From coal to solar: investment trends in Indonesia

This month ***TEI Times*** analyses Indonesia's net zero pledges, its still fossil-heavy power mix, the shifting macro and policy landscape shaping risk and return for investors, and highlights examples of where capital is already flowing.

Indonesia's energy transition story is one of big ambition, stubborn coal dependence, and fast-evolving investment opportunities.

Decarbonisation commitments

The country has found its net zero emissions commitments challenging, given the important role of the fossil fuel industry in its economy. It first set a carbon-neutrality target for 2060 or sooner in 2021 and has reiterated this goal several times since. One demonstration of a nation's commitment is through a Nationally Determined Contribution (NDC) submitted to the United Nations. Indonesia submitted its second NDC in 2025. The country expects emissions to peak in 2030, at lower levels than previously anticipated, and projects that they will then gradually decline

The "2060 or sooner" objective reflects a delicate balance between the government's climate ambitions and national realities, including poverty reduction, economic growth, and the role of fossil fuels, which account for a small share of GDP but remain an important source of export earnings and employment.

In the shorter term, the world's ninth-largest emitter is focused on setting sectoral pathways for energy, efficiency, and electrification. Energy efficiency, clean energy technologies in the electricity sector, and the electrification of transport are expected to provide around 80 per cent of emissions reductions from the energy sector to 2030, according to a 2022 International Energy Agency (IEA) report.

The country has found these pathways challenging, given its continued heavy dependence on coal, slow progress in the deployment of renewables, and the complexity of phasing down coal fired generation. These obstacles are well recognised at the highest level, and a variety of strategies are being considered to address them.

Energy mix

Indonesia's energy is heavily skewed to fossil fuels. It accounts for most of the country's energy supply. In its primary energy mix in 2024, coal accounted for 42.6 per cent, oil 28.6 per cent, natural gas 15.4 per cent, and clean energy including hydroelectricity and renewables was responsible for 13.4 per cent, according to data from the Energy Institute's 'Statistical Review of World Energy' (see chart).

The electric power generation mix had a similar fossil fuel reliance. Coal fired generation took up a 60.9 per cent share, natural gas generation had a share of 17.6 per cent, while hydro, renewables and other clean energies were responsible for 19.6 per cent. Some oil generation was still being used in 2024, but it amounted to less than 1.9 per cent of the total.

An earlier study by Ember, a think-tank, highlighted that the country's renewable energy capacity has been growing. Between 2018 and 2023, Indonesia commissioned about 3.3 GW of renewables, with the total reaching roughly 13 GW by 2023. The additions included mainly bioenergy (1.3 GW), hydro (1 GW), geothermal (0.5 GW), and solar power (0.5 GW). Based on planned capacity additions under PLN, the national utility company's 2025–2034 Electricity Supply Business Plan, about 69.5 GW of capacity will be constructed for an estimated $188 billion (including grid investments). Almost 53 GW or 76 per cent, will be renewable energy additions, highlighted PT Geni Buana Nusantara, an Indonesian engineering consultancy. Part of the plan is also to build 0.5 GW in nuclear power generation, a first for the country.

Investment environment

Three leading credit rating agencies rate Indonesia's credit as "lower medium grade", two notches above the non-investment grade level. For the foreign currency long-term rating, Moody's has maintained a Baa2-stable rating since 2018, S&P a BBB-stable rating since 2022, and Fitch a BBB-stable rating, reaffirmed in March 2025. Fitch has commented that its rating is based on expectations of solid medium-term growth and relatively low government debt compared to GDP. It adds that its rating is constrained by weak government revenue collection, low per-capita income, and governance standards below peers with the same rating.

Domestic interest rates have fallen as Bank Indonesia has eased policy, with the benchmark now at 4.75 per cent after cuts totalling 150 basis points since late 2024. The rupiah has stayed volatile, weakening from about IDR15 400 per US dollar at end-2023 to an average of IDR16 162 in 2024, and trading between IDR14 211 and IDR17 323 in 2025. Policy now focuses on keeping the exchange rate stable while holding inflation near the 2.5 per cent ±1 target.

Some energy transition investment risks highlighted by an OECD report in 2020 remain true today. Broader risks include foreign investors facing overlapping mandates among ministries, evolving carbon-pricing rules, as well as currency and macroeconomic risks typical for long-tenor infrastructure assets. There is also regulatory uncertainty, such as the pending renewable bill which has been in preparation for several years, a lack of tariff clarity, mandatory partner schemes, local content rules, deliver-or-pay obligations, and procurement complexity. All these factors raise project risk, according to an analysis by the Institute for Energy Economics and Financial Analysis (IEEFA).

Policies and incentives

Indonesia has established a comprehensive policy framework to accelerate renewable energy deployment and coal phase-out. Presidential Regulation 112/2022 forms the cornerstone. It sets technology-specific tariff ceilings and mandates PLN to prioritise renewables in its planning. The regulation also creates pathways for early coal retirement whilst establishing clear procurement mechanisms for renewable projects.

The tariff framework uses feed-in rates, benchmarks and auctions tailored to technologies and regions. Developers must navigate local content requirements and a mandatory partner scheme, though recent reforms will hopefully streamline these barriers. The Ministry of Energy and Mineral Resources and PLN jointly administer procurement processes, which now extend to small- and medium-scale projects alongside large grid-connected facilities.

Carbon pricing provides an additional driver. Law 7/2021 and Presidential Regulation 98/2021 created the Nilai Ekonomi Karbon framework. It enables emissions trading, carbon taxation and results-based payments. The power sector entered the national Emissions Trading System in 2023, with trading now operational. New rules are step-by-step setting up a national system to register and approve carbon units, which will allow projects to generate income by selling carbon credits.

Fiscal incentives sweeten the investment case. Renewable projects can access 30 per cent income tax reductions spread over six years, accelerated depreciation, VAT exemptions and import duty waivers on equipment. Large-scale projects may qualify for tax holidays. The Ministry of Finance and BKPM (the Investment Coordinating Board) oversee these schemes, which stack with tariff support to improve project returns.

Recent policy moves include the B40 biodiesel mandate launched in July 2025, requiring 40 per cent palm-oil blending nationwide. JETP-linked analyses continue mapping additional incentive mechanisms to mobilise private capital for renewables and accelerate coal retirement. Together, these measures create a multi-layered framework to drive Indonesia's energy transition.

Recent policy changes include the B40 biodiesel rule, fully in place from July 2025, which requires all diesel fuel to contain 40 per cent palm oil. Short analyses done under Indonesia's Just Energy Transition Partnership (JETP) are still identifying new incentives to attract private investment into renewables and to speed up the closure of coal plants. Together, these actions build several layers of support driving the country's energy transition.

Investors backdrop

Foreign investors are now deeply involved in Indonesia's energy transition, often alongside the state utility PLN. Masdar, the UAE clean-energy developer, co-owns the Cirata floating solar plant in West Java with PLN Nusantara Renewables; the 192 MWp project started operating in November 2023 and is Southeast Asia's largest floating PV plant, backed by a long-term power purchase agreement and international project finance lenders. Masdar and PLN have since signed agreements to expand Cirata by up to 500 MW and to develop another floating solar project, signalling a replicable joint-venture model for large-scale renewables.

Cross-border projects add another layer of activity. Indonesia and Singapore have signed a series of Memorandum of Understanding to enable utility-scale solar and battery projects in locations designed to export power to Singapore through undersea cables; these schemes typically use consortia of foreign utilities and developers, with joint-venture and project-finance structures. At the same time, PLN is partnering with a range of independent power producers across solar and wind, opening more space for equity co-investment rather than relying only on EPC-type contracts.

Multi-lateral development banks (MDBs) are shaping the pipeline. The Climate Investment Funds' Accelerating Coal Transition programme allocates about $500 million of concessional finance to Indonesia, aiming to leverage more than $3 billion of MDB and commercial co-financing for coal retirement, grid upgrades, and new renewables. The Asian Development Bank's $150 million loan to PT SMI under the SDG Indonesia One – Green Finance Facility is intended to be passed on as loans to at least ten green infrastructure projects, de-risking private capital in sectors such as solar and mini-hydro. Together, these direct investments, cross-border projects, and blended-finance platforms give a strong flavour of how international capital is starting to scale Indonesia's clean-energy transition.

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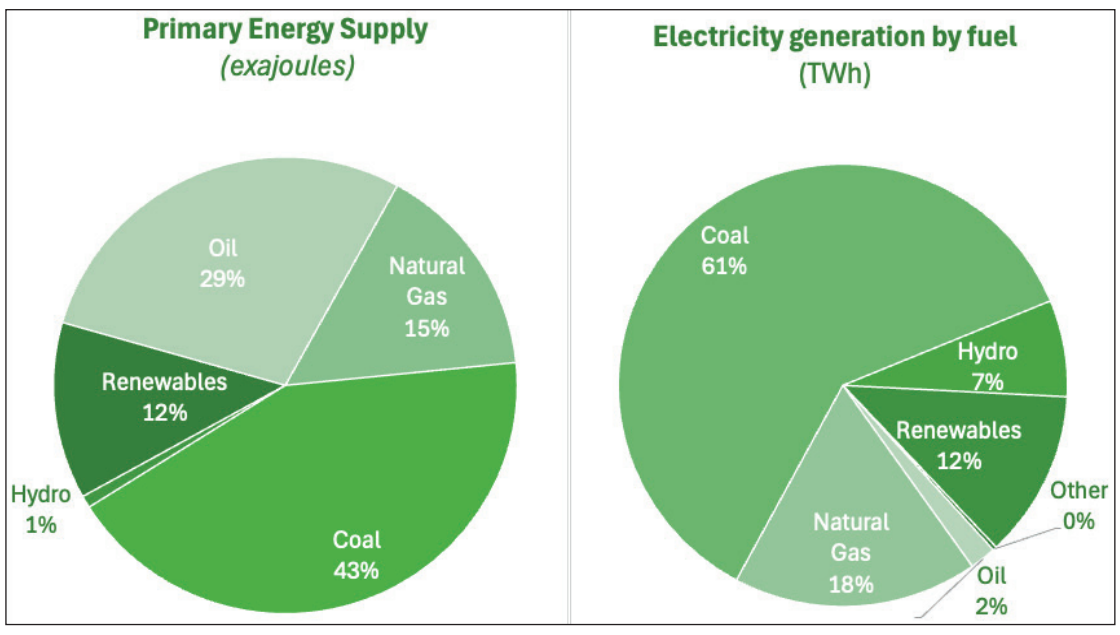

Fossil fuels occupy the lion's share of Indonesia's energy and electricity mix