline for 2021 and 2022. In the meantime, it would be wise to shelve any pending

⁴ IEEFA. *Indonesia: The Case for Power System Transformation*. November 2019.

IPP negotiations, especially those that would add unneeded capacity to the Java-Bali grid such as the 2GW Java 9 & 10 IPP.

Despite the many challenges that the COVID-19 recession will pose for Indonesia, this period of re-evaluation offers MEMR and PLN a valuable opportunity to align themselves with global best practice on power system development with a new focus on more cost competitive capacity options, greater transparency, and flexibility. The numbers leave MEMR and PLN little choice.

About IEEFA

The Institute for Energy Economics and Financial Analysis conducts research and analyses on financial and economic issues related to energy and the environment. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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