

Indonesia's Energy Policy Briefing

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As part of its work on energy policy and sustainable development in Indonesia, the Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD) publishes a regular briefing on issues related to energy subsidies. For more information, contact Lucky Lontoh at lucky.lontoh@iisd.org and Lourdes Sanchez at lsanchez@iisd.org.

Highlights

- Indonesia's economy is expected to make a comeback in 2021, although overall state revenue is still lower than it was before the COVID-19 pandemic. The government's recovery plan projects that the budget deficit will return to its pre-pandemic level in 2023–2024. This suggests that the country will likely need to maintain its emergency policy—which focuses on fiscal support for basic needs like education, health care, and key infrastructure projects, as well as incentives to revive the economy—for at least the next 2 years. However, unlike the first COVID-19 recovery package in 2020, the recovery packages for the following years do not specify the amount of support given to the energy sector.
- The overall energy subsidy for 2022 is projected to increase, led by a surge in liquefied petroleum gas (LPG) subsidy from an estimated IDR 49.9 trillion in 2021 (USD 3.38–3.48 billion) to IDR 66.3 trillion for 2022 (USD 4.62 billion), caused by a projected increase in consumption from 7.5 million tonnes in 2021 to 8 million tonnes for 2022.
- A sharp decline occurs in transport fuel subsidy, of which diesel is the biggest component. The subsidy value falls from an estimated IDR 17 trillion in 2021 to IDR 11 trillion in 2022. On the other hand, the volume of subsidized diesel declines only slightly from an estimated 15.8 million kl in 2021 to 15.1 million kl in 2022.
- Indonesia's state electricity company Perusahaan Listrik Negara (PLN) released the National Electricity Supply Business Plan (RUPTL) 2021–2030, which includes a low-carbon scenario where 51.6% of the planned 40.6 GW of additional generation capacity up to 2030 are to come from new and renewable energy (NRE), bringing the total share of NRE in the energy mix to 24.8% by 2030. However, there is also an additional 19.5 GW of fossil fuel-based power plants planned, of which 13.8 GW would come from coal.



- Indonesia's coal industry experienced a surge in exports in 2021, which created a shortage in meeting domestic coal demand. Although Indonesia was one of the signatories of the Global Coal to Clean Power Transition declaration at the 26th Conference of the Parties (COP 26), it omits a crucial part of the declaration: on ending the issuance of new permits and construction of unabated coal-fired power plants.
- Indonesia's net-zero commitments and other announcements at COP 26 emphasized the need to significantly develop renewable energy in Indonesia. However, the latest nationally determined contribution (NDC) target still remains at 23% NRE by 2025, and the new RUPTL includes only a modest increase of renewable energy generation after 2030 for its most ambitious scenario, despite the intentions to phase out coal.

Macroeconomic Overview

Indonesia's economy is slowly recovering after the second wave of COVID-19 hit the country in June 2021—it put the economy on pause and forced the country to tighten travel and business activities (Siregar, 2021). However, in response, the government ramped up the vaccination program in the following months. In November 2021, the Minister of Health announced that 194 million shots had been given, covering 51% of the population with a first vaccine dose and 35% of the population with a second dose (“Menkes,” 2021). This has improved the macroeconomic indicators forecast for the year ahead, and they are now expected to return to pre-pandemic levels in 2022 (see Table 1).

The macroeconomic report from the State Budget projects that the country's overall economy made a comeback in 2021, although overall state revenue is still below its pre-pandemic level. In 2019, Indonesia's state revenue was IDR 1,961 trillion (Republic of Indonesia, 2020), while in 2021 the state revenue has been predicted to end at IDR 1,736 trillion (Republic of Indonesia, 2021). The government's recovery plan projects that the budget deficit gap will return to its pre-pandemic level in 2023–2024, meaning that the country will likely need to maintain its emergency policy—which focuses on fiscal support for basic needs like education, health care, and key infrastructure projects, as well as incentives to revive the economy—for at least the next 2 years. Table 2 includes the expected budget for COVID-19 recovery programs as well as actual expenditures until November 19, 2021.

**Table 1.** Indonesia macroeconomic indicators

Indicator	2017	2018	2019	2020	2021 Outlook ¹	2022
Growth (% , year-on-year)	5.1	5.2	5.0	(2.1)	3.7–4.5	5.0–5.5
Inflation (%)	3.6	3.1	2.7	1.7	1.8–2.5	3.0
Interest rate 3 years (%)	5.0	5.0	5.6	3.19	-	-
Interest rate 10 years (%)					6.34–7.24	6.82
Currency exchange (IDR/ USD)	13,384	14,247	14,146	14,577	14,200–14,600	14,350
Indonesian crude oil price (USD/barrel)	51	67	62	40	55–65	63
Crude oil production (thousand barrels per day)	804	778	746	707	680–705	703
Natural gas production (thousand barrels of oil equivalent per day)	1,142	1,145	1,057	983	987–1,007	1,036
Budget deficit	(2.51)	(1.81)	(2.20)	(6.14)	(5.82)	(4.85)

Source: Republic of Indonesia, 2021.

Table 2. Recovery budget and actual expenditures for main sectors (in IDR trillion)

National Economic Recovery Program Budget Posts	2020		2021	
	Budget	Expenditure*	Budget	Expenditure*
Health	99.5	62.7	215	135.5
Social protection	230.2	216.6	186.6	140.5
Priority [development] program	67.9	65.2	117.9	75.4
Small and medium-sized business support and corporate financing (including support to energy state-owned enterprises in 2020, but not in 2021)	177	173	162.4	81.8
Business and tax incentives	120.6	58.4	62.8	62.5

Note: *Spending recapitulation to November 19, 2021.

Source: Anwar, 2021; Elena, 2021; Government of Indonesia, 2021a; Ministry of Finance, 2021a, 2021b; Prakoso, 2021; Putri, 2021; Republic of Indonesia, 2020.

¹ Outlook 2021 is the projection of State Budget 2021 final position reported by Ministry of Finance (Ministry of Finance, 2021b).



Historically, energy subsidies have been a major component of Indonesia's direct fiscal support policy, mainly to lower retail prices. LPG and electricity subsidies have emerged as the dominant element in Indonesia's energy subsidy policy, and, after a decrease in 2020 due to lower consumption, the amount of subsidies is expected to increase in 2021 and in 2022. The overall energy subsidy projected for 2022 is IDR 134 trillion, an increase of IDR 128.5 trillion from the projected energy subsidy in 2021 (see Table 3). The following subsections discuss the reasons for these trends.

Table 3. Indonesian energy subsidies (in IDR trillion)

Indicators	2018	2019	2020	2021 Outlook	2022 State Budget
Diesel and kerosene	38.87	30.05	15.2 ²	17	11.3
LPG 3 kg	58.14	54.15	40.23	49.9	66.3
Electricity	56.5	52.67	61.10/ 60.26*	61.5*	56.5

Note: *Including electricity discounts as a response to the COVID-19 pandemic.

Source: Government of Indonesia, 2019, 2020, 2021.

The budget allocation for fuel subsidy, which is dominated by diesel, has fallen from IDR 17 trillion in 2021 to IDR 11.3 trillion. However, the reason for this decline is unclear. The fiscal indicators that are used in the formulation of the subsidy amount, such as exchange rate, volume, and international crude price, do not indicate such a steep subsidy drop. There are also no major program or subsidy system changes on diesel products in the state budget explanation. The drop in 2020 was due to a slump in diesel sales following the government-imposed restriction of mobility. In 2020, fuel consumption in major cities dropped 50%, while overall national consumption dropped 25% (Setiawan, 2021). The LPG subsidy continued to increase after a slight drop in consumption caused by the COVID-19 pandemic in 2020 and 2021. The electricity subsidy dropped slightly, mainly because of the discontinuation of the government discount electricity tariff that was given in 2020 and 2021. Further details on individual subsidy status are provided in the following sections.

Fuel Subsidy

The allocated subsidy for diesel and kerosene for 2022 is lower than 2021. Diesel subsidy is the main component, historically comprising around 90% of total value of diesel and kerosene subsidy combined. It is closely associated with the energy consumption of commercial vehicles and logistics activities. The kerosene subsidy is historically stable and associated with rural household energy consumption.

² Fixed subsidy for diesel in Indonesia started at IDR 500/l in 2017, then IDR 2,000/l in 2018–2019, IDR 1,000/l in 2020, and, since 2021, IDR 500/l.



The 2022 diesel subsidy remains similar to 2021, at IDR 500/l. Official government estimates of the total amount for diesel subsidy, however, are expected to be much smaller in 2022. A slightly lower projection in consumption (from 15.8 million kl of subsidized diesel in 2021 to 15.1 million kl in 2022 (“Kuota Solar,” 2021) does not provide a sufficient base for this subsidy decline. The decline may be due to the adjustment on the carryover of unpaid subsidy reimbursement from previous years to PT Pertamina (Republic of Indonesia, 2021b), although this prediction cannot be verified in the most recent State Budget or State Budget Audit Report.

The latest audit report of State Budget 2020 records a debt from the government to PT Pertamina for the sales of subsidized fuel from 2018 to 2020 (Republic of Indonesia, 2021a). This budget item, which is normally settled by gradual transfer from the government to PT Pertamina, affects the total amount of the fuel subsidy in the subsequent fiscal year. The government can choose the timing and amount of transfer of this debt, including to delay the payment. This could have contributed to the decline in the diesel subsidy in 2022.

Apart from the officially recognized subsidized fuel products (diesel and kerosene subsidies), the regime of support to PT Pertamina’s brand-name gasoline products, Premium (RON 88) and Pertalite (RON 90), remains unchanged. Both products are officially not subsidized fuel, although the State Budget Audit Report records a compensation transfer from the government to PT Pertamina for the distribution of Premium.

LPG Subsidy

The LPG subsidy has emerged as the biggest component in Indonesia’s energy subsidy regime, together with the electricity subsidy.

As seen in Table 3, the LPG subsidy has been steadily increasing, a consistent trend since its introduction in 2007. The COVID-19 crisis reduced LPG consumption, which consequently affected the subsidy value in 2020 and 2021. However, it is projected to reach a new peak in 2022, reaching IDR 66.3 trillion in value. LPG demand continues to increase, from 7.5 tonnes in 2021 to 8.0 tonnes in 2022. The sharp increase is reinforced by LPG’s projected higher market price, currency exchange, and a rise in consumption, as well as an additional payment for the late transfer from previous years.

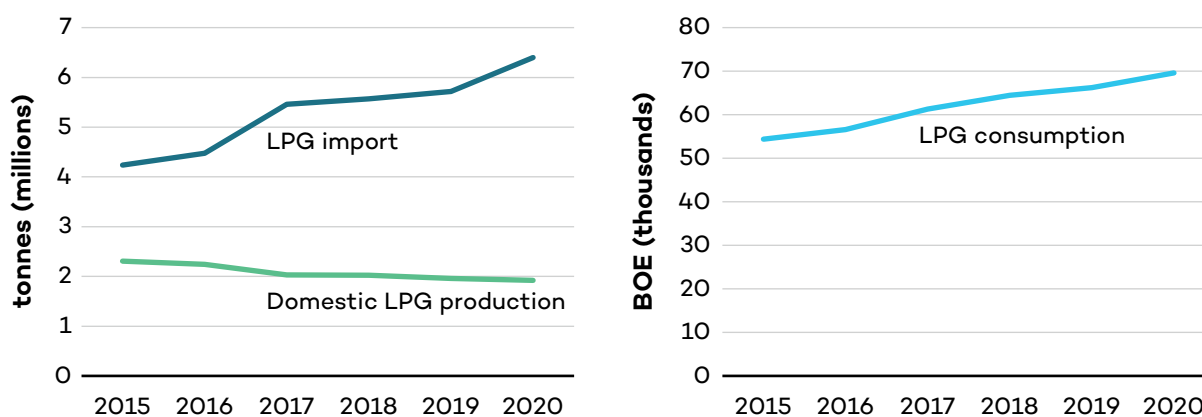
Apart from improvements in the distribution mechanism, the government plan also reveals a set of replacement alternatives for subsidized LPG to offset the growing dependence on LPG imports to meet domestic demand (see Figure 1).

The list of key alternatives to LPG includes coal-based dimethyl ether (DME), the City Gas program for households, apartments, hotels, and shopping malls (Pertagas Niaga, n.a.), and the use of electric stoves. In a parliamentary hearing with the Energy Commission, Nicke Widyawati, the CEO of PT Pertamina, explained that by 2030 the LPG market will be shared among DME (45%), domestic LPG (30%), city gas (15%), and conversion from gas to electric stoves (10%) (CNBC Indonesia, 2021). These alternatives will have to be significantly developed before it will be possible to reduce the share of LPG, but the adjustment of the subsidized LPG price is expected to ease their development. The DME and the City Gas



programs are currently not competitive with the current subsidized LPG price level. However, these alternatives might result in very negative climate impacts, as DME is based on coal, electricity in Indonesia is mostly sourced from coal, and natural gas has been shown to have serious climate effects (Endarwati, 2021; Umah, 2020). Policy consistency will be critical in reforming the composition of the LPG market as envisioned by PT Pertamina in 2030.

Figure 1. Indonesia LPG production and consumption



Note: BOE is barrel of oil equivalent.

Source: Ministry of Energy and Mineral Resources, 2021.

Power Sector

Following the president's order during a closed meeting with Ministry of Energy and Mineral Resources (ESDM) officials, PLN will no longer build new coal power plants, apart from those that are currently in the process of financial closing or construction. Currently, there are still plants amounting to 6 GW under the 35 GW program that have not reached financial closing but have signed power purchase agreements (PPAs) with PLN, and the decision has been made to cancel these projects. Going forward, PLN plans to gradually retire coal power plants starting in 2030, in accordance with the end of the PPAs and age of the power plants.

In response to this order, PLN released the RUPTL 2021–2030, which it claims is the greenest RUPTL to date. This version of the RUPTL will also be used as the foundation for PLN's net-zero by 2060 goal. Compared to the previous version (RUPTL 2019–2028), the latest revision includes some changes to account for demand uncertainties post-COVID-19 and uses lower projections for electricity growth. The moderate scenario used $\pm 5\%$ of economic growth and a 3-year delay in electricity sales growth compared to the previous version. This latest revision also includes lower additional generation capacity of 40.6 GW (15.4 GW lower compared to the 2019–2028 version) as well as lower additional planned transmission, distribution, and customer growth (PLN, 2021).

The RUPTL uses two energy-mix scenarios: an optimal scenario and a low-carbon scenario. The optimal scenario adopts the least-cost principle, while the low-carbon scenario incorporates more renewables into the grid. Under the low-carbon scenario, out of the planned 40.6 GW of additional generation capacity up to 2030, 51.6% (20.9 GW) comes



from new and renewable energy (NRE), bringing the total share of NRE in the capacity mix to 24.8% by 2030. However, there is also a planned 19.5 GW of additional fossil fuel-based power plants, in which 13.8 GW would come from coal. Therefore, even under the low-carbon scenario, coal's total share in the electricity mix would still be 59.4% by 2030. This number is even higher in the optimal scenario, where the planned share of coal in the energy mix reaches 64%. These numbers are actually an increase compared to the RUPTL 2019–2028 version—54.6%. Table 4 shows the planned percentage for each energy type up to 2030 (PLN, 2021).

Table 4. RUPTL's 2021 capacity planned percentage increase by energy source

Fuel Mix	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Hydro	5.81	5.59	5.54	5.85	7.99	8.56	8.61	9.04	9.49	9.55
Geothermal	5.84	5.77	5.88	5.86	7.35	7.36	7.67	7.78	7.97	8.20
Other REs	0.95	1.48	2.00	2.69	7.66	6.98	6.36	6.04	5.96	6.15
Gas	16.58	18.01	18.10	17.37	15.64	14.85	14.89	15.74	15.54	15.44
Oil	3.52	3.04	1.52	0.51	0.41	0.41	0.41	0.41	0.40	0.40
Coal	66.98	66.12	66.95	67.71	60.95	61.70	61.58	60.34	59.83	59.37
Other RE potentials	0	0	0	0	0	0.16	0.47	0.66	0.81	0.89
Import	0.33	0	0	0	0	0	0	0	0	0
Total	100	100	100	100	100	100	100	100	100	100

Source: PLN, 2021.

PLN's main strategy to achieve the 23% NRE mix by 2025 includes the following steps:

- Accelerate the permit, exploration, and land-acquisition process for 1.4 GW of geothermal projects and 4.2 GW of large and mini hydro projects.
- Convert 588 MW of diesel power plants into 1.2 GW peak solar power plants with storage.
- Develop 4.7 GW of solar power plants and 0.6 GW of wind power plants.
- Implement biomass co-firing with coal power plants up to the equivalent capacity of 2.7 GW for 32 existing coal power plants.
- Retire 1.1 GW of sub-critical coal power plants and replace 1 GW of planned baseload coal power plants with NRE power plants after 2025.

Although PLN's plan to go greener is commendable, it is still facing the risk of being stuck with excess capacity from coal-fired power plants due to overbuilding in previous decades. A recent Institute for Energy Economics and Financial Analysis report (Hamdi & Adhiguna, 2021) mentioned a risk of 50%–60% reserve margin in PLN's main grids, which implies an overcapacity of 20%–30%. The discrepancy between overoptimistic demand growth



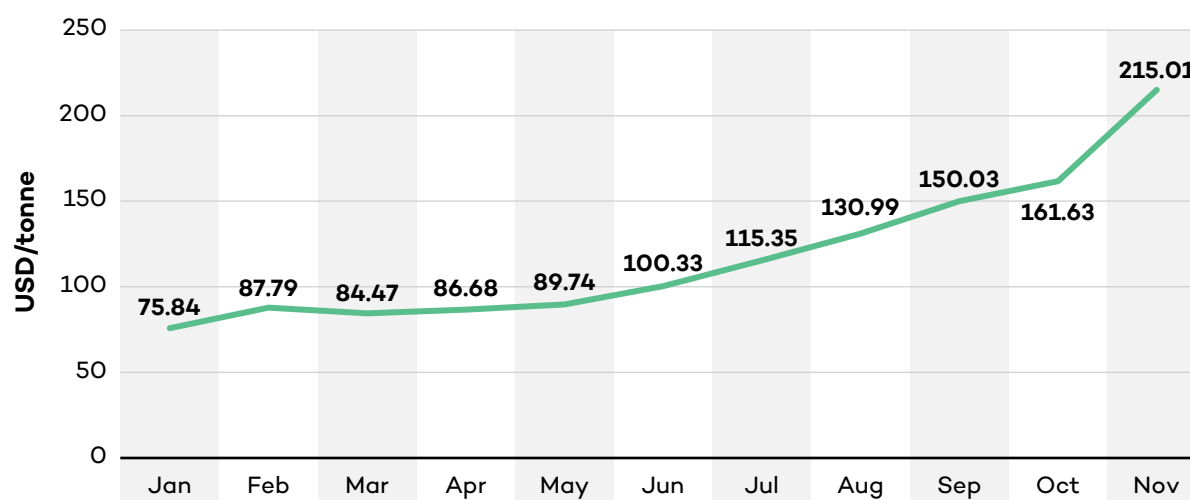
forecasts and realized power consumption, all regulated under a very rigid PPA, resulted in a growing amount of unused electricity that PLN will have to pay for regardless. This situation results in mounting debt and independent power producers (IPPs) lease liabilities for PLN and shrinks the space for renewable energy deployment to grow. This worsening oversupply will primarily happen in PLN's two largest grids, namely Java–Bali and Sumatera (Hamdi & Adhiguna, 2021).

Following the government's decision to reduce PLN's subsidy by 8.13% in 2022 (from IDR 61.53 trillion to IDR 56.5 trillion) (Saputra, 2021), during a meeting between the ESDM and the Budget Agency from the House of Representatives (Banggar DPR), the Director General for Electricity, Rida Mulyana, stated that the government is currently considering implementing a tariff adjustment for 13 groups of non-subsidized PLN customers starting in 2022. The last time PLN made a tariff adjustment was in 2017. Rida stated that this tariff adjustment is long overdue and will have a large impact on the amount of government compensation for PLN (Asmarini, 2021). This tariff adjustment scheme will also become more likely following the soaring price of coal, which is the main fuel source for most of PLN's power plants.

Coal Sector

2021 has been an unusual year for coal, both globally and in Indonesia. According to BPS (Indonesia's Central Bureau of Statistics) Indonesia's coal exports increased by 168.39% year on year, with a 9% increase month to month. Exports to China and India accounted for most of this increase ("Ekspor Batu Bara," 2021). Also, coal prices soared. As can be seen in Figure 2, international coal prices have been increasing steadily since the beginning of 2021. This has caused many coal producers to export their production at the higher international price instead of fulfilling the domestic market obligation (DMO) of 25% production at USD 70/ton. PLN stated that up to October 2021, only 41.77 million tonnes had been achieved out of the total DMO quota of 66.06 million tonnes (Umah, 2021a).

Figure 2. Evolution of coal's international reference price, in USD/tonnes in 2021



Source: Authors' elaboration with data from DitJen Minerba, 2021.



To address the concern regarding the domestic coal shortage, the government responded by releasing KepMen ESDM No 139 K/HK.02/MEM.B/2021 in August 2021 to tighten regulations on the obligation to meet the DMO quota. This regulation imposes sanctions in the form of export bans and fines for coal producers that do not meet the DMO provisions. (Meilanova, 2021). As a result of this new regulation, 34 coal companies were banned from exporting their production as a sanction for not meeting their DMO allocation (Setiawan, 2021).

Concerns regarding domestic coal shortage peaked in late 2021, resulting in an export ban that was supposed to be applied throughout January 2022 (from January 1 to January 31, 2022). This decision was made after the Directorate General of Mineral and Coal (Minerba) said that out of 5.1 million tonnes of coal assigned for PLN supply, only 35,000 tonnes (less than 1%) was fulfilled. Should the situation continue, it could lead to more than 10 million customers experiencing electricity blackouts. However, after a huge backlash, including from the national Chamber of Commerce (Kadin) and other countries, such as Japan, South Korea, and the Philippines, the export ban was lifted on January 12, 2022, after only 11 days in place (Idris, 2022).

On the same day the export ban was lifted, the Coordinating Minister for Maritime and Investment, Luhut Binsar Pandjaitan, also announced that the government is currently discussing a new scheme for PLN to purchase coal for their power plants, in which PLN will be required to purchase it using the market price, no longer using the DMO price of USD 70 per tonne. In order to stabilize electricity tariff and PLN's finances, the plan is to create a Public Service Agency (Badan Layanan Umum/BLU). PLN will also be required to adopt a cost, insurance, and freight scheme when purchasing coal instead of the previous free on board scheme (Uly, 2022a).

Despite the country's high reliance on coal, during the COP 26 Conference in Glasgow, Indonesia was one of the signatories of the Global Coal to Clean Power Transition declaration, which committed signatory parties to accelerating the transition away from unabated coal power generation (UN Climate Change Conference, 2021). However, Indonesia chose to omit the third point of the demand, which is to end the issuance of new permits and construction of unabated coal-fired power plants. On the same occasion, the Minister of Energy and Mineral Resources, Arifin Tasrif, stated that in order to accommodate the transition toward net-zero emissions, the ministry has considered a plan to speed up the retirement of coal power plants (Ministry of Energy and Mineral Resources, 2021). According to the estimate, in order to achieve early retirement of 9.3 GW of coal-fired power plants before 2030—a much more ambitious plan compared to the RUPTL of starting retirement by 2030—Indonesia would need USD 48 billion in funding support (Jong, 2021).

At the same event, the Asian Development Bank (ADB) together with the Government of Indonesia and the Government of the Philippines announced the launch of a new partnership to establish an Energy Transition Mechanism (ETM), which aims to accelerate the clean energy transition. The ETM is a blended-finance approach that aims to retire existing coal-fired power plants and replace them with clean power capacity. In the first 2–3-year pilot phase, the ETM will raise financial resources to accelerate the retirement of five to seven coal plants in Indonesia and the Philippines, ultimately aiming to retire 50% of the aggregated coal



fleet in Indonesia, the Philippines, and Vietnam—approximately 30 GW—over the next 10 to 15 years (ADB, 2021). ADB claimed to have secured USD 25 million from Japan for its ETM.

Recently, Indonesia announced a new regulation that introduces a carbon tax at a minimum rate of IDR 30 (USD 0.0021) per kg of CO₂e, which is less than half the originally proposed rate of IDR 70. It will be imposed on coal-fired power plants starting April 2022 at the floor rate, while a carbon trading mechanism is being established. A carbon market is expected to be in operation by 2025 (Ungku & Christina, 2021). The carbon tax implementation would eventually reach all sectors of the economy in a bid to reduce national greenhouse gas emissions. The next plan is to finalize a presidential decree on the economic value of carbon and develop a carbon exchange technical mechanism. The carbon tax is part of Indonesia's effort to reform its national tax codes under the 2021 Bill about Tax Code Harmonization ("Indonesia to Impose," 2021).

Although the announcement of the carbon tax was generally welcomed, it has already faced resistance from the coal industry. The Indonesia Coal Miners Association requested a postponement of its implementation for further discussions. PLN has also expressed concern regarding rising power prices, which will translate to either higher electricity costs for customers or increasing subsidies and compensation from the government (Ungku & Christina, 2021).

Renewables Sector

In a recent presentation given in January 2022 regarding the performance of the renewable energy sector in 2021, the Director General of New, Renewable Energy and Energy Conservation stated that investment realization for the sector throughout 2021 reached only USD 1.51 billion, or 74% of the targeted USD 2.04 billion. The largest amount of investment goes to geothermal (USD 680 million), followed by various renewables (USD 480 million), bioenergy (USD 340 million), and energy conservation (USD 10 million). The ministry is targeting USD 3.91 billion in investment for 2022, with a specific target of USD 950 million for geothermal, USD 2.79 billion for various renewables, USD 160 million for bioenergy, and USD for energy conservation (Guitarra, 2022).

The ministry also announced during the same presentation that the realization of renewable energy target in the energy mix was 11.5% in 2021, far below the 14.5% target stated in the National Energy General Plan. This also means that there was only a 0.3% increase from the 11.2% share in 2020. The ministry cited project delays due to the COVID-19 pandemic as the main reason for the low growth (Uly, 2022b).

Indonesia's net-zero commitments and other announcements at COP 26 signalled the need to strongly develop renewable energy in Indonesia. However, the latest NDC target still remains at 23% NRE by 2025, and the new RUPTL included only a modest increase in renewable energy generation after 2030, despite the intentions to phase out coal (see this brief's section on the power sector). Table 5 illustrates the RUPTL's planned increase of renewable energy generation by source. It shows that there is a plan for only a 1.8% increase of NRE share in the mix between 2025 to 2030, a much lower increase compared to the 8% planned between 2021 to 2025. There is a plan for 10.6 GW up to 2025 alone, mostly



from solar and large hydro (see Table 5). The planned amount decreases quite significantly afterwards, which seems like a lost opportunity since the cost of building renewables seems set to decrease in the future.

Table 5. New renewable energy capacity additions in RUPTL 2021

Type	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Geothermal	136	108	190	141	870	290	123	450	240	808	3,355
Large Hydro	400	53	132	87	2,478	327	456	1,611	1,778	1,950	9,272
Mini/ Microhydro	144	154	277	289	189	43	-	2	13	6	1,118
Solar	60	287	1,308	624	1,631	127	148	165	172	157	4,680
Wind	-	2	33	337	155	70	-	-	-	-	597
Biomass / Waste	12	43	88	191	221	20	-	15	-	-	590
Base NRE	-	-	-	-	-	100	265	215	280	150	1,010
Peaker NRE	-	-	-	-	-	-	-	-	-	300	300
Total	752	648	2,028	1,670	5,544	978	991	2,458	2,484	3,371	20,923

Source: Author's table, using information from PLN, 2021.

From an implementation perspective, the construction of the 145 MW Cirata floating solar plant, which will be Indonesia's first floating solar plant—as well as the largest in Southeast Asia—has started and is scheduled for completion in the fourth quarter of 2022. The plant is a joint venture between the Abu Dhabi-based renewable energy group Masdar and the Indonesian energy company PT PJB, a subsidiary of PLN. The floating plant, located at the Cirata reservoir in West Java, signed a PPA with PLN in January 2020 at an agreed tariff of USD 0.0581/kWh (Bellini, 2021). The project secured financing from Sumitomo Mitsui Banking Corporation, Societe Generale, and Standard Chartered Bank. Once complete, the solar plant is expected to offset 214,000 tonnes of carbon emissions (Power Technology, 2021). Another large solar project in the pipeline is the memorandum signed by Singaporean solar developer Sunseap in July 2021 for the construction of a 2.2 GW PV floating project on the island of Batam (Bellini, 2021).

There have also been developments in the regulations concerning rooftop solar. The ESDM announced a revision to PerMen ESDM No 49/2018 in the form of PerMen ESDM No 26/2021. This new revision favoured rooftop solar installation net metering policy by changing the previous 65% electricity export through net-metering limitation to 100%. The ministry acknowledged the 65% cap was previously one of the main reasons why rooftop solar was viewed as unattractive by customers. The regulation also shortens the permit application time as well as allowing rooftop solar installers to eventually conduct carbon trading (Umah, 2021c). These new revisions are meant as incentivizes for the installation of rooftop solar, due



to the very low uptake in the past 3.5 years (only 35 MW of the 3.6 GW target by 2025). The Directorate General of Electricity said that if the 3.6 GW target is achieved, the government can save up to IDR 230 billion/year (USD 15.75–USD 16.20 million per year, based on the 2021 exchange rate) in the form of electricity subsidy (Uly, 2021).

Indonesia's NDC and Climate Ambition

Indonesia submitted its updated NDC, a non-binding climate action plan to achieve the goals of the Paris Agreement, to the United Nations Framework Convention on Climate Change (UNFCCC) on July 22, 2021. Unfortunately, the update did not include a more ambitious target than the previous submission. In fact, it is only a reiteration of Indonesia's 2016 emissions reduction pledge of 29% independently or 41% with international assistance by 2030 (UNFCCC, 2021).

Along with the updated NDC, The Ministry of Environment and Forestry/Kementerian Lingkungan Hidup dan Kehutanan (KLHK) also formally submitted the Long-term Strategy on Low Carbon and Climate Resilience 2050 (LTS-LCCR 2050). However, the proposed net-zero emissions (NZE) target of 2060 neither revises the NDC nor mentions coal phase-out. The most ambitious scenario under LTS-LCCR 2050 relies mostly on renewables (43%), but by 2050 coal is still projected to be the second primary fuel, with a 38% share (relying mostly on carbon capture and storage), followed by natural gas (10%) and biomass energy with carbon capture and storage with (with 8%) (Government of Indonesia, 2021c).

Although the LTS-LCCR 2050 should technically serve a central role in aligning climate goals and targets with national, subnational, and international objectives, several other ministries in Indonesia have come up with different proposals on how to make progress toward the Paris Agreement goals. In June 2021, the ESDM together with PLN also announced their NZE target focusing on the electricity sector, while the Ministry of National Development Planning (BAPPENAS) is currently working on a third NZE scenario. The proposals, however, are inconsistent with each other.

The net-zero plan for the energy sector developed by ESDM together with the PLN titled Intelligent Strategies Power and Utility Sector to Achieve Indonesia's Carbon Neutral by 2050 is more ambitious than the LTS-LCCR 2050, with the most ambitious pathway aimed at 2045 and 2050 and 2060 as alternative target years. The strategy plans to start the coal phase-out in 2026 and for renewable energy to reach one third of the energy mix by 2040. There is also no mention of decarbonizing the transport sector in ESDM's net-zero plan, unlike KLHK's LTS-LCCR 2050 plan, which includes the electrification of the transport sector. It is still unclear whether this will be the final version of the scenario since discussions seem to be ongoing (Kumparan, 2021).

In addition, BAPPENAS is currently working on a third separate NZE scenario across different economic sectors, including the power subsector. BAPPENAS' plan anticipates the early forced retirement of coal power plants and envisions that NZE will result in a dramatic decrease of final energy intensity to 0.3 in 2060 and increased GDP growth of 4.4%, higher than the business-as-usual scenario in the same year. BAPPENAS also suggests that the faster Indonesia reaches its NZE target, the higher the GDP growth (Foreign Policy Community



of Indonesia, 2021). This is the opposite of KLHK's LTS-LCCR 2050, which considers that the most ambitious pathway will result in the lowest GDP growth. Indonesia's Minister of Finance, Sri Mulyani, made a statement during COP 26 that Indonesia's ambition to reach net-zero carbon emissions by 2060 or earlier will imply various financial costs and that the Ministry of Finance's main focus at the moment is to calculate these costs. She was clear that these financial consequences must be discussed explicitly, and it would be impossible for Indonesia to bear all the costs on its own—therefore, achieving net-zero by 2060 or sooner would only be possible with international funding (Sembiring, 2021).

References

- Anwar, M. C. (2021). *Ini Daftar BUMN dan Lembaga yang Dapat Suntikan Modal Negara*. <https://money.kompas.com/read/2021/11/09/210854626/ini-daftar-bumn-dan-lembaga-yang-dapat-suntikan-modal-negara?page=all>
- Asian Development Bank. (2021, November 3). *ADB, Indonesia, the Philippines launch partnership to set up energy transition mechanism*. <https://www.adb.org/news/adb-indonesia-philippines-launch-partnership-set-energy-transition-mechanism>
- Asmarini, W. (2021). *Covid RI Membaik, Siap-Siap Tarif Listrik 2022 Naik!* CNBC Indonesia. <https://www.cnbcindonesia.com/news/20211214082904-4-299002/covid-ri-membaik-siap-siap-tarif-listrik-2022-naik>
- Bellini, E. (2021). *Work begins on 145 MW floating solar plant in Indonesia*. *Pv Magazine International*. <https://www.pv-magazine.com/2021/08/05/work-begins-on-145-mw-floating-solar-plant-in-indonesia/>
- CNBC Indonesia. (2021, November 15). *Kuota Solar Subsidi Turun, Penggunaan Dextrite Ditingkatkan*. <https://www.cnbcindonesia.com/news/20211115100205-8-291472/kuota-solar-subsidi-turun-penggunaan-dextrite-ditingkatkan>
- Ditjen Minerba. (2021). *Harga Acuan—Ditjen Minerba*. https://www.minerba.esdm.go.id/harga_acuan
- Ekspor Batu Bara Naik 168 Persen saat China Krisis Listrik*. (2021). CNN Indonesia. <https://www.cnnindonesia.com/ekonomi/20211015124303-85-708250/ekspor-batu-bara-naik-168-persen-saat-china-krisis-listrik>
- Elena, M. (2021). *Realisasi Program PEN Tembus Rp495,77 Triliun per 19 November 2021*. *Bisnis.com*. <https://ekonomi.bisnis.com/read/20211125/9/1470481/realisasi-program-pen-tembus-rp49577-triliun-per-19-november-2021>
- Endarwati, O. (2021). *61 Persen Sumber Listrik RI Berasal dari Pembangkit Batu Bara*. *IDX Channel*. <https://www.idxchannel.com/economics/61-persen-sumber-listrik-ri-berasal-dari-pembangkit-batu-bara>
- Foreign Policy Community of Indonesia. (2021). *Indonesia Net Zero Summit 2021*. <https://www.fpcindonesia.org/2021/04/19/indonesia-net-zero-summit-2021/>
- Government of Indonesia. (2019). *State budget 2018 audit report*. Government of Indonesia.



- Government of Indonesia. (2020). *State budget 2019 audit report*. Government of Indonesia.
- Government of Indonesia. (2021a). *State budget 2020 audit report*. Government of Indonesia.
- Government of Indonesia. (2021b). *Fiscal note and state budget 2022*. Government of Indonesia.
- Government of Indonesia. (2021c). *Indonesia long-term strategy for low carbon and climate resilience 2050*.
- Guitarra, P. (2022). *Pak Jokowi! Investasi Energi Terbarukan Tak Capai Target Nih*. CNBC Indonesia. <https://www.cnbcindonesia.com/news/20220117122920-4-307921/pak-jokowi-investasi-energi-terbarukan-tak-capai-target-nih>
- Hamdi, E., & Adhiguna, P. (2021, November 18). *IEEFA: Indonesia's excess coal power capacity and PLN's debt burden are blocking their decarbonization pathway*. Institute for Energy Economics & Financial Analysis. <http://ieefa.org/ieefa-indonesias-excess-coal-power-capacity-and-plns-debt-burden-are-blocking-their-decarbonization-pathway/>
- Idris, M. (2022, January 13). *Diralat Jokowi, Larangan Ekspor Batu Bara Cuma Berumur 11 Hari Halaman all*. Kompas. <https://money.kompas.com/read/2022/01/13/104749426/diralat-jokowi-larangan-ekspor-batu-bara-cuma-berumur-11-hari>
- Indonesia to impose carbon tax in April 2022, starting with coal power plants. (2021). *Jakarta Globe*. <https://jakartaglobe.id/business/indonesia-to-impose-carbon-tax-in-april-2022-starting-with-coal-power-plants>
- Jong, H. N. (2021, November 10). *COP26 cop-out? Indonesia's clean energy pledge keeps coal front and center*. Mongabay Environmental News. <https://news.mongabay.com/2021/11/cop26-cop-out-indonesias-clean-energy-pledge-keeps-coal-front-and-center/>
- Kumparan. (2021). *Indonesia Bakal Pensiunkan PLTU pada 2058, Bagaimana Nasib Asetnya?* <https://kumparan.com/kumparanbisnis/indonesia-bakal-pensiunkan-pltu-pada-2058-bagaimana-nasib-asetnya-1vsT94gpa0w>
- Kuota Solar Subsidi Turun, Penggunaan Dexlite Ditingkatkan* [Video]. (2021). <https://www.cnbcindonesia.com/news/20211115100205-8-291472/kuota-solar-subsidi-turun-penggunaan-dexlite-ditingkatkan>
- Meilanova, D. R. (2021, August 5). *Aturan DMO Batu Bara Diperketat, Ada Sanksi Larangan Ekspor Hingga Denda*. Bisnis.com. <https://ekonomi.bisnis.com/read/20210805/44/1426323/aturan-dmo-batu-bara-diperketat-ada-sanksi-larangan-ekspor-hingga-denda>
- Menkes: Stok Vaksin Indonesia Tersisa 47 Juta Dosis*. (2021). Republika.co. <https://www.republika.co.id/berita/r1vt0v370/menkes-stok-vaksin-indonesia-tersisa-47-juta-dosis>
- Ministry of Energy and Mineral Resources. (2021). *Bangun Kolaborasi Transisi Energi di Kancah Internasional, Indonesia Cetuskan Program FIRE*. <https://www.esdm.go.id/id/media-center/arsip-berita/bangun-kolaborasi-transisi-energi-di-kancah-internasional-indonesia-cetuskan-program-fire->
- Ministry of Finance. (2021a). *Informasi APBN 2021: Percepatan Pemulihan Ekonomi dan Penguatan Reformasi*.



- Ministry of Finance. (2021b). *Kementerian Keuangan Republik Indonesia*. https://www.kemenkeu.go.id/media/17034/sp-02_2021-pemerintah-realisasikan-dukungan-pmn-dan-investasi-pada-tahun-2020.pdf
- Pertagas Niaga. (n.a.). *City gas*. http://pertagasniaga.pertamina.com/city_gas
- PLN. (2021). RUPTL PLN 2021-2030. <https://web.pln.co.id/statics/uploads/2021/10/ruptl-2021-2030.pdf>
- Power Technology. (2021). *PMSE secures financing for Cirata floating solar plant in Indonesia*. <https://www.power-technology.com/news/pmse-cirata-floating-solar/>
- Prakoso, J. P. (2021). *Pemerintah Suntik Dana Segar Rp75,94 Triliun untuk BUMN di 2020. Ini Detail Alokasinya*. *Bisnis.com*. <https://ekonomi.bisnis.com/read/20210108/9/1340434/pemerintah-suntik-dana-segar-rp7594-triliun-untuk-bumn-di-2020-ini-detail-alokasinya>
- Putri, C. A. (2021). *Negara Sudah Gelontorkan Rp 75 T ke Para BUMN di 2020*. *CNBC Indonesia*.
- Republic of Indonesia. (2020). *State budget 2019 audit report*.
- Republic of Indonesia. (2021a). *Laporan Keuangan Pemerintah Pusat Tahun 2020 (Audited)*.
- Republic of Indonesia. (2021b). *State budget 2022*.
- Saputra, D. (2021, December 5). *Pemerintah Berhitung Tarif Listrik PLN 2022 Naik, Ekonom UI: Kalau Jadi Saya Angkat Topi*. *Bisnis.com*. <https://ekonomi.bisnis.com/read/20211205/9/1474051/pemerintah-berhitung-tarif-listrik-pln-2022-naik-ekonom-ui-kalau-jadi-saya-angkat-topi>
- Sembiring, L. J. (2021). *PLTU Pensiun, Begini Deal-dealan Sri Mulyani Sama Negara Maju*. *CNBC Indonesia*. <https://www.cnbcindonesia.com/news/20211118135525-4-292539/pltu-pensiun-begini-deal-dealan-sri-mulyani-sama-negara-maju>
- Setiawan, V. N. (2021, August 9). *Tak Patuhi DMO, 34 Perusahaan Batu Bara Kena Sanksi Larangan Ekspor—Pertambangan*. <https://katadata.co.id/happyfajrian/berita/611113e58c083/tak-patuhi-dmo-34-perusahaan-batu-bara-kena-sanksi-larangan-ekspor>
- Siregar, K. (2021). *What might have caused the huge spike in Indonesia's COVID-19 cases post-Idul Fitri holiday*. *Channel News Asia*. <https://www.channelnewsasia.com/asia/what-might-have-caused-huge-spike-indonesias-covid-19-cases-post-idul-fitri-holiday-2028316>
- Uly, Y. A. (2021, August 30). *Aturan Baru PLTS Atap: Bisa Ekspor Listrik 100 Persen hingga Percepatan Waktu Pemasangan Halaman all*. *Kompas*. <https://money.kompas.com/read/2021/08/30/121731626/aturan-baru-plts-atap-bisa-ekspor-listrik-100-persen-hingga-percepatan-waktu>
- Uly, Y. A. (2022a). *Ini Kata Erick Thohir soal Rencana PLN Beli Batu Bara dengan Harga Pasar Halaman all*. *Kompas*. <https://money.kompas.com/read/2022/01/12/090135826/ini-kata-erick-thohir-soal-rencana-pln-beli-batu-bara-dengan-harga-pasar>



- Uly, Y. A. (2022b). *Realisasi Bauran Energi Terbarukan Tidak Capai Target*. Kompas. <https://money.kompas.com/read/2022/01/17/140213426/realisasi-bauran-energi-terbarukan-tidak-capai-target>
- Umah, A. (2020). *PLN Masih Ketergantungan Batu Bara, Ini Buktinya!* CNBC Indonesia. <https://www.cnbcindonesia.com/news/20201125115003-4-204493/pln-masih-ketergantungan-batu-bara-ini-buktinya>
- Umah, A. (2021a). *Ini Daftar Raksasa Batu Bara yang Tidak Memenuhi DMO PLTU*. CNBC Indonesia. <https://www.cnbcindonesia.com/news/20211115150554-4-291635/ini-daftar-raksasa-batu-bara-yang-tidak-memenuhi-dmo-pltu>
- Umah, A. (2021b). *Jokowi Haramkan Proyek PLTU Baru Masuk di RUPTL*. CNBC Indonesia. <https://www.cnbcindonesia.com/news/20210527185535-4-248863/jokowi-haramkan-proyek-pltu-baru-masuk-di-ruptl>
- Umah, A. (2021c). *Pemerintah Revisi Aturan PLTS Atap, Ini 7 Poin Pentingnya*. CNBC Indonesia. <https://www.cnbcindonesia.com/news/20210827125202-4-271734/pemerintah-revisi-aturan-plts-atap-ini-7-poin-pentingnya>
- Ungku, F., & Christina, B. (2021, October 8). *Indonesia's new carbon tax signals higher power costs amid calls for clarity*. Reuters. <https://www.reuters.com/world/asia-pacific/indonesias-new-carbon-tax-signals-higher-power-costs-amid-calls-clarity-2021-10-08/>
- United Nations Climate Change Conference. (2021, November 4). *Global Coal to Clean Power Transition Statement*. UN Climate Change Conference (COP26) at the SEC – Glasgow 2021. <https://ukcop26.org/global-coal-to-clean-power-transition-statement/>
- United Nations Framework Convention on Climate Change. (2021). *Indonesia*. <https://unfccc.int/node/61083>

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