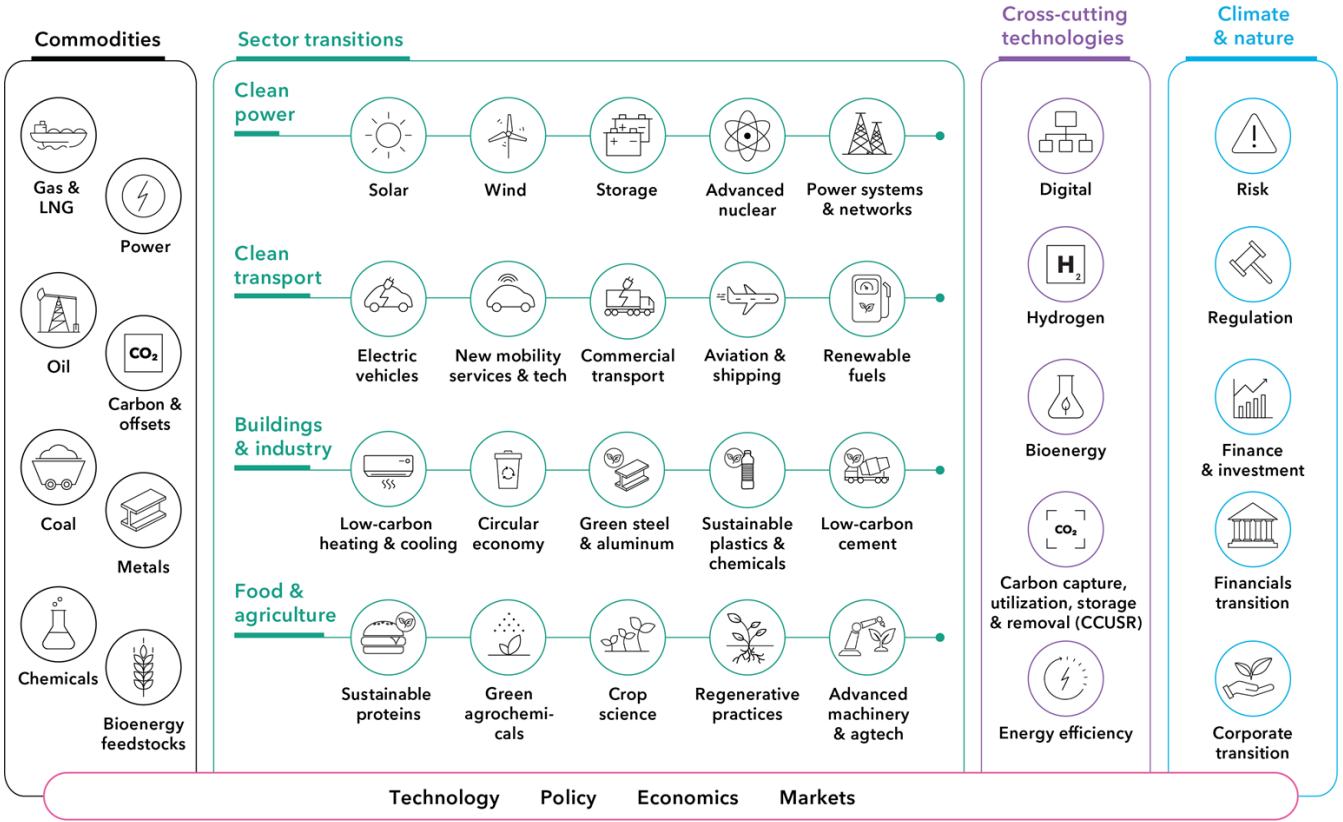
# Indonesia Transition Factbook 2025



October 6, 2025

BloombergNEF

# BNEF coverage




Founded in 2004, BNEF is a strategic research provider covering **global commodity markets** and the **disruptive technologies** driving the transition to a **low-carbon economy.**

Our expert coverage assesses pathways for the **power, transport, industry, buildings, and agriculture** sectors to adapt to the energy transition.

We help **commodity trading, corporate strategy, finance, and policy professionals** navigate change and generate opportunities.



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# Introduction

## Context

As geopolitics, trade tensions and extreme weather events spark uncertainty around the world, the energy transition continues to present economic opportunities for investors, governments and individuals alike.

As one of the world's largest economies and a regional leader, Indonesia could help shape the global climate agenda – while also showcasing the progress it is making on its own decarbonization pathway.

BloombergNEF's *Indonesia Transition Factbook* aims to support policy, business and investment professionals by making available key data about the country's energy transition, as well as the trends, challenges and opportunities that are shaping it.

## Executive summary

Indonesia's **net-zero transformation** presents a $3.8 trillion opportunity through 2050.

The country still relies heavily on fossil fuels for power generation, but it is also starting to accelerate its **clean power** deployment on the back of a new, renewables-rich power development plan and rapidly expanding solar and battery supply chains. Indonesia is already the world's second-largest producer of geothermal power and is aiming for the top spot.

In the **transport** sector, electric vehicles are quickly gaining traction on Indonesian roads. EVs reached a 14% share of passenger vehicle sales from January to August 2025, and many foreign automakers are setting up EV production facilities in the country. Meanwhile, state-owned airlines have started commercial flights with sustainable aviation fuel made by the national oil and gas company, Pertamina.

Indonesia is one of the world's top sources of **energy transition metals**, such as nickel, cobalt, bauxite and copper. In the coming years and decades, Indonesia's supply of these materials will be essential if the world is to meet its climate goals. On the **sustainable finance** front, the volume of sustainable and sustainability-linked debt issued in Indonesia grew 12-fold to $6.3 billion in 2024 from $0.5 billion in 2015, indicating an increasingly lively market.

With one of the most diverse and valuable ecosystems in the world, Indonesia can also lead the way in sustaining **biodiversity**. The archipelago's vast potential for providing nature-based solutions puts it at the heart of the growing global trade of **carbon credits**, a financial instrument that could be key to saving these diverse ecosystems.

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# Energy transition and emission scenarios

**Energy scenarios**

Clean power

Decarbonizing transport

Energy transition metals

Sustainable finance

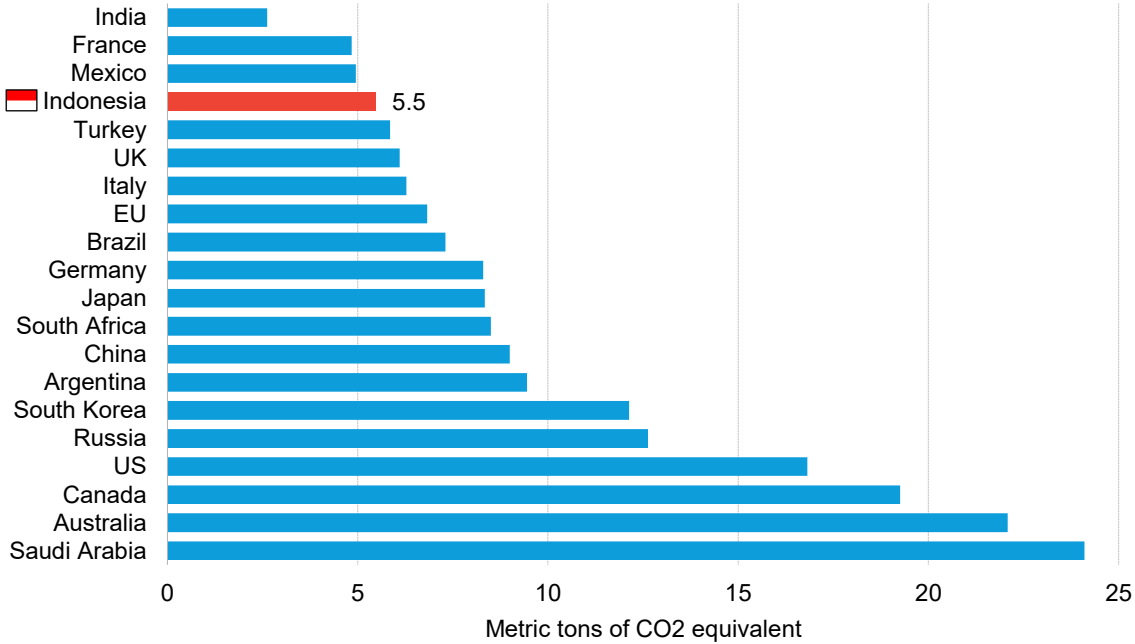
Biodiversity

Carbon markets

BloombergNEF

# The average Indonesian emits far less than their G-20 peers

## G-20 members' greenhouse gas emissions per capita, 2022




Indonesia is the world's sixth-largest producer of greenhouse gases, but this is in part due to its sizeable population of more than 280 million people.

On a per capita basis, the Southeast Asian archipelago is one of the lowest-emitting countries in the Group of 20. In 2022, the average Indonesian emitted about a third as much as their American counterpart and a quarter of what a person in Australia did.

To meet its sustainability goals, Indonesia needs to decouple its future economic and emissions growth. Plenty of clean energy technologies will be required to achieve this feat.

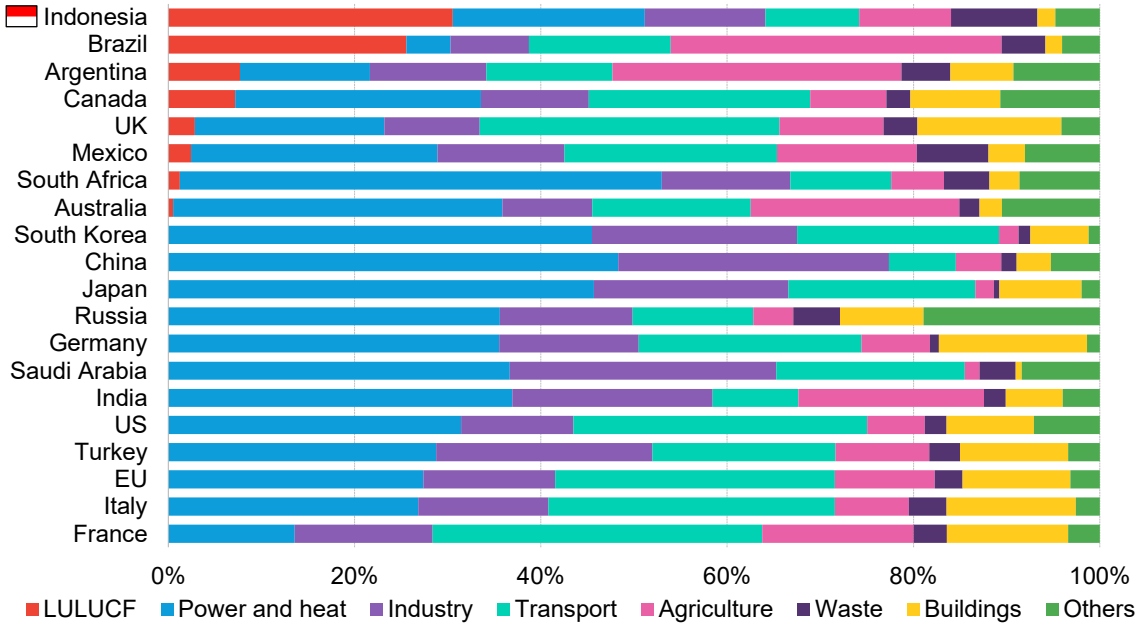
*Source: World Resources Institute Climate Watch, BloombergNEF. Note: Data includes land use, land-use change and forestry emissions.*



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# The energy sector contributes only 46% of Indonesia's emissions, but offers big opportunities for reduction

## Source of G-20 members' greenhouse gas emissions, 2022




Each country's decarbonization story is unique, but Indonesia's is particularly distinctive.

For most markets, the power and heat sector is the main emissions source. But in Indonesia, land use, land-use change and forestry account for 30% of the country's emissions.

BNEF's scenarios and modeling focus on energy-related emissions arising from the power and heat, industry, transport and buildings sectors. Collectively, these contribute 46% of Indonesia's emissions.

*Source: World Resources Institute Climate Watch, BloombergNEF. Note: LULUCF refers to land use, land-use change and forestry. 'Industry' includes industrial processes, manufacturing and construction. 'Transport' includes bunker fuel. 'Others' includes fugitive emissions and other fuel combustion.*



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# BNEF modeled two scenarios for Indonesia's transition to a low-carbon economy

## Economic Transition Scenario (ETS)

- Exploratory base case that describes how the power, industry, transport and buildings sectors might evolve as a result of cost-based technology changes.
- Consistent with a 2.6C warming by 2100 outcome.
- Assumes no further policy support for the energy transition beyond existing measures.
- Assumes the low-carbon transition is largely limited to the power and transport sectors.

## Net Zero Scenario (NZS)

- Normative climate scenario that describes a tough but achievable stretch to get on track for net-zero emissions by 2050 by meeting sectoral carbon budgets.
- Consistent with a 1.75C warming by 2100 outcome.
- No overshoot or reliance on net-negative emissions after 2050.
- Fully decarbonizes power, transport, industry and buildings by 2050.

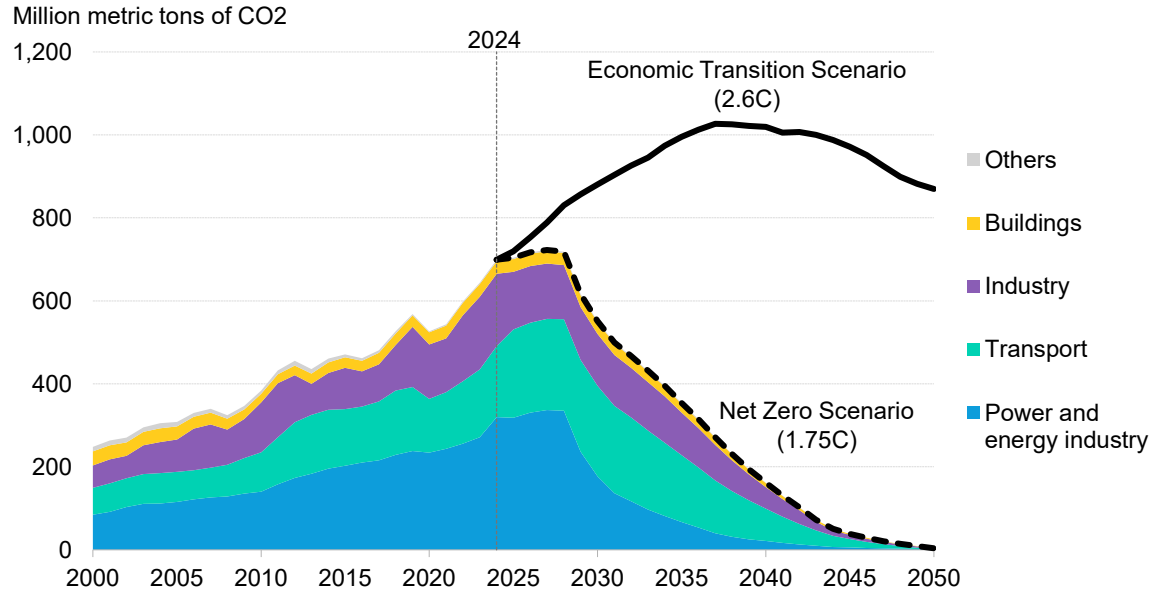





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# Indonesia’s emissions need to halve by 2035 to reach net zero by 2050

## Indonesia’s energy-related emissions and net-zero carbon budget




Indonesia’s energy-related emissions need to fall 21% by 2030 from 2024 levels – and drop 49% by 2035 – to be aligned with BloombergNEF’s Net Zero Scenario (NZS). In contrast, emissions in BNEF’s Economic Transition Scenario (ETS) for Indonesia continue to rise until the late 2030s.

About 46% of Indonesia’s energy-related emissions in 2024 came from the power sector due to the country’s heavy reliance on coal and gas power. The transport and industry sectors each contribute about a quarter of energy-related emissions.

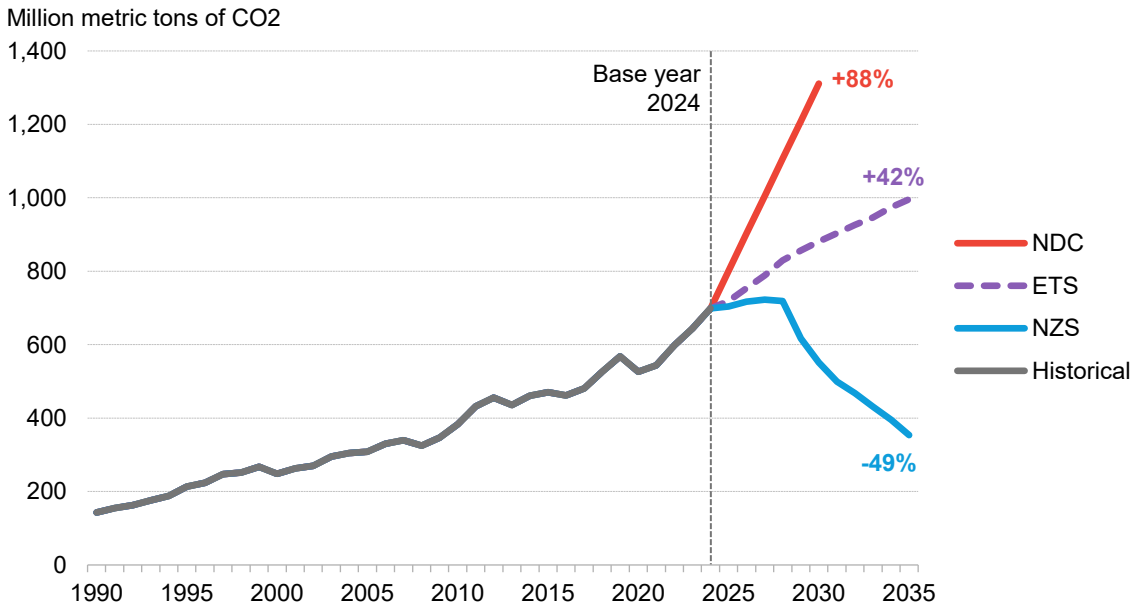
*Source: BloombergNEF’s New Energy Outlook 2025. Note: ‘Power and energy industry’ includes power, hydrogen and energy industry. ‘Transport’ includes emissions from road, shipping, aviation and rail. ‘Industry’ includes steel, aluminum, cement, chemicals and other industrial sectors. ‘Buildings’ includes commercial and residential buildings. ‘Others’ includes agriculture, forestry, fishing and non-energy uses.*



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# Indonesia's NDC target is less ambitious than an economic transition

## Indonesia's emission targets versus BNEF's Economic Transition Scenario (ETS) and Net Zero Scenario (NZS)




In its 2022 Enhanced Nationally Determined Contribution (NDC), Indonesia set an unconditional target of reducing net greenhouse gas emissions by 31.9% relative to a business-as-usual projection by 2030, with a base year of 2010. The country has committed to reaching net-zero emissions by 2060.

Indonesia's energy-related emissions target is far less ambitious than BNEF's ETS. Furthermore, achieving the NDC's overall emissions target will require not only reductions in energy emissions, but also rapid declines in emissions from agriculture, land use, land-use change and forestry.

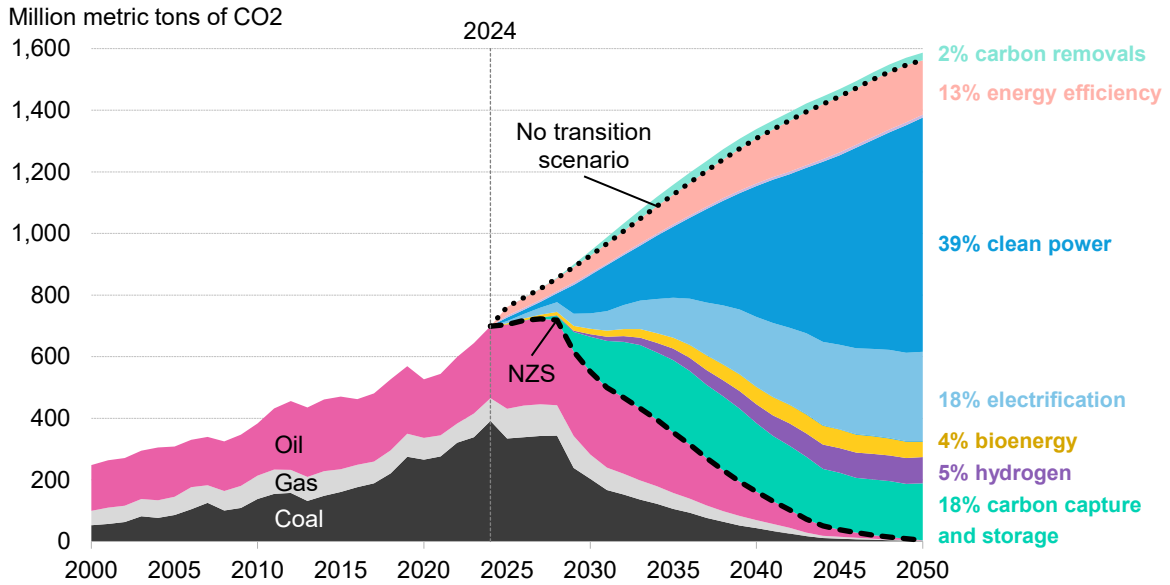
*Source: BloombergNEF, ClimateWatch, United Nations. Note: Figure shows carbon emissions from the energy sector only. Applies economy-wide, unconditional greenhouse gas reduction targets.*



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# Clean power and electrification drive Indonesia's energy transition

## Indonesia's CO2 emission reductions from fuel combustion, by measure – Net Zero Scenario versus no transition scenario




Indonesia needs many different technologies to cut its energy-related emissions. The two key levers are clean power and the electrification of end-use sectors, such as road transport, buildings and industry.

An economics-driven base case would not feature an extensive deployment of technologies such as carbon capture and storage, hydrogen and bioenergy, although these three technologies together account for 27% of Indonesia's emission reductions under BNEF's Net Zero Scenario.

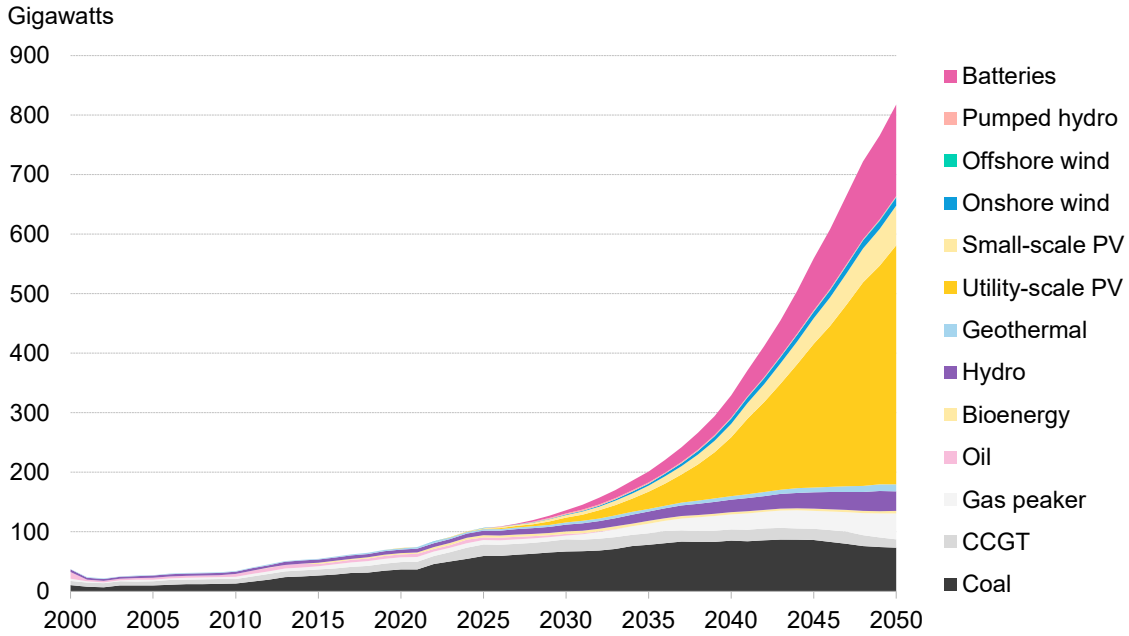
*Source: BloombergNEF's New Energy Outlook 2024. Note: The 'no transition' scenario is a hypothetical counterfactual that models no further improvement in decarbonization and energy efficiency. 'Clean power' includes renewables and nuclear. 'Energy efficiency' includes demand-side efficiency gains and more recycling in industry.*



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# Solar and battery storage dominate Indonesia's future power fleet

## Installed power generation capacity in Indonesia, by technology – Economic Transition Scenario




*Source: BloombergNEF's New Energy Outlook 2025. Note: CCGT is combined-cycle gas turbine and PV is photovoltaic.*

Under BNEF's ETS, Indonesia's clean power capacity increases 37-fold, from 14 gigawatts (GW) in 2024 to 531GW by 2050. The change is driven primarily by the economic competitiveness of solar and wind.

Solar makes up most of this capacity growth, with 402GW of utility-scale photovoltaics (PV) and 66GW of small-scale PV operational in 2050. Wind capacity reaches 15GW by 2050, up from only 0.2GW today.

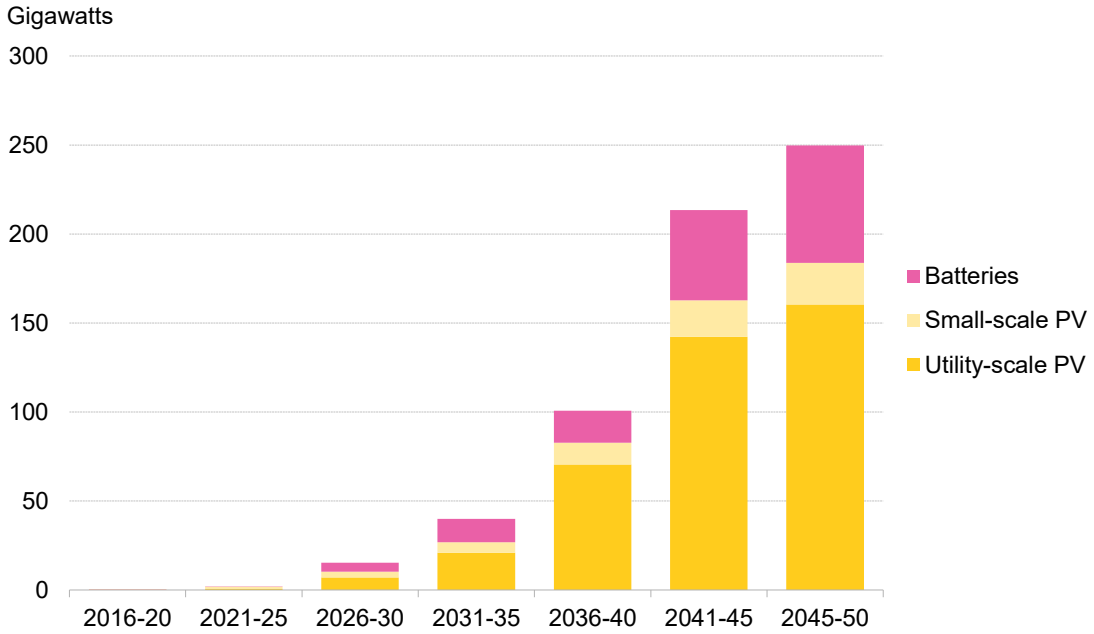
Indonesia's battery energy storage capacity increases from 0.1GW today to 153GW in 2050. Pumped hydro has a minimal role in comparison to batteries, with a capacity of only 2GW by 2050.



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# Renewables additions accelerate in an economics-led scenario

## Solar and battery storage capacity build in Indonesia – Economic Transition Scenario




*Source: BloombergNEF's New Energy Outlook 2025. Note: PV is photovoltaic.*

In the ETS, solar and battery storage capacity additions accelerate over time. About 15GW of capacity is added from 2026 to 2030, compared with 250GW added from 2045 to 2050. Cumulatively, Indonesia installed just 1.1GW of these technologies combined from 2015 to 2024.

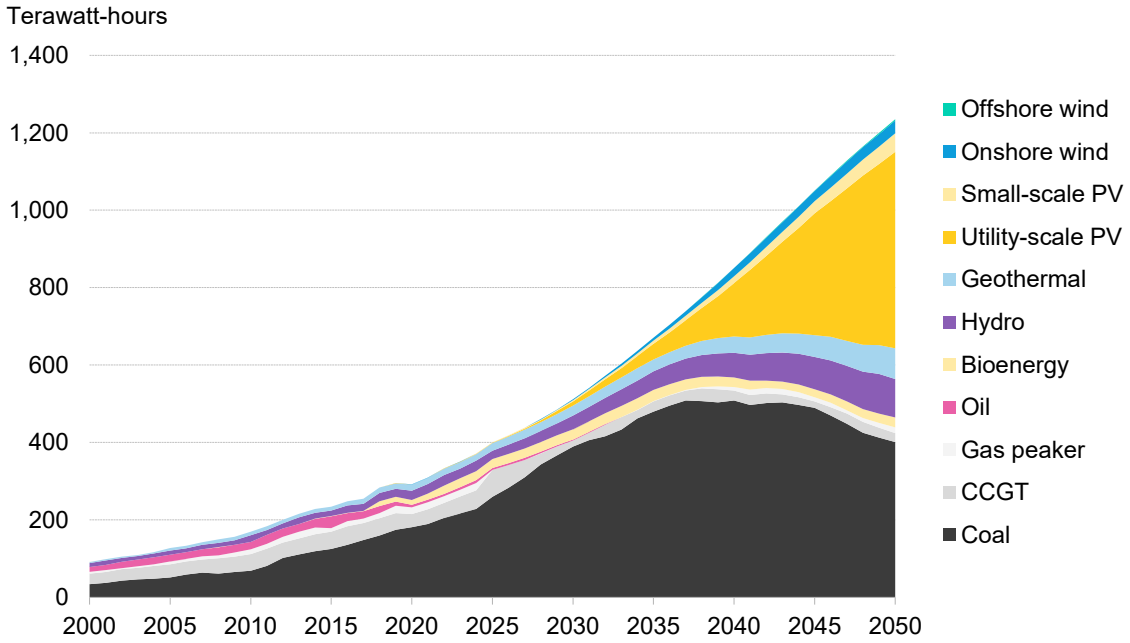
Indonesia's solar and storage fleet expands rapidly in the 2030s and 2040s in the ETS. In this period, solar and storage capacities multiply by a factor of 38 and 28, respectively, corresponding to average annual installations of 23GW and 7GW. Attracting the necessary investment to attain this buildout rate would require supportive government policies and a predictable project auction pipeline.



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# Solar power generation scales up massively; coal peaks in 2037

## Power generation mix in Indonesia, by technology – Economic Transition Scenario




*Source: BloombergNEF's New Energy Outlook 2025. Note: CCGT is combined-cycle gas turbine and PV is photovoltaic.*

Power generation in Indonesia climbs threefold to 1,235 terawatt-hours (TWh) by 2050 under the ETS, from 383TWh in 2024. This increase is led by solar generation, which soars from 1TWh in 2024 to 555TWh by 2050.

Coal supplies two-thirds of Indonesia's electricity today and continues to play a part to 2050. However, its role peaks in 2037. By 2050, coal's share of the generation mix is halved to 33%.

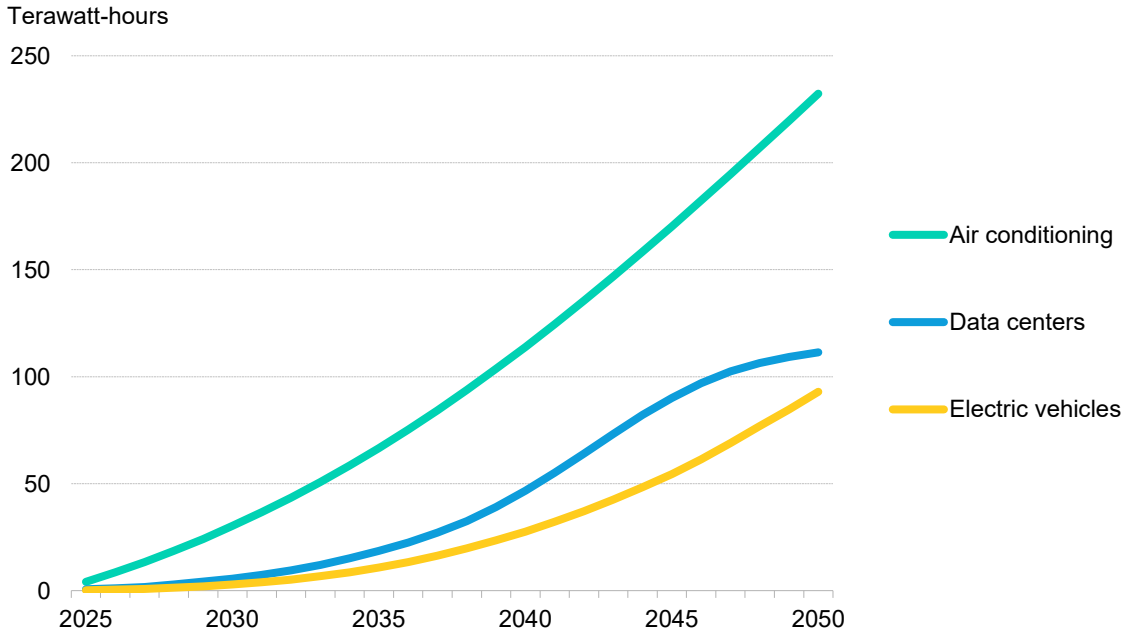
Geothermal, hydro and bioenergy provide clean dispatchable power to meet Indonesia's baseload demand and smooth the output of intermittent solar and wind.



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# Air cooling, not data centers, adds the most to Indonesia's future power need

## Drivers of Indonesia's future electricity demand, net change from 2024 – Economic Transition Scenario




*Source: BloombergNEF's New Energy Outlook 2025*

In BNEF's ETS, Indonesia's power demand nearly triples to 1,004TWh in 2050 from 351TWh in 2024.

More than a third of the new demand is from air conditioning. Indonesia's tropical climate and its rising prosperity mean more of the population will need and be able to afford year-long cooling as global temperatures rise.

Annual power demand from data centers grows more than 55-fold to 113TWh by mid-century from 2TWh in 2024. The country's data center growth is largely concentrated in Java and Riau Islands, the latter of which is part of the so-called Sijori (Singapore-Johor-Riau) growth triangle.



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# Achieving net zero requires adoption of mature and new technologies

## Technology drivers in BNEF's Indonesia scenario modeling

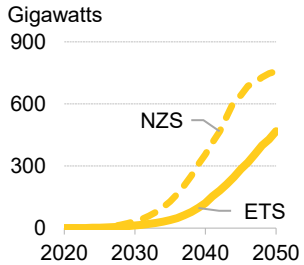
### Mature and scalable technologies

Proven business models and already-strong uptake in ETS; faster adoption needed to align with NZS

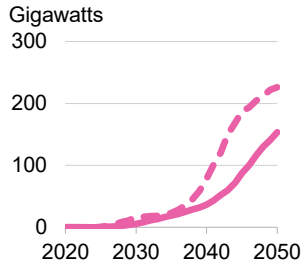
### Nascent and new technologies

Not currently cost-competitive, resulting in limited uptake in ETS; must scale rapidly to align with NZS

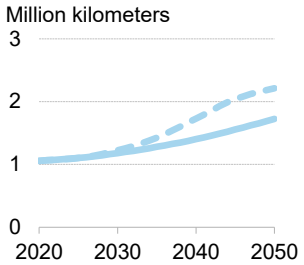
**Solar capacity**



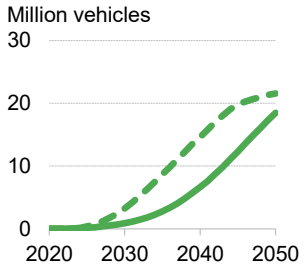

**Battery capacity**



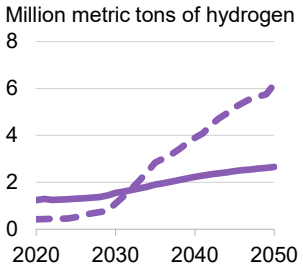

**Power grid length**



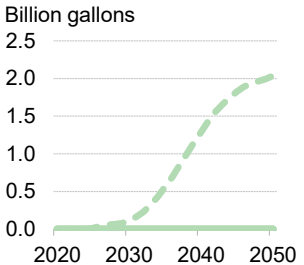

**Passenger EV fleet**



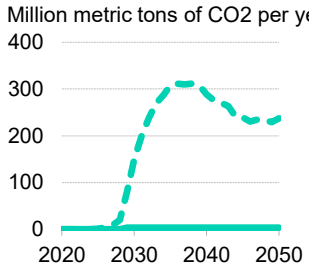

**Hydrogen demand**




**Sustainable aviation fuel**




**CO2 sequestered with CCS**



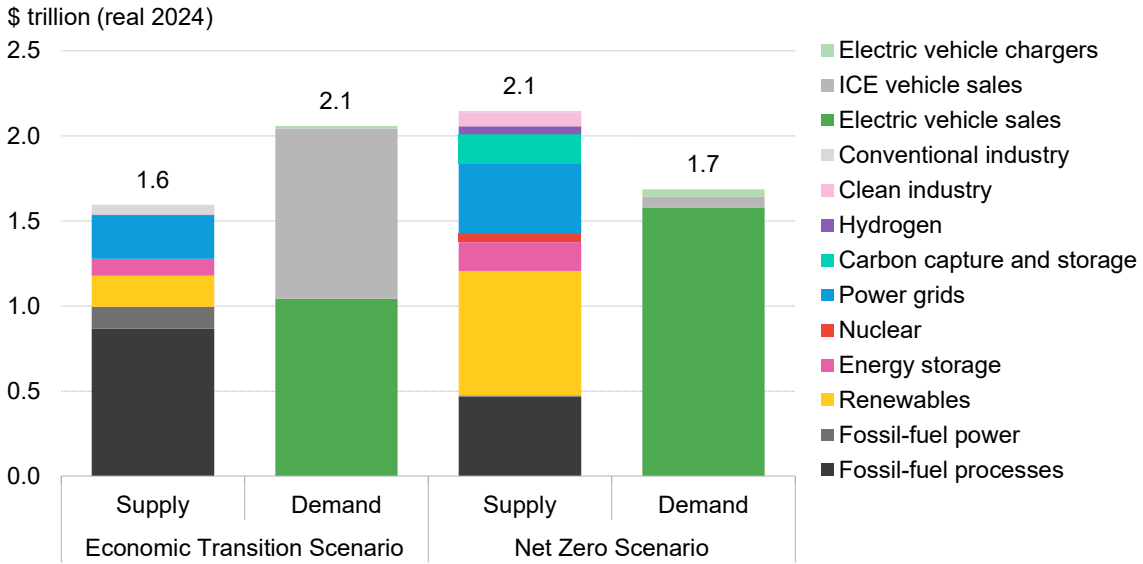

*Source: BloombergNEF's New Energy Outlook 2025 (ETS) and New Energy Outlook 2024 (NZS). Note: ETS is Economic Transition Scenario and NZS is Net Zero Scenario. Solar includes small-scale and utility-scale photovoltaics. Historical hydrogen demand is higher in NEO 2025 compared to NEO 2024 due to an upward revision of historical oil demand to more accurately account for oil use for non-energy purposes outside the petrochemical industry.*



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# Decarbonizing Indonesia is a $3.8 trillion investment and spending opportunity

## Indonesia's cumulative energy investment and spending, 2025-2050 – Economic Transition Scenario and Net Zero Scenario




Reaching net-zero emissions by 2050 across all sectors of the Indonesian economy requires only 5% more investment than in BNEF's economics-driven base-case scenario.

It may soon be cheaper for Indonesia to transition to a net-zero economy than not to. The cost estimates shown in these scenarios exclude adaptation and mitigation costs, which would be higher under the 2.6C warming modeled in the Economic Transition Scenario than the 1.75C warming projected in the Net Zero Scenario.

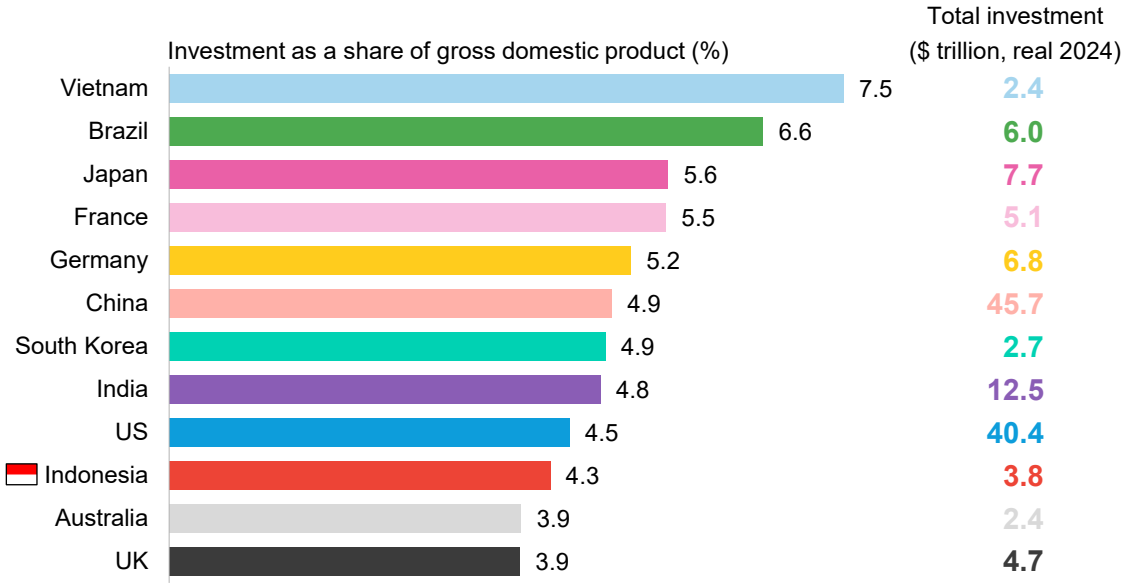
*Source: BloombergNEF's New Energy Outlook 2025 (Economic Transition Scenario, except power grids and hydrogen) and New Energy Outlook 2024 (Net Zero Scenario and power grids and hydrogen investments in the Economic Transition Scenario). Note: Power grids and hydrogen investments in the Economic Transition Scenario were not recalculated in New Energy Outlook 2025. Investment and spending values from New Energy Outlook 2024 have been adjusted for inflation to real 2024 dollars. ICE is internal combustion engine.*



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# Investing 4.3% of Indonesia's total GDP is sufficient to reach net zero by 2050

## Energy investment and spending, 2025-2050 – Net Zero Scenario




In the Net Zero Scenario, Indonesia's energy investment and spending from 2025 to 2050 account for 4.3% of the country's cumulative GDP to mid-century. That's the third-smallest share among 12 major markets whose entire economy is modeled in BNEF's *New Energy Outlook*.

As Indonesia industrializes its economy, clean energy supply and demand continue to be priority sectors. Energy transition investments could boost both the country's economic growth and diversification while improving energy affordability, resilience and self-sufficiency.

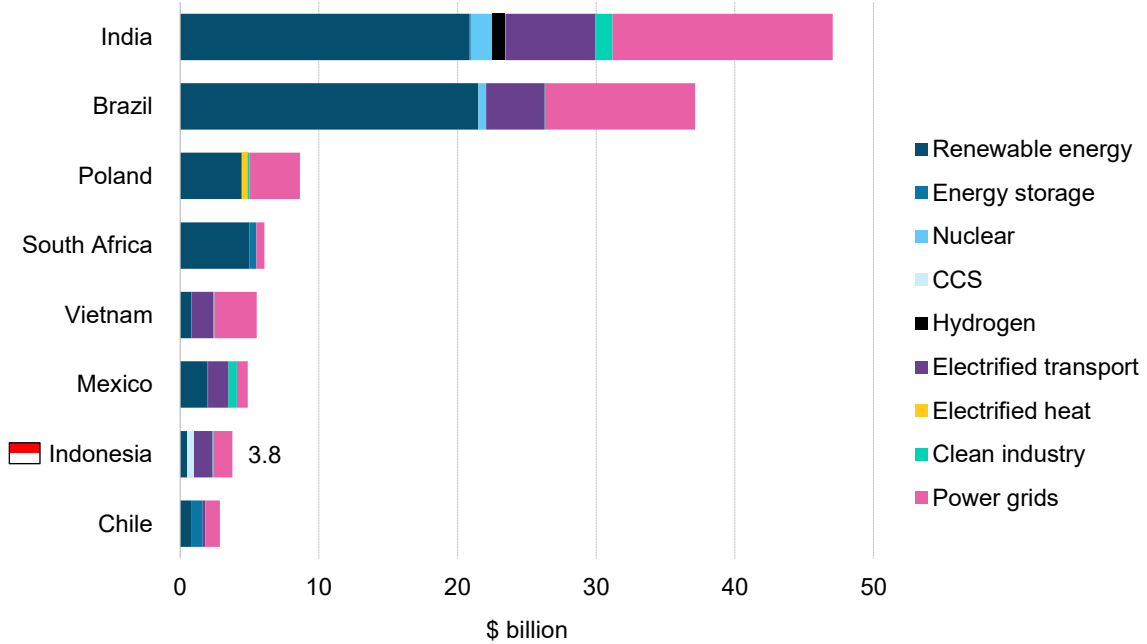
*Source: BloombergNEF's New Energy Outlook 2024. Note: The total investment numbers indicate cumulative investment and spending figures from 2025 to 2050. Data include conventional industry, internal combustion engine vehicle sales, fossil-fuel power, fossil-fuel processes, clean industry, electric vehicle sales, electric vehicle chargers, heat pumps, hydrogen, carbon capture and storage, power grids, nuclear, energy storage and renewables.*



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# Indonesia trails other developing markets in energy transition investment

## Energy transition investment in selected emerging economies, 2024



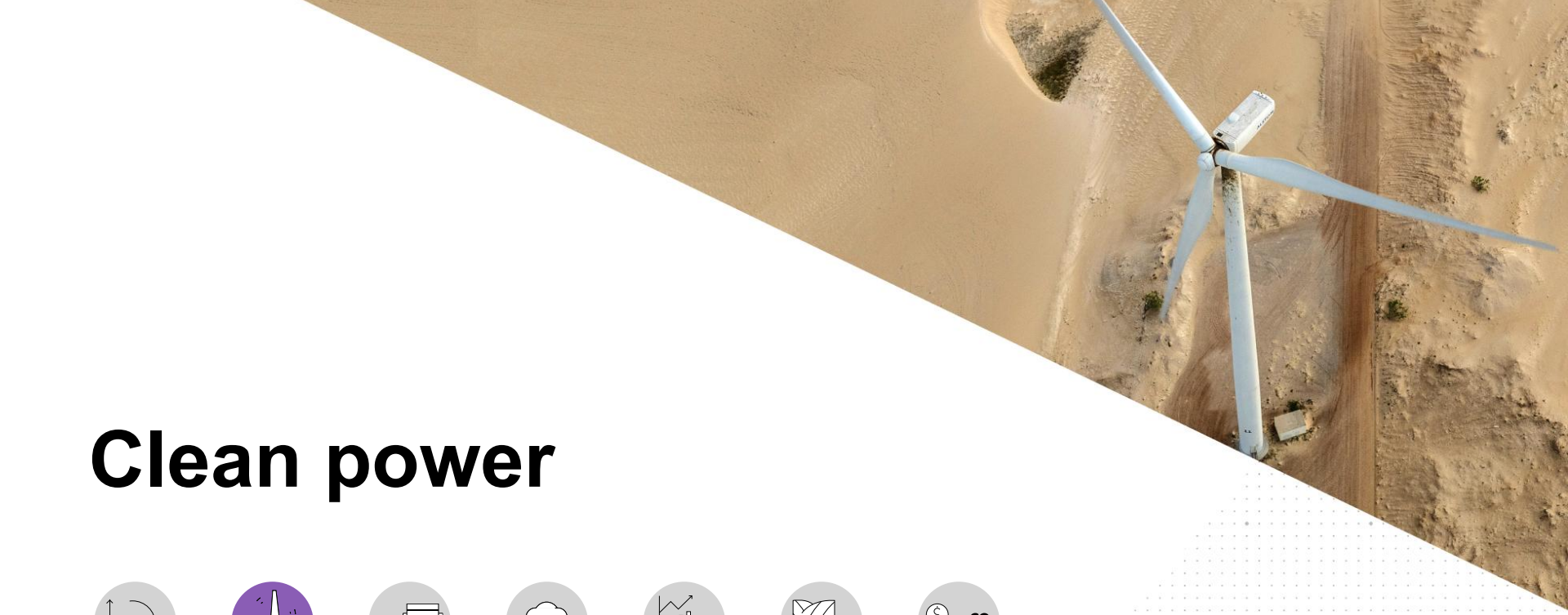

*Source: BloombergNEF's Energy Transition Investment Trends 2024. Note: CCS is carbon capture and storage.*

BNEF tracked $3.8 billion of energy transition investments in Indonesia in 2024. This marked a 36% jump from the previous year and roughly a doubling since 2022. Its investment mix is dominated by spending on electrified transport and power grids at $1.4 billion each. Renewables and carbon capture and storage (CCS) recorded about $0.5 billion of capital inflow each.

Indonesia still lags its fellow emerging economies in energy transition investment. Leveraging public monies to attract more private investments could amplify the country's sustainability efforts and shorten the time needed to reach net zero.



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# Clean power

Energy scenarios

**Clean power**

Decarbonizing transport

Energy transition metals

Sustainable finance

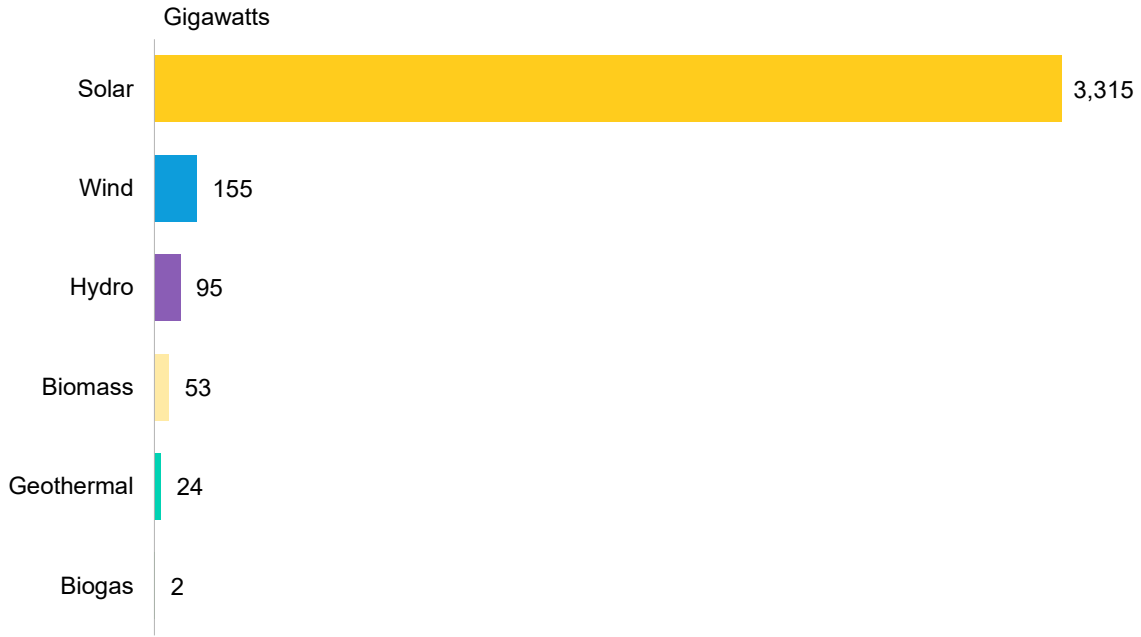
Biodiversity

Carbon markets

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# Indonesia has 3.6 terawatts of renewable electricity potential

## Indonesia's potential capacity of renewable energy resources




*Source: Ministry of Energy and Mineral Resources, BloombergNEF.*

The archipelago's vast size, diverse geographies and position on the equator provide Indonesia with a wealth of renewable energy.

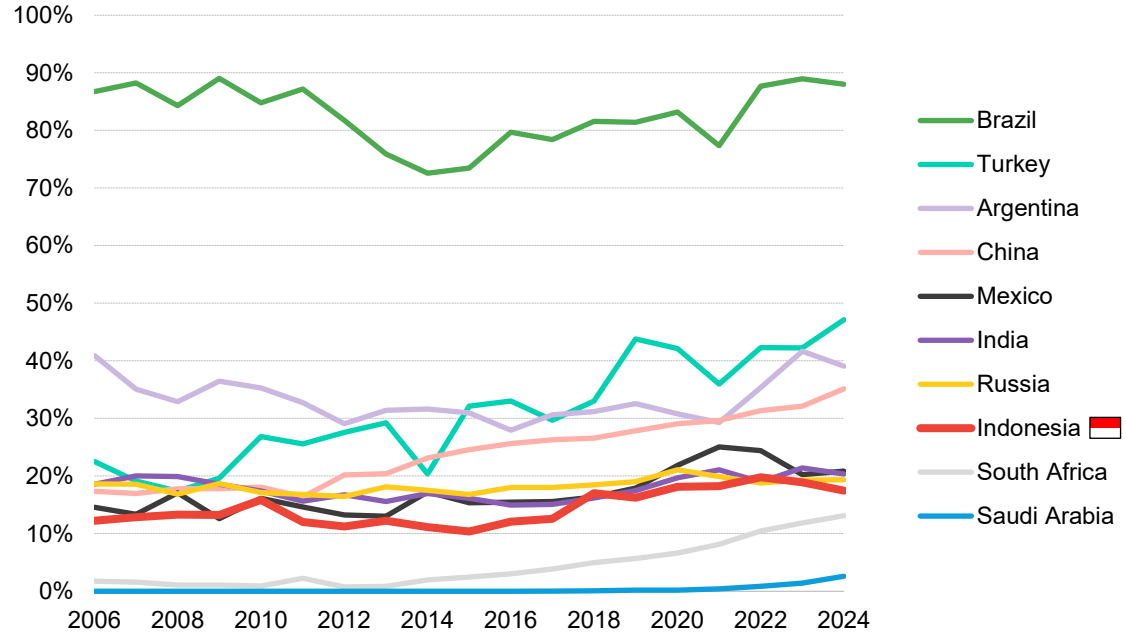
The Indonesian government estimates that the country has more than 3.6 terawatts of green power resources, a capacity more than 30 times larger than its entire generation fleet.

Solar power has by far the greatest potential capacity, at 3.3 terawatts (TW). Much of this remains untapped, however, as Indonesia has installed only 1.1 gigawatts as of June 2025.

Hydro, bioenergy and geothermal represent 174 gigawatts (GW) of dispatchable clean power resource.

# Untapped renewables potential is a massive investment opportunity

## Share of clean power generation in G-20 emerging economies




*Source: BloombergNEF. Note: Clean power includes large hydro, small hydro, geothermal, bioenergy, solar and wind.*

When it comes to clean power generation, Indonesia falls behind other large emerging economies despite its vast resources. About 17% of Indonesia's electricity came from clean sources in 2023.

Similar to Brazil, Turkey, Argentina and China, Indonesia's dominant source of green power is large hydro. However, unlike those countries, Indonesia produces very little electricity from solar and wind.

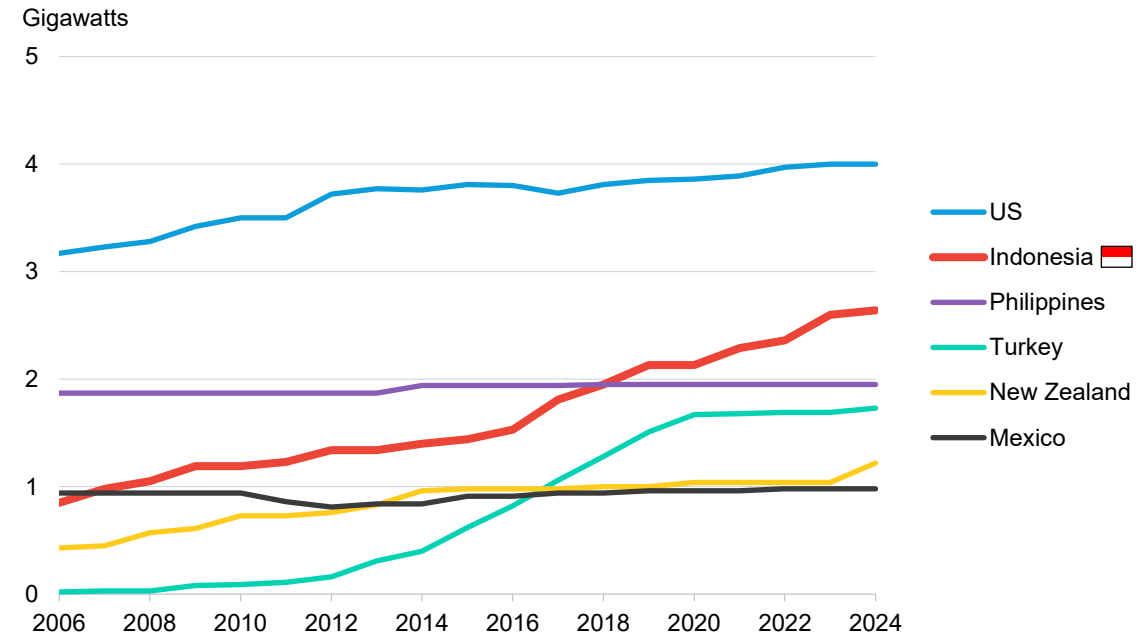
The largely untapped renewables resource, coupled with the falling cost of solar and wind power, could attract potential investors into Indonesia's renewables business scene.



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# Indonesia, the US in a two-horse race for world's top geothermal powerhouse

## Countries with the largest installed geothermal power capacity




*Source: BloombergNEF*

Geothermal power is both carbon-free and dispatchable, making it a desirable resource for energy decarbonization. It also needs less land than other renewable energy sources to produce the same amount of power.

Indonesia's 2.6GW of geothermal capacity is second only to the US's 4GW. However, the archipelago has grown its fleet five times as fast as the US over the past 10 years.

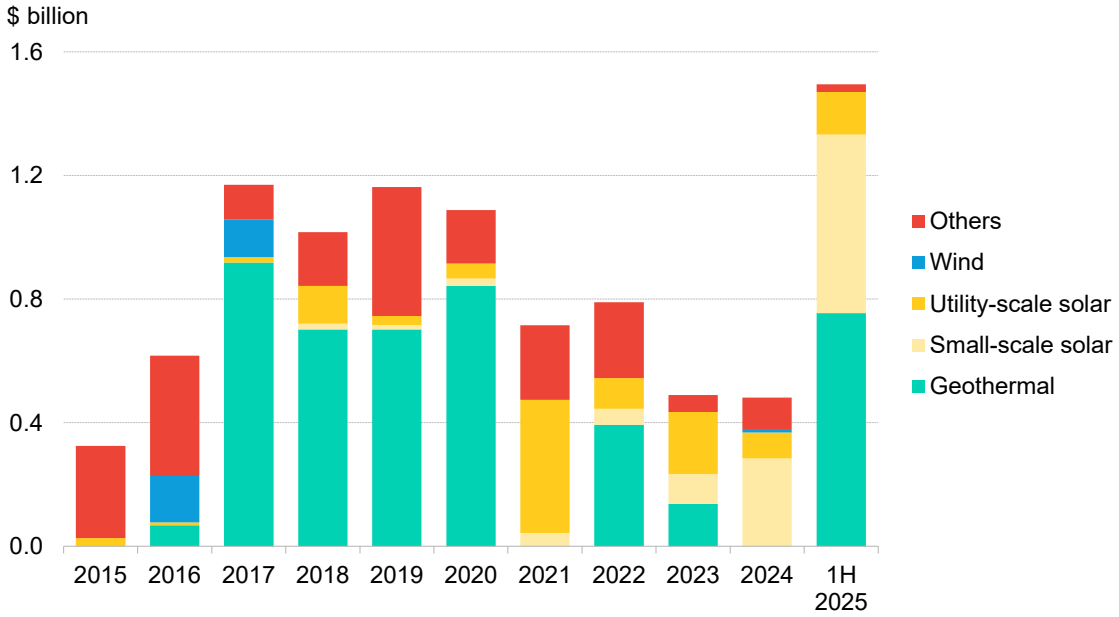
Historically, geothermal power has been reserved to geographies with significant volcanic activity. More recently, technologies like Enhanced Geothermal System are unlocking economically viable power generation in more locations.



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# Indonesia's renewables investment spiked in the first half of 2025

## Renewable energy investment in Indonesia




*Source: BloombergNEF's 2H 2025 Renewable Energy Investment Tracker. Note: 'Others' includes biomass, waste, small hydro and biofuels. Includes new investments only.*

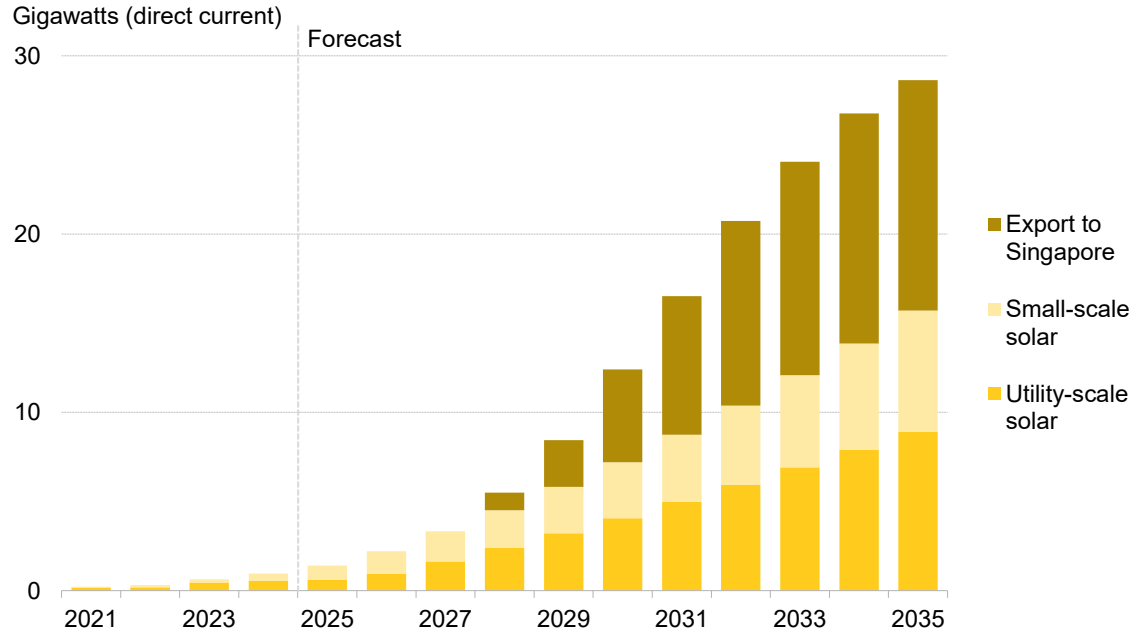
Indonesia's renewable energy investment reached $1.5 billion in 1H 2025, more than three times last year's value. Half of this amount was invested in geothermal projects, and nearly 40% was spent on small-scale solar.

New investment over this six-month period was higher than in any of the previous 10 years. This sharp jump reversed a declining trend that ran from 2021 to 2024.

Investments from the new sovereign wealth fund Daya Anagata Nusantara and the Indonesian government's focus on improving national energy resilience could both boost capital flows further.

# Solar deployment has been slow, but it is picking up the pace

## Indonesia's solar power capacity, historical and BNEF forecast




*Source: BloombergNEF, Ministry of Energy and Mineral Resources. Note: Data for 2025-2035 are BNEF's forecast.*

Indonesia installed 311 megawatts (MW) of solar in 2024, comparable to the record-breaking 324MW in 2023.

The small-scale segment was the main growth driver, with more capacity added in 2024 than in all the previous years combined. Although net metering was abolished in early 2024, the introduction of a national capacity quota led to a race to install rooftop solar systems.

The utility-scale sector is expected to grow more rapidly in the next two years, driven by the construction of floating projects and captive plants used to power Indonesia's nickel industry.

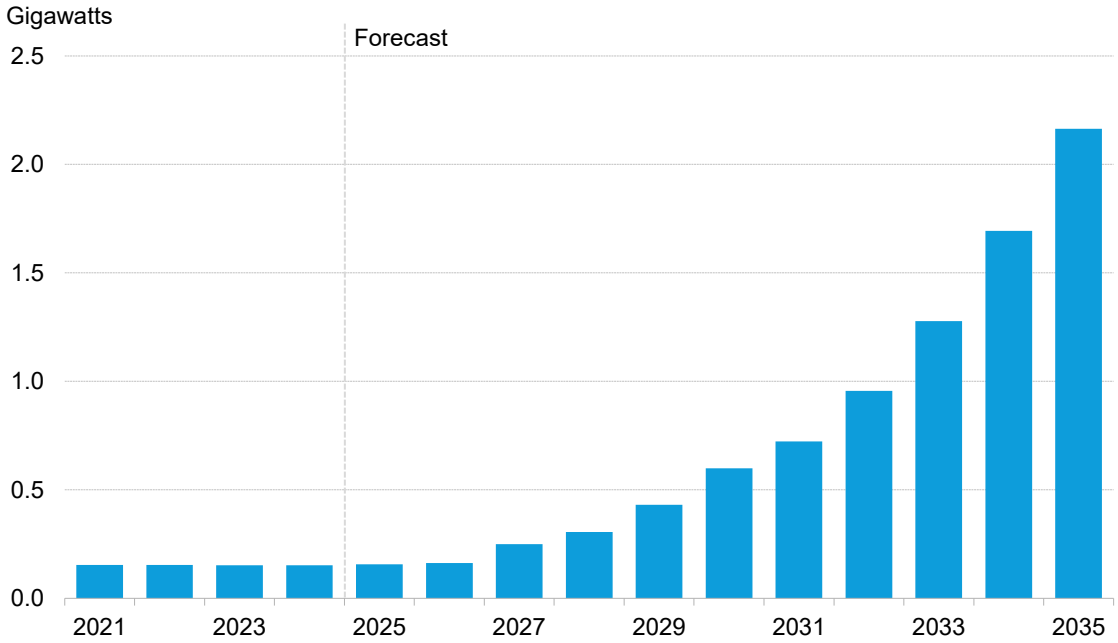
Projects meant to export clean power to Singapore will boost Indonesia's solar capacity significantly (see slide 34).



BloombergNEF

# Low and irregular wind speeds hinder wind power adoption

## Indonesia's wind power capacity, historical and BNEF forecast




*Source: BloombergNEF, Ministry of Energy and Mineral Resources. Note: Data for 2025-2035 are BNEF's forecast.*

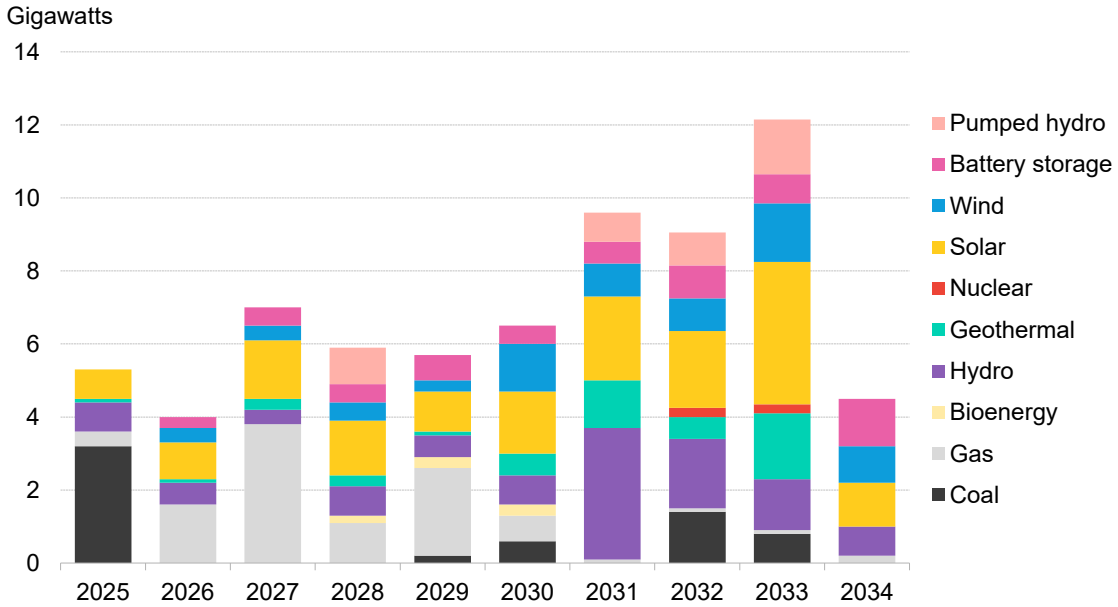
Indonesia's adoption of wind power is limited by poor wind resources. Its equatorial location offers few areas with strong winds while monsoon seasons introduce high wind speed variability.

After five years with no wind capacity additions, two turbines were installed this year in a pilot project in Weda Bay, a nickel industry center.

Indonesia's new power development plan (see next slide) aims to add 7.2GW of wind capacity in a decade, a figure 12 times as much as the previous plan's goal. Coming close to this target would require a clear, transparent and predictable procurement process by the state utility, PLN.

# New power plan aims to quadruple renewables fleet in a decade

## Commissioning schedule of new power plants in the 2025-2034 RUPTL




*Source: Perusahaan Listrik Negara (PLN), Ministry of Energy and Mineral Resources, BloombergNEF. Note: RUPTL stands for Rencana Usaha Penyediaan Tenaga Listrik, PLN's power development plan.*

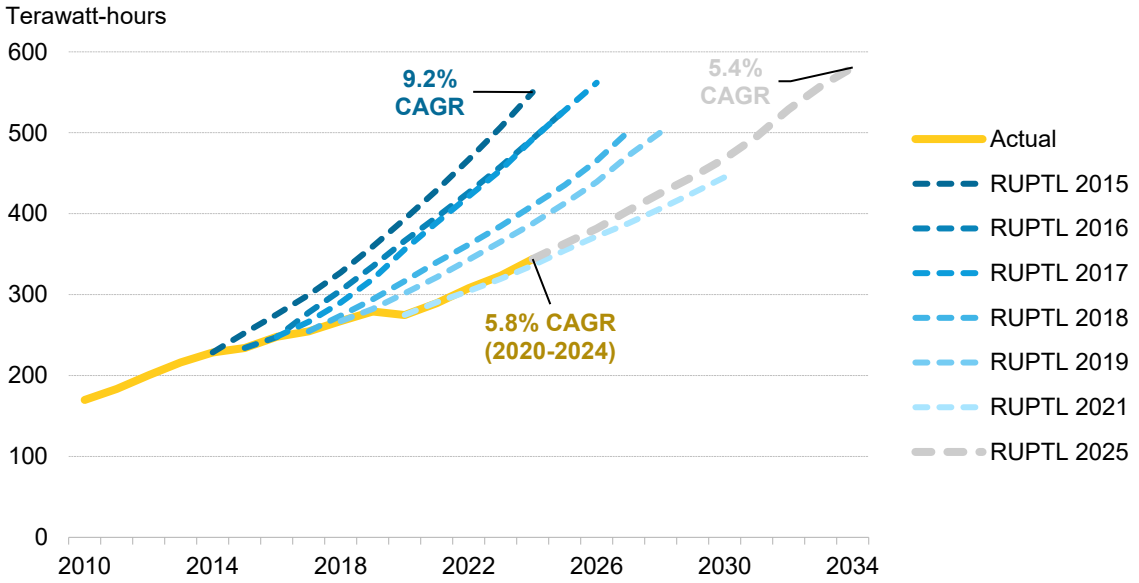
The 2025 edition of state utility PLN's 10-year power development plan (RUPTL) targets a 42GW growth of Indonesia's renewable capacity to 57GW by 2034.

The plan's project commissioning schedule prioritizes coal and gas power in the short term. Some 9GW of new fossil-fuel-fired capacity is due to start operations by 2027, compared to 6.5GW of renewable technologies.

This clean power backloading has led to concerns that the planned additions may be delayed or canceled, especially after PLN hit only a third of its 2021-24 renewables goal. However, clean power's increasingly favorable economics could tip the scales in its favor.

# Realistic electricity demand projections could improve investor confidence

## Historical power demand growth in Indonesia versus RUPTL projections




The 2025 RUPTL assumes that power demand will grow at an annual rate of 5.4% to 2034, slightly slower than the 5.8% pace recorded from 2020 to 2024.

This realistic projection is a positive change from past power plans. Previously, demand overestimation led to project cancellations, which reduced developers' trust in the RUPTL as a basis to plan for future investments.

In contrast, a more conservative demand forecast reduces the likelihood of projects getting canceled and could inspire greater confidence among potential investors.

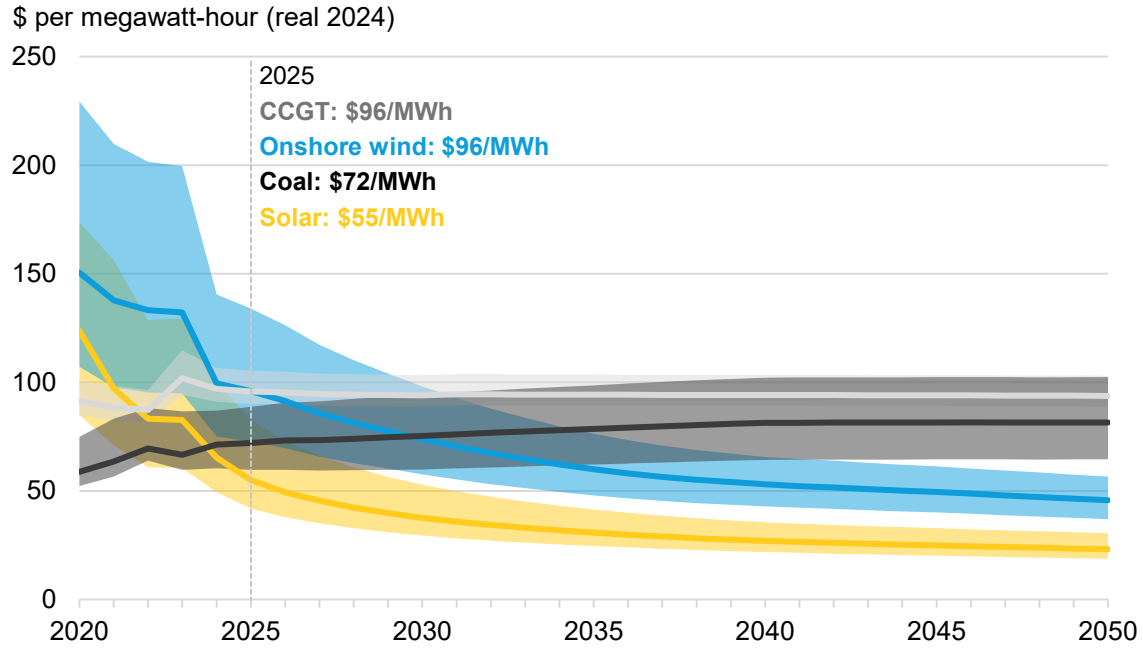
*Source: BloombergNEF, Perusahaan Listrik Negara (PLN), Ministry of Energy and Mineral Resources. Note: Historical figures include PLN's own generation and purchases from independent power producers and exclude off-grid generation. RUPTL stands for Rencana Usaha Penyediaan Tenaga Listrik, PLN's power development plan. CAGR is compound annual growth rate.*



BloombergNEF

# Solar and wind power are more economical than coal and gas

## Levelized cost of electricity in Indonesia




*Source: BloombergNEF's Levelized Cost of Electricity 2025. Note: CCGT is combined-cycle gas turbine.*

The economics of power generation has been shifting in renewables' favor as economies of scale in equipment supply chains and project development drive the cost of clean power down.

As recently as 2021, the levelized cost of electricity (LCOE) of solar and wind power were higher than gas and coal power in Indonesia. However, the tables have turned against the fossil fuels.

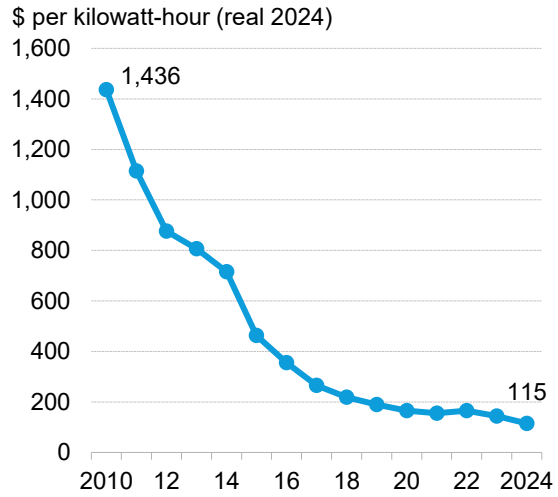
Last year, the LCOE of solar undercut that of coal despite Indonesia's cap on the cost of coal fuel. Furthermore, BNEF's LCOE forecast predicts that this year, the cost of onshore wind power will be comparable to gas power for the first time.



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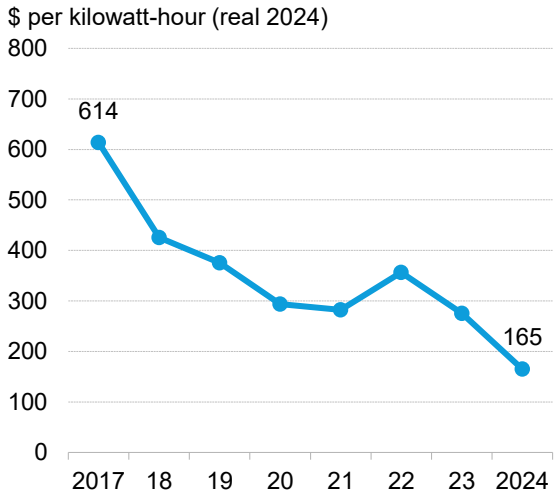
# Falling battery costs could boost adoption in Indonesia's power system

## Historical prices of lithium-ion battery packs, global




*Source: BloombergNEF's 2024 Lithium-Ion Battery Price Survey. Note: Values are averages across passenger EVs, commercial vehicles, buses, two- and three-wheelers and stationary storage. Includes cell and pack.*

## Historical prices of turnkey battery energy storage systems, global




*Source: BloombergNEF. Note: Turnkey systems include all project equipment excluding engineering, procurement, construction and grid connection. Pricing is based on usable capacity. Prices for 2023 and 2024 are for all durations and volume-weighted averages by region, while 2017-2022 prices are for four-hour systems only.*

BNEF expects Indonesia's battery storage market to grow over the next few years as battery costs fall and more solar and wind projects get built, especially the solar plants set to export power to Singapore.

Lithium-ion battery pack prices have fallen dramatically over the years, plummeting 92% from 2010 to 2024 and 30% in just the last two years. Turnkey battery storage system costs also fell 54% from 2022 to 2024.

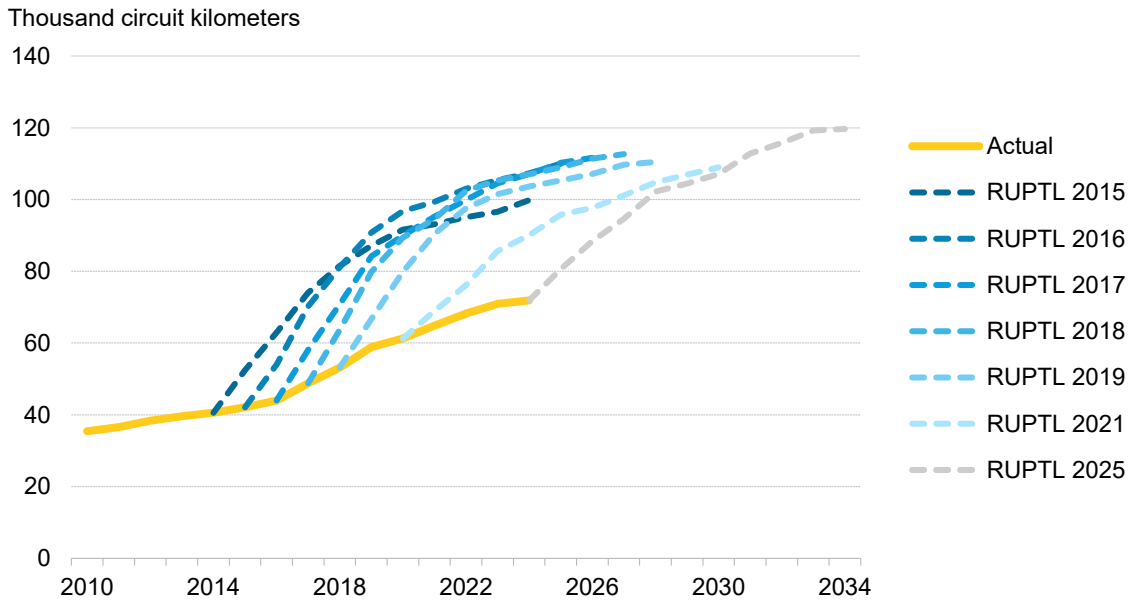
Indonesia is likely to be reliant on Chinese batteries in the short term, but its nascent domestic battery industry may be able to meet the country's needs over the medium and long term.



BloombergNEF

# Achieving grid expansion goal needs a step change in the pace of development

## Historical transmission line expansion in Indonesia versus RUPTL projections




*Source: BloombergNEF, Perusahaan Listrik Negara (PLN), Ministry of Energy and Mineral Resources. Note: RUPTL stands for Rencana Usaha Penyediaan Tenaga Listrik, PLN's power development plan.*

Indonesia's renewables deployment is hindered by its disconnected power network. Except for Java and Bali, none of the major islands' grids are linked to one another. This prevents power-hungry Java from making use of the other islands' resources.

PLN has proposed grid interconnection projects and large expansions of its transmission network in its power plans. However, falling capital expenditure on grids means those proposals have not been realized.

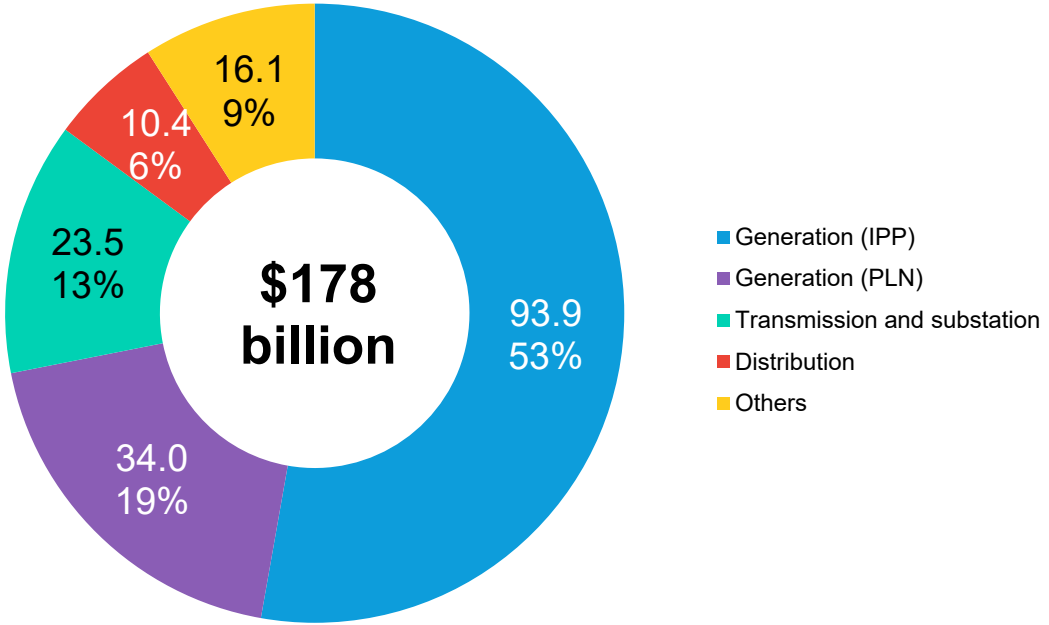
Opening the transmission sector to private players could unlock the capital needed to link Indonesia's grids and unleash its green electricity potential.



BloombergNEF

# Much private capital is needed to build a greener power supply system

## Investment needs for projects in Indonesia's 2025-2034 RUPTL



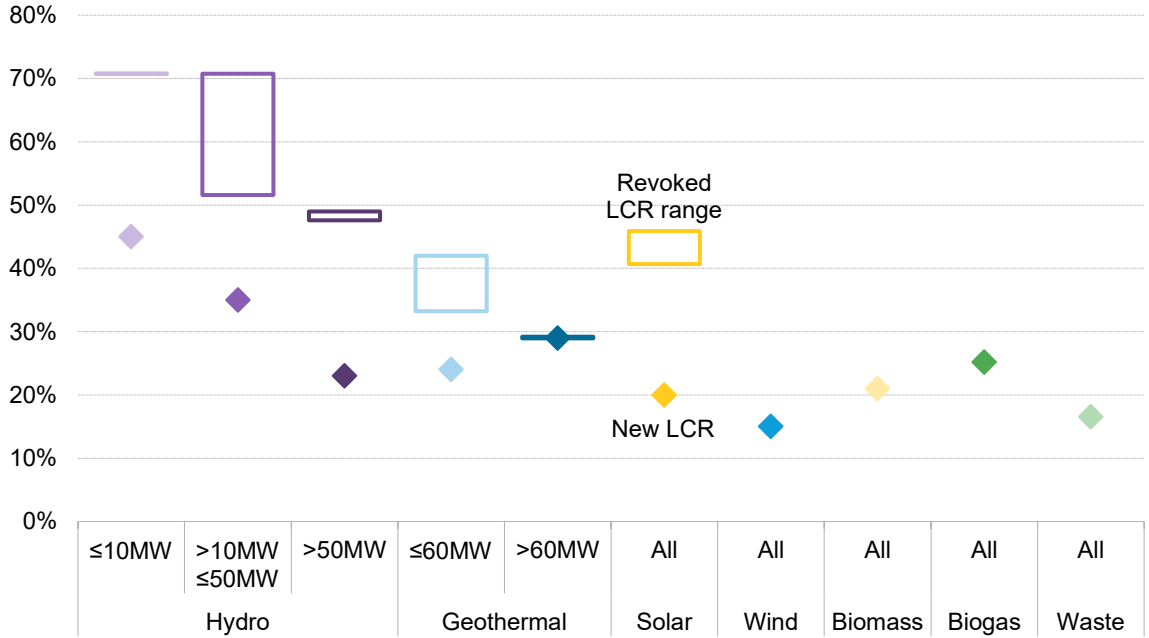

The 2025 RUPTL estimates that $178 billion will be needed to achieve its goals. The plan allocates $93.9 billion worth of projects to independent power producers (IPPs), including $80.4 billion for renewables and nuclear and $13.4 billion for fossil-fired plants.

Indonesia has passed several regulations aimed at improving the appeal of renewables projects to IPPs, such as by providing a guideline for power purchase agreements between IPPs and PLN. This measure could improve the standardization and bankability of those agreements.

*Source: Perusahaan Listrik Negara (PLN), Ministry of Energy and Mineral Resources, BloombergNEF. Note: RUPTL stands for Rencana Usaha Penyediaan Tenaga Listrik, PLN's power development plan. IPP is independent power producer. 'Others' include operations, maintenance and construction debt servicing. Assumes $1 = 16,685 Indonesian rupiah.*

# Pragmatic local content rules can speed up renewables deployment

## Local content requirement for power plants in Indonesia, by technology




Another regulatory step in favor of clean power is the lowering of local content requirements for power plant projects to 15-45% in August 2024.

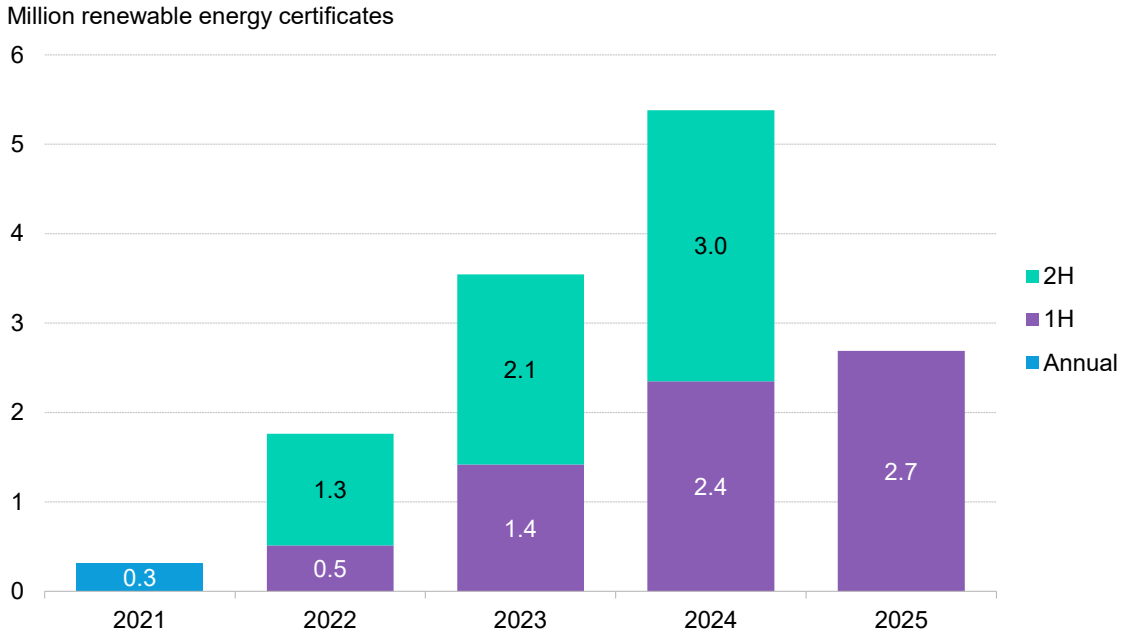
This policy could bring down developers' capital expenditures and improve project returns by allowing imports of cheaper equipment from China, where clean-tech manufacturing overcapacity has kept prices low.

A faster renewables buildout would, in turn, boost demand for the relevant equipment and spur the growth of a domestic clean-tech industry in a positive feedback loop.

*Source: BloombergNEF, Ministry of Energy and Mineral Resources, Ministry of Industry. Note: LCR is local content requirement. MW is megawatt.*

# Growing corporate demand for clean power provides an opportunity

## Number of renewable energy certificates sold by Perusahaan Listrik Negara




*Source: Perusahaan Listrik Negara, BloombergNEF. Note: Data is as of 1H 2025. Half-year data for 2021 is not available.*

Indonesian businesses are under rising pressure to cut their emissions. One of the most effective ways to do this is by using renewable energy.

Corporations can procure green power through rooftop solar and renewable energy certificates (RECs), a document confirming that 1 megawatt-hour of electricity was generated from renewable sources.

PLN's REC sales data suggest that corporate demand for clean power is growing rapidly in Indonesia. The government could tap into this strong interest to boost renewables buildout by allowing consumers to buy power directly from third-party generators.

# Indonesia to benefit while providing its neighbors with clean electricity

## Projects being developed in Indonesia for power export to Singapore

| Developer | Power source | Import capacity (GWac) | Conditional Approval date | Conditional License date | Target operation date |
|---|---|---|---|---|---|
| Singa Renewables (TotalEnergies and RGE) | Solar | 1 | September 2024 | June 2025 | 2029 |
| PacificLight, Medco Energy, Gallant Venture | Solar | 0.6 | September 2023 | September 2024 | 2028 |
| Alamtri Resources Indonesia | Solar | 0.4 | September 2023 | September 2024 | 2028 |
| Equator Renewables Asia | Solar | 0.4 | September 2023 | September 2024 | 2028 |
| Shell and Vena Energy | Solar | 0.4 | September 2024 | - | 2030 |
| Keppel Energy | Solar | 0.3 | September 2023 | September 2024 | 2028 |
| Vanda RE (Gurin Energy and Gentari) | Solar | 0.3 | September 2023 | September 2024 | 2028 |

*Source: BloombergNEF. Note: GWac is gigawatt alternating current.*

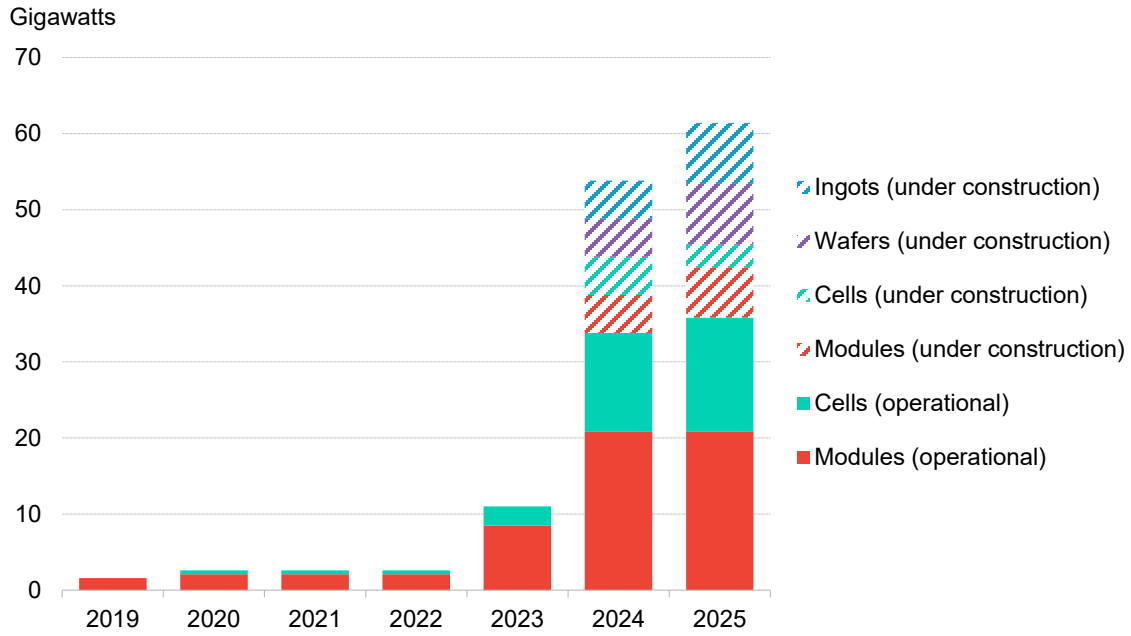
Seven solar plants with battery storage are being developed in the Riau Islands province for power export to Singapore. Collectively, they will transmit 3.4GW of firm clean power to the city-state.

BNEF expects the total capacity of these projects to reach at least 15GW as oversizing is necessary to supply firm power at a high capacity factor. About 30-40 gigawatt-hours of battery storage capacity would also be needed.

These projects' scale and the high local content requirement imposed on them could spark the growth of Indonesia's clean energy manufacturing industry. Furthermore, project developers have also committed to build sustainable industrial zones in Riau Islands.

# Domestic solar supply chain expands and grows upstream

## Annual production capacity of silicon solar products in Indonesia




*Source: BloombergNEF's Solar Manufacturing Assets database. Note: Data is as of September 19, 2025.*

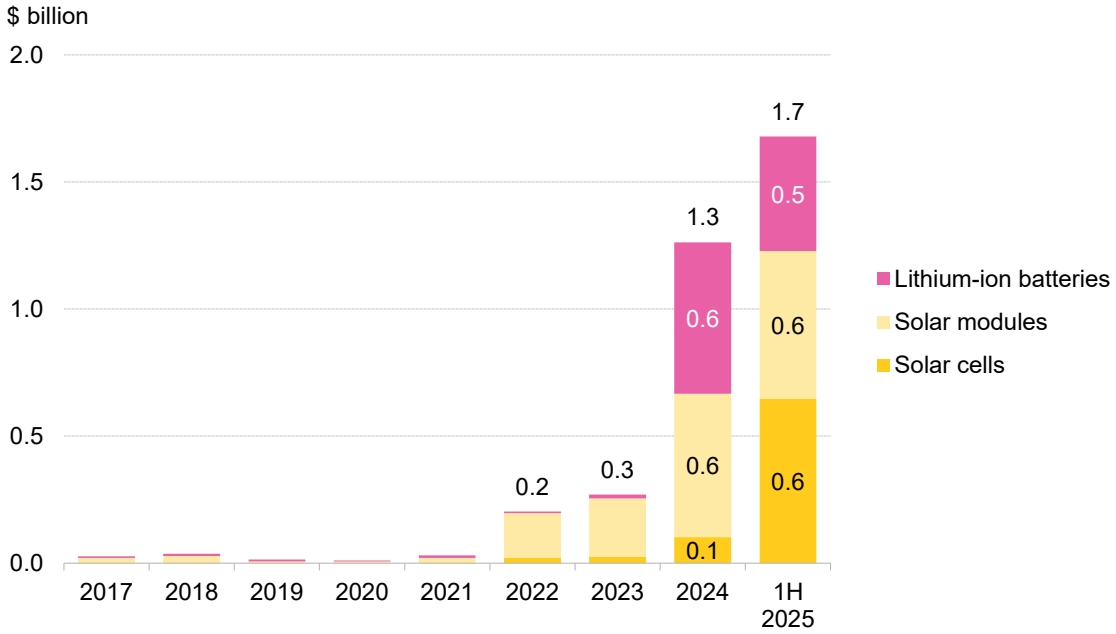
Annual silicon solar cell and module production capacities in Indonesia have skyrocketed from 0.5GW and 2.1GW in 2022 to 15GW and 20.8GW as of September 2025, respectively.

The local industry is also expanding into the upstream sectors of the solar supply chain. Silicon ingot and wafer factories are under construction with target capacities of 8GW/year each.

The US government has started an antidumping and countervailing duties investigation on solar cells and modules imported from Indonesia. If high tariffs are imposed, local demand for those products would be needed to sustain the nascent industry.

# Solar and battery exports soar as policies enable swift industry expansion

## Value of solar product and lithium-ion battery exports from Indonesia

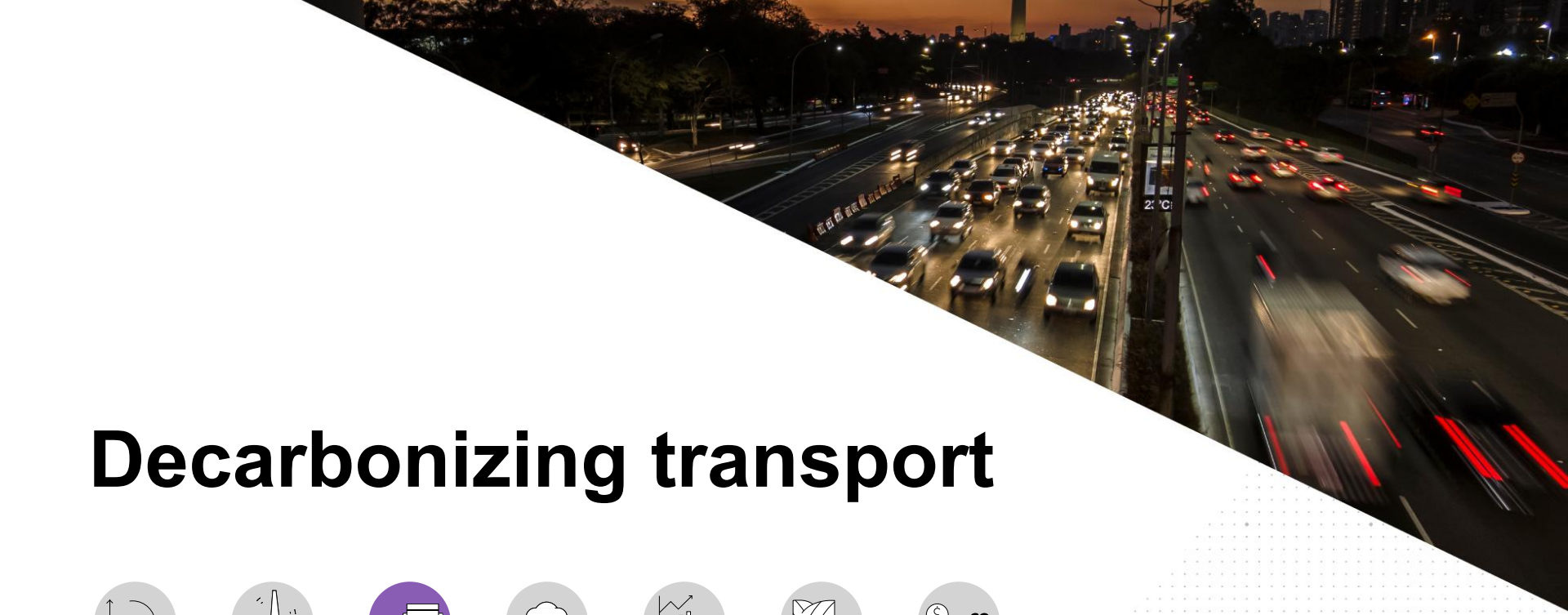



*Source: BloombergNEF, Badan Pusat Statistik.*

Indonesia is rapidly growing its role in the global clean-tech supply chain. Its exports of solar products and lithium-ion batteries soared from almost none in 2021 to $1.7 billion in the first half of 2025.

Three factors are driving this rise. US import tariffs on solar cells and modules from Indonesia's neighbors and the development of large-scale solar projects for clean power export to Singapore are attracting clean-tech manufacturers to set up shop in Indonesia.

The third and most important factor is the government's relentless push to attract foreign capital, especially in sectors like batteries that multiply the value of the country's nickel wealth.



# Decarbonizing transport

Energy scenarios

Clean power

**Decarbonizing transport**

Energy transition metals

Sustainable finance

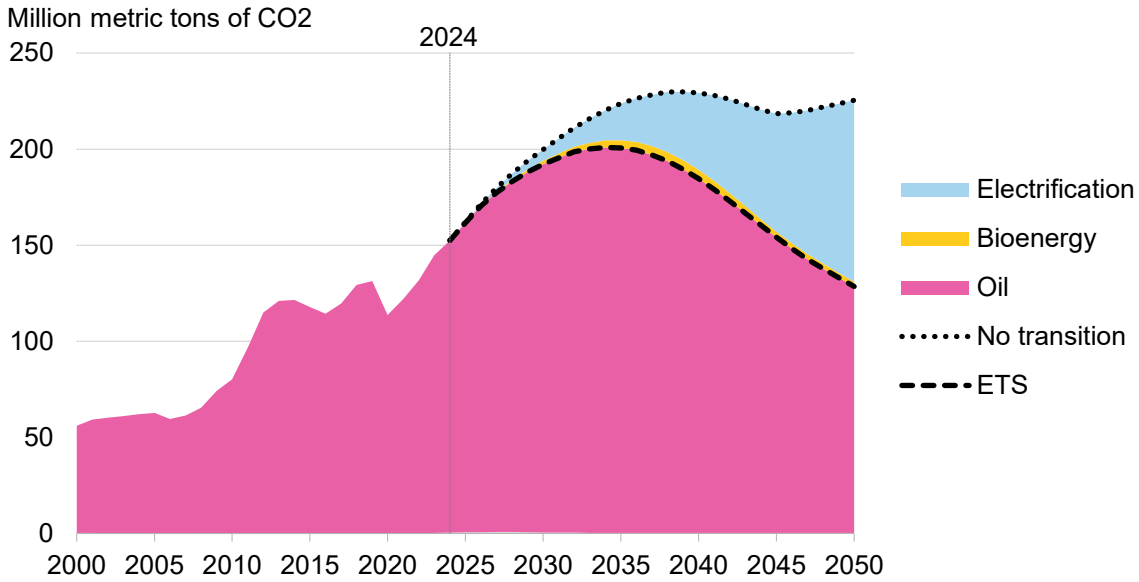
Biodiversity

Carbon markets

BloombergNEF

# Electrification is the key to cutting road transport emissions

## Indonesia's CO2 emissions abatement in road transport, by technology – ETS versus no transition scenario




*Source: BloombergNEF's New Energy Outlook 2025. Note: ETS refers to BNEF's Economic Transition Scenario. The 'no transition' scenario is a hypothetical counterfactual that models no further improvement in decarbonization and energy efficiency.*

Low-cost electric vehicles could rapidly decarbonize Indonesia's road transport, a sector that contributed 22% of the country's emissions in 2024.

Bioenergy supplied 14% of road transport's final energy consumption in 2024, driven by Indonesia's aggressive palm-oil-based biodiesel mandate.

However, biodiesel use is heavily reliant on subsidies sourced from a palm oil export levy. In BNEF's ETS, electric vehicles are a more economical tool for abating road transport emissions.

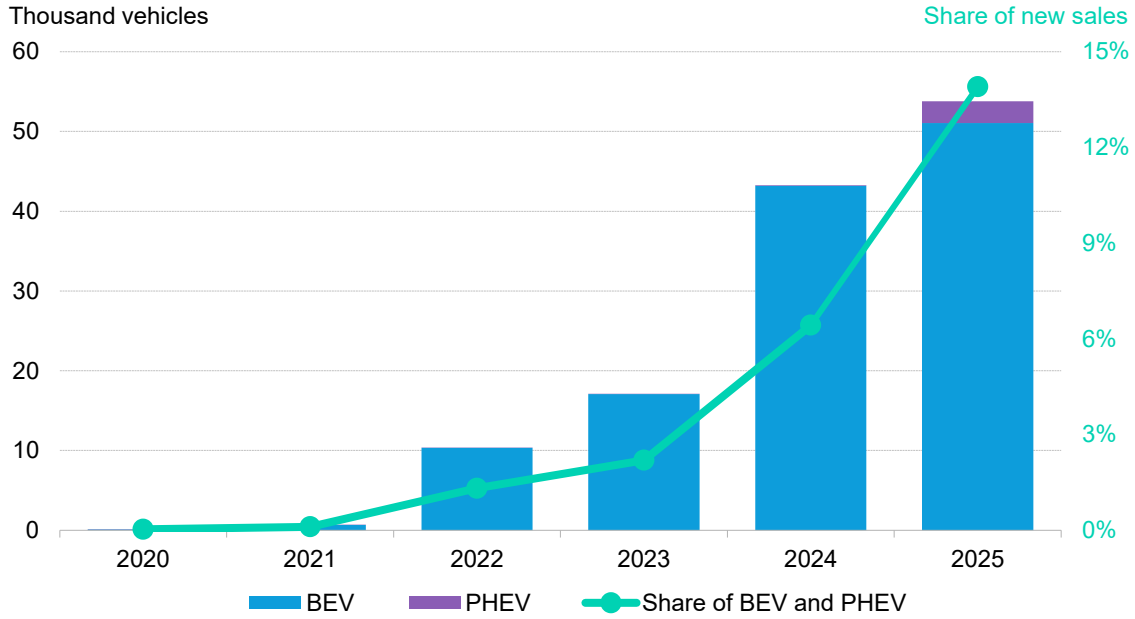
Indonesia's biofuel resources and refining industry could be refocused to producing sustainable aviation fuels, a much-needed commodity.



BloombergNEF

# EVs took 14% share of passenger vehicle sales in January to August 2025

## Passenger EV sales volume and its share of all passenger vehicle sales




*Source: BloombergNEF, Gaikindo. Note: Data is as of August 2025. BEV and PHEV are battery and plug-in hybrid electric vehicles, respectively.*

Electric vehicle sales are growing rapidly in Indonesia, reaching nearly 54,000 units between January and August 2025. This corresponds to 14% of passenger vehicle sales in this period, more than double the previous year's share of 6.4%.

Rising EV adoption is driven by a range of fiscal incentives and a wide array of affordable options available to buyers.

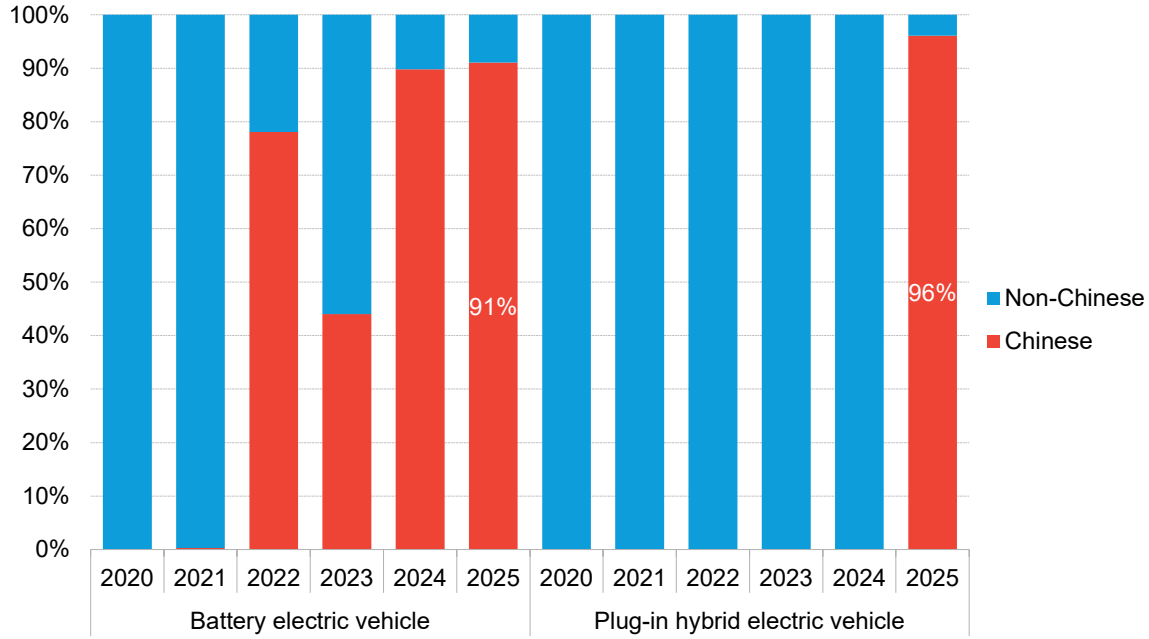
Eight brands recorded their first battery EV sales in Indonesia this year, while four brands have done the same for plug-in hybrid EVs. Automakers are also increasingly producing or assembling their products locally, helping to drive prices down.



BloombergNEF

# Chinese automakers control Indonesia's electric vehicle market

## Share of Chinese automakers in Indonesia's passenger EV sales




*Source: BloombergNEF, Gaikindo. Note: Data is as of August 2025.*

Chinese automakers produced 63% of all EVs sold globally in 2024, largely due to rapid EV adoption in emerging economies. In the Indonesian passenger vehicle market, 91% of battery EVs and 96% of plug-in hybrid EVs sold between January and August 2025 were Chinese.

BYD and its luxury sister brand Denza have a 50% share of the battery EV market, followed by Wuling, Chery and Aion. Chery and its sister brand Jaecoo have cornered the plug-in hybrid EV market in the absence of competition from other Chinese automakers.

The near-total dominance of Chinese firms may diminish slightly in 2026 as Vietnamese carmaker VinFast starts production in its Indonesian factory.

# More automakers are producing EVs in Indonesia; BYD to start in early 2026

## Passenger electric vehicle production in Indonesia, by brand

| Brand | Plant status | Production volume in 2024 | Production volume in 2025 |
|---|---|---|---|
| Chery | Operational | 585 | 8,535 |
| Wuling | Operational | 14,034 | 7,986 |
| Jaecoo | Operational | Not yet operational | 541 |
| Hyundai | Operational | 3,865 | 448 |
| Dongfeng Sokon (DFSK) | Operational | 140 | 200 |
| Polytron | Operational | Not yet operational | 88 |
| Seres | Operational | 140 | 76 |
| Morris Garage (MG) | Operational | 660 | 68 |
| Xpeng | Operational | Not yet operational | 60 |
| Neta | Operational | 1,225 | 0 |
| Mitsubishi | Operational | 110 | 0 |
| GAC Aion | Operational | Not yet operational | 0 |
| BYD, VinFast, Geely, Citroen, Maxus, Great Wall Motors, Volkswagen | Under construction | Not yet operational | Not yet operational |

Indonesia is emerging as Southeast Asia's EV manufacturing hub. As of August 2025, 11 brands have either a local factory or a local assembly facility.

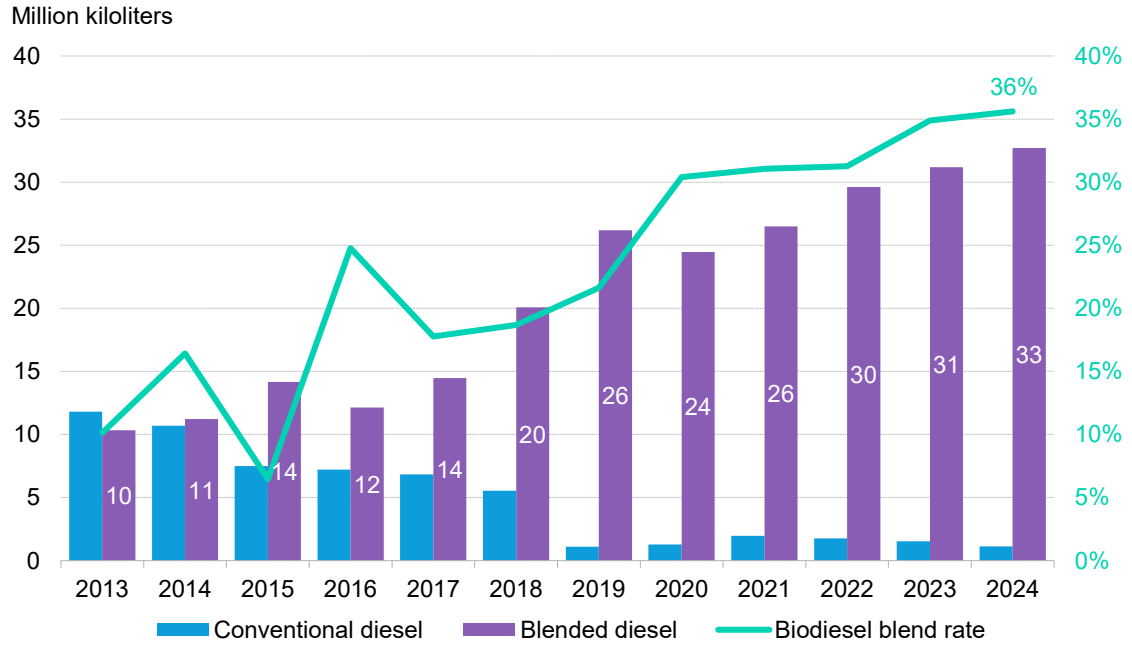
Heavyweights BYD and VinFast are building their own factories with an annual capacity of 150,000 and 50,000 cars, respectively. Five other brands are developing collaborations with local assembly facilities.

Local EV production accelerated in 2025, with Chery overtaking Wuling to be the biggest producer. The production rate is set to rise markedly in 2026, provided the BYD and VinFast plants are commissioned on schedule.

*Source: BloombergNEF, Gaikindo. Note: Plant status and production volume data are as of August 2025. Includes battery and plug-in hybrid EVs.*

# World's highest biodiesel blend mandate marches ever higher

## Diesel consumption and blend rate in Indonesia's transport sector




*Source: BloombergNEF, Ministry of Energy and Mineral Resources. Note: Blend rate is based on energy content.*

Indonesia boosted its mandatory biodiesel blend rate to 40% from 35% in early 2025. Another increase in what is already the world's most aggressive blending policy to 45-50% is planned in 2026.

Mixing palm-oil-derived biofuel with regular diesel fuel cuts the country's transport and industry emissions while reducing its reliance on oil imports.

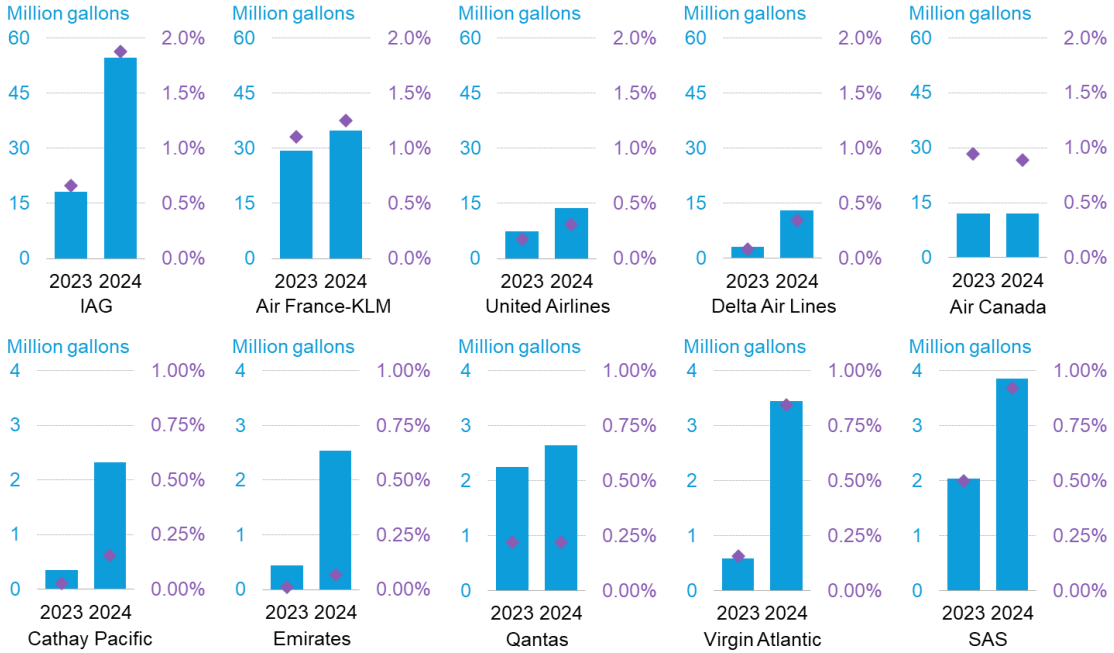
However, Indonesia may soon need to rethink the economics of this policy. Biodiesel production is subsidized using the proceeds from a palm oil export levy. Higher blending rates mean more palm oil is consumed domestically, so the required subsidy rises at the same time as the export levy collection shrinks.



BloombergNEF

# Biofuels beyond road transport: Global SAF demand is growing

## Sustainable aviation fuel usage and share of jet fuel for select airlines




Around 50 airlines have set some kind of sustainable aviation fuel (SAF) target as of June 2025. They accounted for about half of global jet fuel demand in 2024.

BNEF has identified over 170 agreements between aircraft operators and SAF producers or distributors since 2019. The agreements total 10.5 billion gallons, but the actual amount is likely larger as many deals do not disclose SAF volumes.

Indonesia mandates international flights to use 1% SAF by 2027, rising to 2.5% in 2030 and 50% by 2060. BNEF expects this policy to play a crucial role in increasing biofuel demand and production.

*Source: BloombergNEF, company reports. Note: Reporting periods of some airlines vary. Qantas reporting period is July 1-June 30. Emirates reporting period is April 1-March 31.*



BloombergNEF

# National oil company Pertamina expands sustainable aviation fuel production




As airlines around the world ramp up their SAF consumption, Indonesia's state-owned oil company, Pertamina, is growing its SAF production capabilities.

The first commercial flight using Pertamina-produced SAF was completed in October 2023. Flag carrier Garuda Indonesia flew from Jakarta to Solo using a SAF blend containing 2.4% palm-oil-derived biofuel.

In August 2025, Pertamina delivered its first batch of SAF made from used cooking oil. This fuel was later used in a Jakarta-Bali flight operated by Pelita Air, a Pertamina subsidiary.

Pertamina's SAF is certified by Corsia and the EU's Renewable Energy Directive.

*Source: Pertamina Patra Niaga*



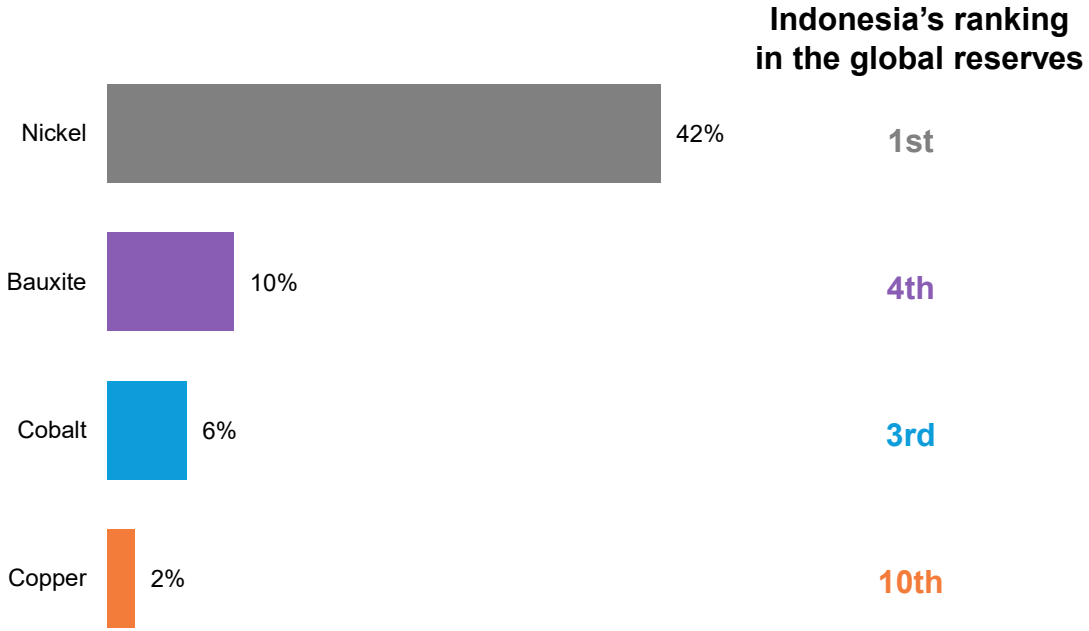
# Energy transition metals

Energy scenarios | Clean power | Decarbonizing transport | **Energy transition metals** | Sustainable finance | Biodiversity | Carbon markets

BloombergNEF

# Indonesia holds a significant share of strategic minerals' global reserves

## Indonesia's share of global metal and mineral reserves




*Source: United States Geological Survey, BloombergNEF.*

Indonesia is one of the countries with the largest reserves of energy transition metals. It has a particularly sizeable reserve of nickel, a metal used to produce stainless steel and the cathodes of high-capacity lithium-ion batteries.

BNEF expects the demand for these metals to increase rapidly. In BNEF's Economic Transition Scenario, nickel and cobalt demand for batteries grow by 2.5 and 1.3 times, respectively, from 2023 to 2030.

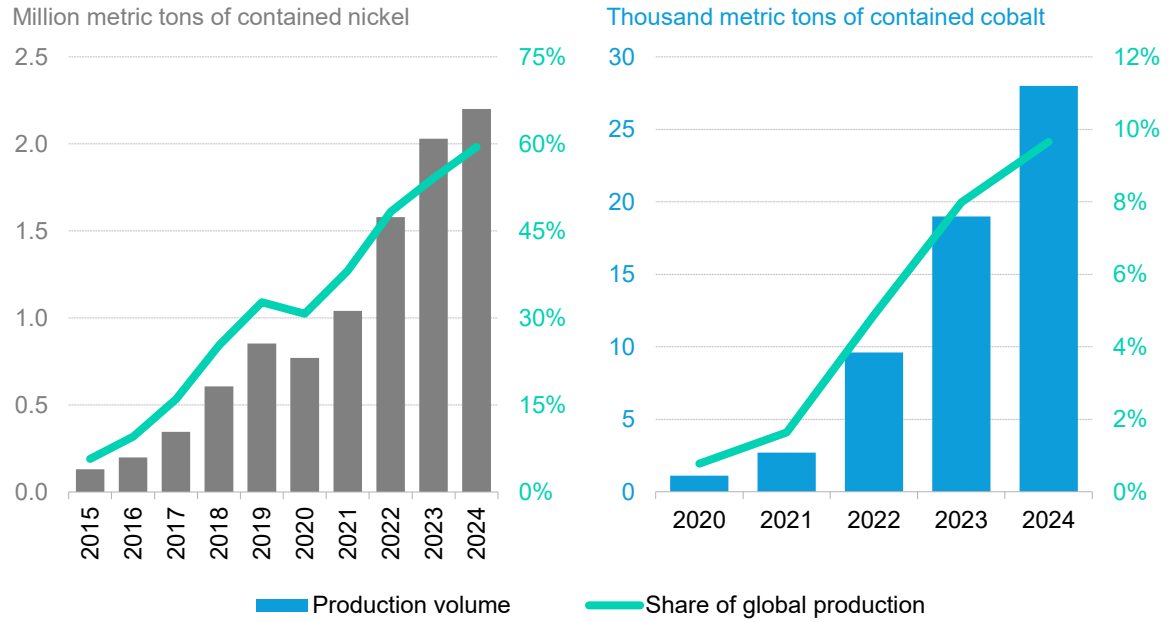
Demand for aluminum, the product of bauxite refining, rises 1.6 times over the same period. This is due to its use in EVs, power grids and other power-related infrastructure, such as solar modules.



BloombergNEF

# Indonesia’s nickel dominance leads to global control and a rising cobalt yield

## Indonesia’s mineral production volume and share of global output




*Source: United States Geological Survey, BloombergNEF.*

Indonesia is leveraging its substantial nickel and cobalt reserves to control a large share of global supply.

Nickel has been a key focus of the government’s mineral industry push. Thanks to enabling policies and a flurry of Chinese investment, Indonesia’s mined nickel output rose 17-fold to 2.2 million metric tons between 2015 and 2024. This corresponds to 60% of global production, making Indonesia a price-setter in the world market.

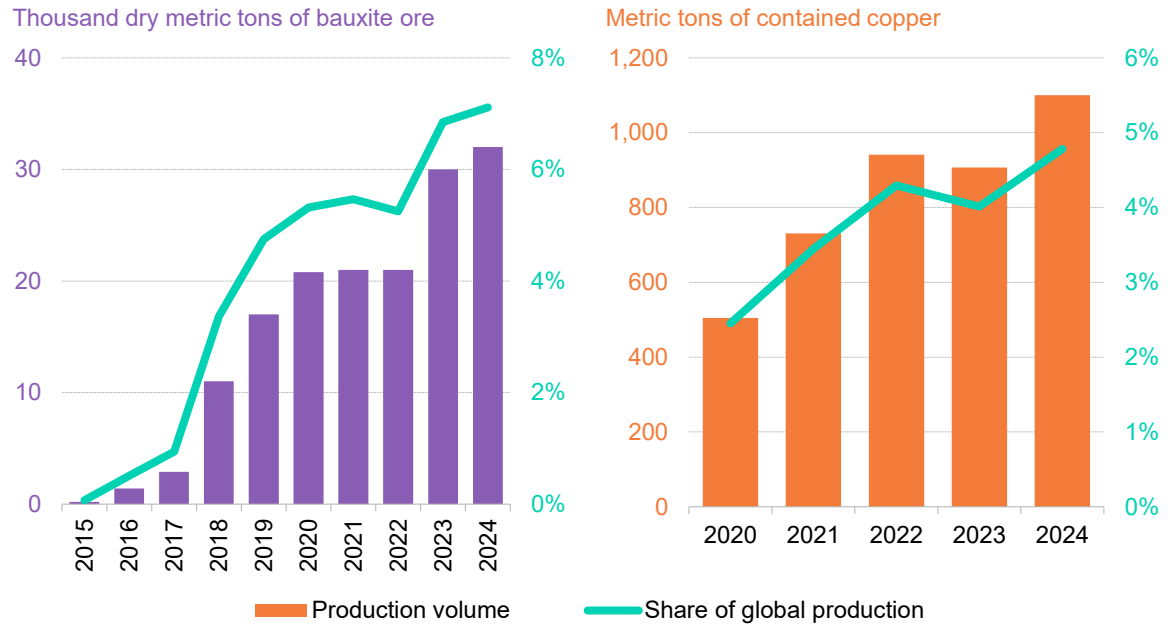
From 2020 to 2024, Indonesia saw a 25-fold rise in the production of cobalt, a byproduct of nickel refining and a key battery material. In five years, its share of the global cobalt production soared from less than 1% to nearly 10%.



BloombergNEF

# Bauxite and copper set to be the next key downstreaming targets

## Indonesia's mineral production volume and share of global output




*Source: United States Geological Survey, BloombergNEF.*

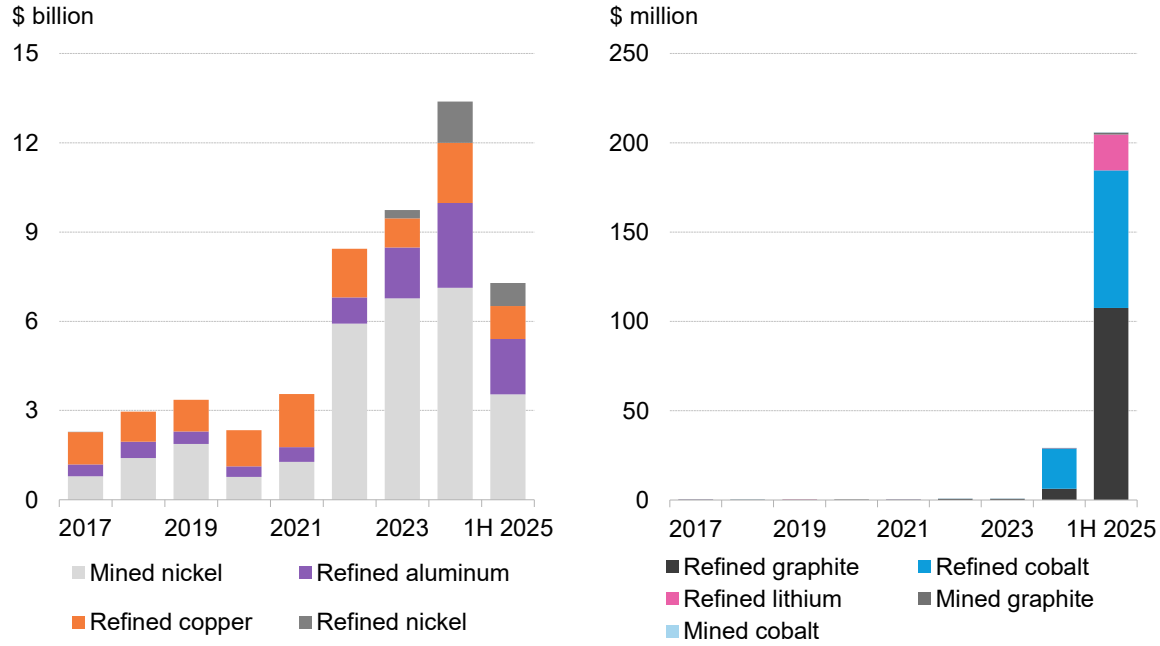
Bauxite and copper are two much-needed materials for the energy transition. Copper and aluminum, the product of bauxite refining, are essential in the production of EVs, power grids, power plants and batteries.

Indonesia holds 10% of the world's bauxite reserves. The country has banned exports to drive investment in the aluminum industry, in a repeat of its nickel playbook. Indonesia's share of global bauxite production leaped to 7% in 2024 from virtually none in 2015.

The archipelago is less dominant in the worldwide copper market, but its downstreaming ambition is just as strong. A copper ore export ban is in place to encourage domestic refining.

# Indonesia helps the world meet its critical mineral needs

## Value of critical minerals exports from Indonesia




*Source: BloombergNEF, Badan Pusat Statistik.*

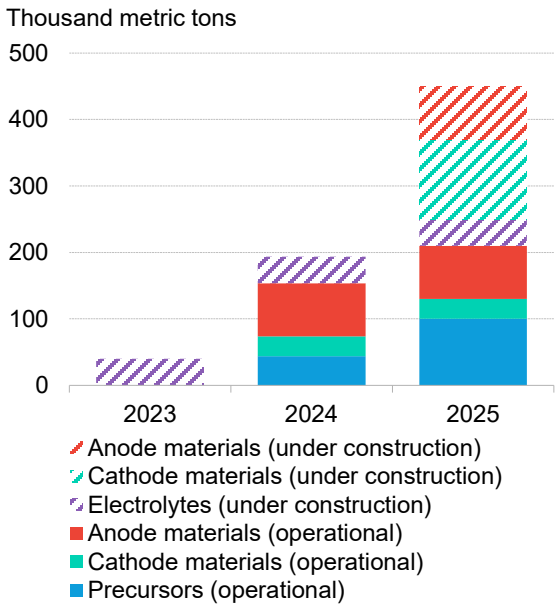
Indonesia is not just boosting its exports of clean-tech equipment and local production of EVs, it is also supplying more of the metals and minerals that are essential to make those products.

The country's traditional workhorses of nickel, aluminum and copper brought more than $13 billion in export revenue in 2024, a fourfold jump from 2021.

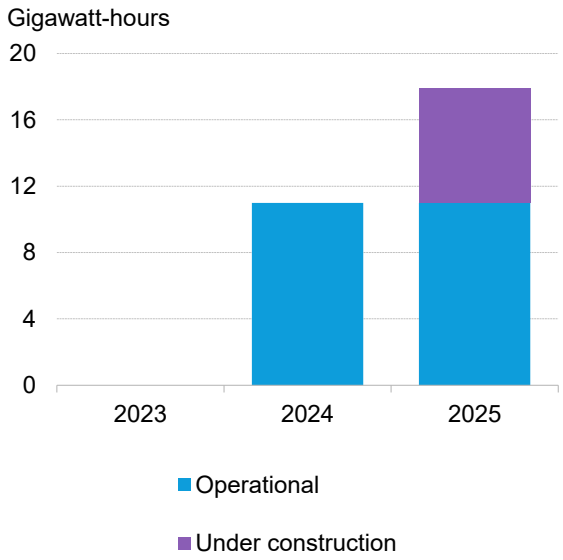
The minerals industry is also expanding into cobalt, lithium and graphite, all of which are crucial to the global energy transition. Exports of these materials surpassed $200 million in the first half of 2025, a massive leap from just $0.6 million as recently as 2023.

# Foreign investment drives rapid battery manufacturing expansion

## Annual production capacity of battery components in Indonesia




## Annual production capacity of lithium-ion battery cells in Indonesia




Lithium-ion batteries are a hugely important component in the energy transition, key to electrifying road transport and enabling a deeper penetration of renewables in the power generation mix.

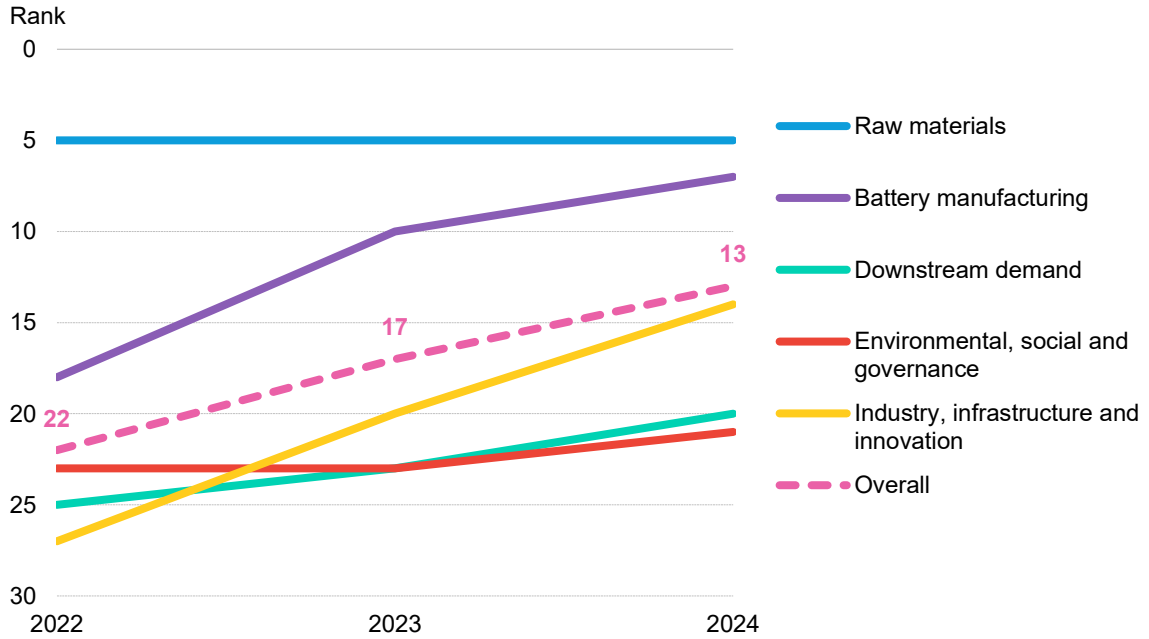
Indonesia's battery industry has grown significantly in the past two years, covering the entire value chain from battery precursors to cells.

This development has been driven largely through investments made by Chinese and Korean firms, working in close collaboration with the state-owned Indonesia Battery Corporation.

*Source: BloombergNEF's Battery Component Manufacturing Assets and Battery Cell Manufacturing Assets databases. Note: Data is as of September 19, 2025.*

# Good policy boosts Indonesia's battery supply chain plans beyond raw materials

## Indonesia's position in BNEF's Global Lithium-Ion Battery Supply Chain Ranking




Indonesia placed 13th overall and 2nd among 19 emerging economies in BNEF's latest Global Lithium-Ion Battery Supply Chain Ranking. This annual report rates 30 markets on their potential to build a secure, reliable and sustainable battery supply chain.

The country made the second-biggest jump in the rankings for two years in a row. Its raw material wealth is increasingly complemented by the government's vigorous pursuit of foreign investment into mineral refineries, battery production and EV manufacturing through fiscal incentives and local content requirements.

*Source: BloombergNEF's Global Lithium-Ion Battery Supply Chain Ranking*



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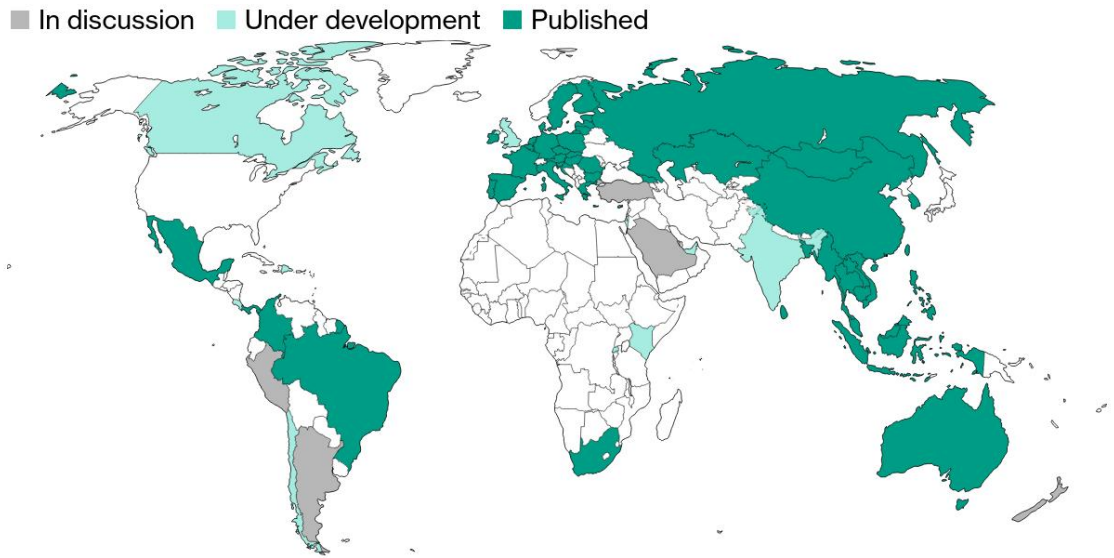
# Sustainable finance

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# Indonesia's green taxonomy guides investors and businesses' activities

## Status of green and sustainable taxonomy development, by market




Sustainable taxonomies allow companies, banks and investors to assess their exposure to activities aligned with the low-carbon transition and alter plans accordingly. As of June 2025, 23 taxonomies have been published globally and 18 more are being developed.

In January 2022, Indonesia became one of the first countries in Southeast Asia to publish a sustainable taxonomy. In 2025, the document was expanded and now covers the energy, transport, construction, real estate, forestry and palm oil plantation sectors.

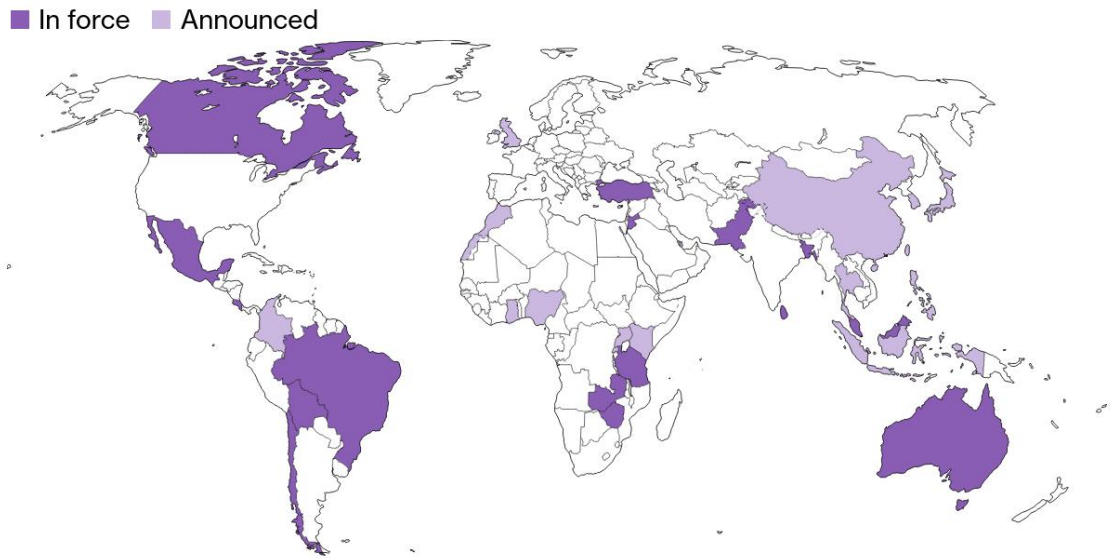
*Source: BloombergNEF's Sustainable Finance Policy Quarterly: 2Q 2025. Note: Brazil is marked as 'published' as the industry-led taxonomy is already in place, although the government-led taxonomy is currently under development. The Association of Southeast Asian Nations (ASEAN) has published a green taxonomy covering the group's 10 members. Within the bloc, Indonesia, Malaysia, Philippines, Singapore and Thailand have published their own national taxonomies. Data is as of June 2025.*



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# Indonesia will enforce sustainable finance reporting standards in 2027

## Status of ISSB sustainable finance standard adoption, by market




The International Sustainability Standards Board (ISSB) has created two standards for sustainable finance reporting: IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosures. They are in force in 17 markets as of June 2025.

Indonesia's Ministry of Finance, central bank and Financial Services Authority launched the country's Sustainability Disclosure Standards in August 2025. These standards, which are in line with IFRS S1 and S2, will be adopted on January 1, 2027.

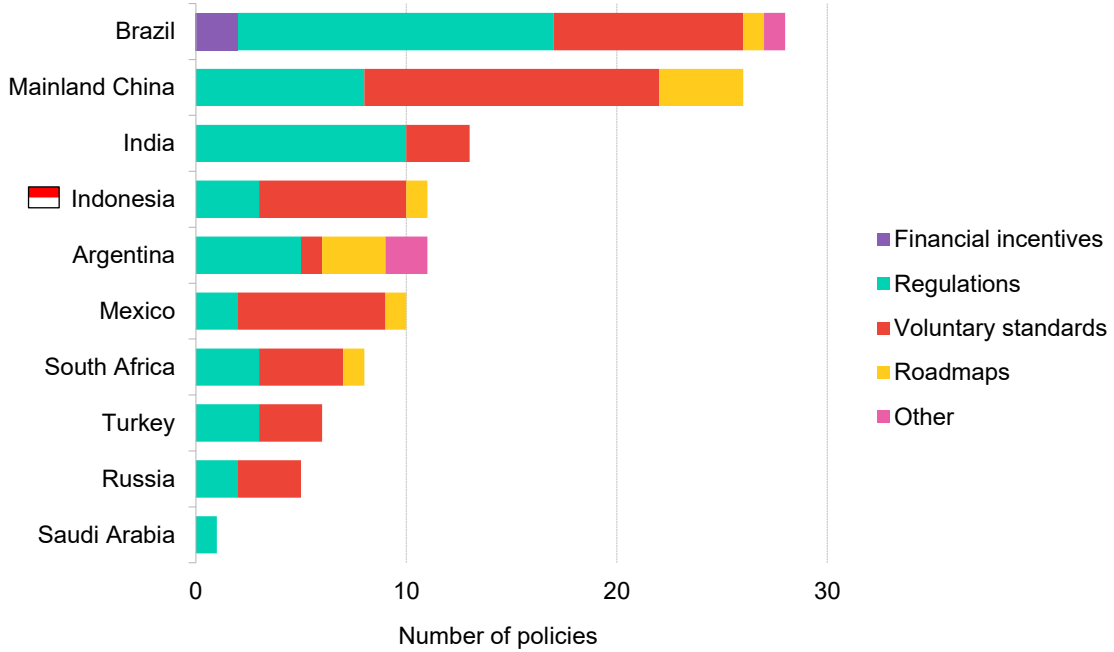
*Source: BloombergNEF's Sustainable Finance Policy Quarterly: 2Q 2025. Note: Planned integration can be voluntary or mandatory. Canada is 'in force' only as voluntary reporting framework, other jurisdictions mandate reporting. Data is shown for distinct economies and is as of June 2025. ISSB refers to the International Sustainability Standards Board.*



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# Indonesia's Financial Services Authority leads country's sustainable finance push

## Number of in-force sustainable finance policies in G-20 emerging economies




Indonesia has 11 policies in force related to sustainable finance, including three ASEAN-wide and four national voluntary standards.

The Financial Services Authority (Otoritas Jasa Keuangan) has taken the lead in guiding, and in some cases mandating, companies to disclose their environment and climate-related business activities and risks.

In particular, OJK Regulation 51/2017 requires financial services institutions, issuers and listed companies to disclose how they implement sustainable finance principles through annual action plan documents and sustainability reports.

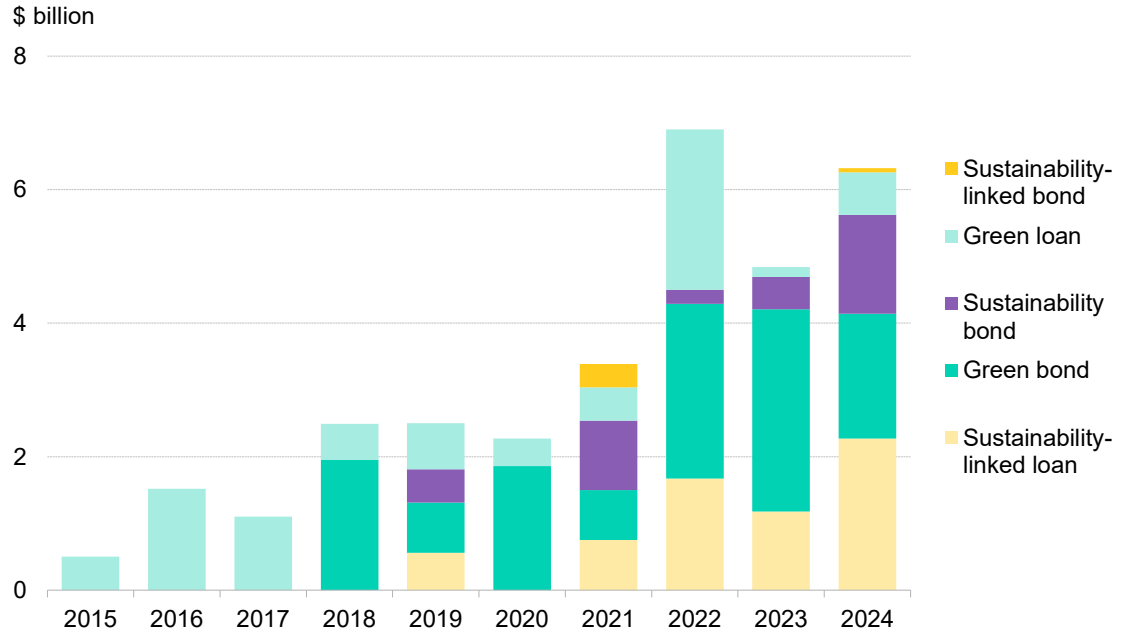
*Source: BloombergNEF's Sustainable Finance Policy Quarterly: 2Q 2025. Note: Includes policies that are currently in force as well as those that are ratified but pending enforcement.*



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# Green debt issuance thrives in Indonesia's public and private sectors

## Sustainable and sustainability-linked debt issued in Indonesia




*Source: BloombergNEF's Sustainable Finance database*

Sustainable and sustainability-linked debt issuance is not only rising in volume but also becoming more diverse as more types of financial instruments gain traction.

Debt volume grew by a factor of 12 in a decade, from $0.5 billion in green loans in 2015 to $6.3 billion across five sustainable debt forms in 2024.

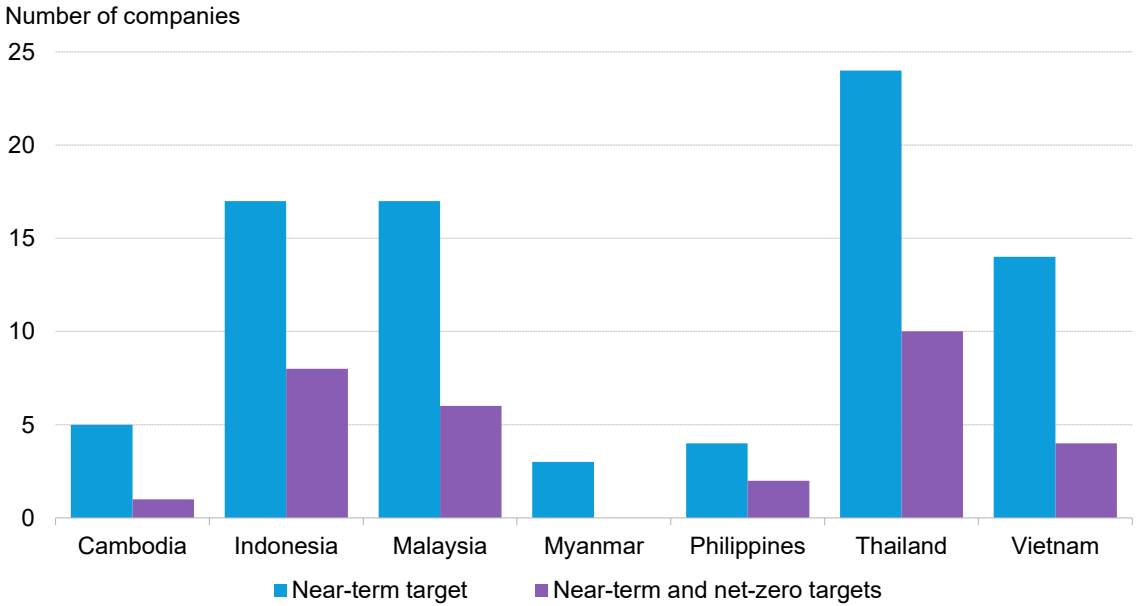
The Indonesian government issued $12 billion in sustainable debt over this 10-year period, 38% of the overall volume. In the private sector, the power utility PLN and independent power producers are the largest issuers with $8.5 billion in green loans and bonds.



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# Indonesian companies lead region in setting sustainability targets

## Number of companies from Southeast Asian emerging economies in the Science-Based Targets initiative




*Source: Science-Based Targets initiative, BloombergNEF. Note: Excludes commitments to set targets. Data is as of August 18, 2025.*

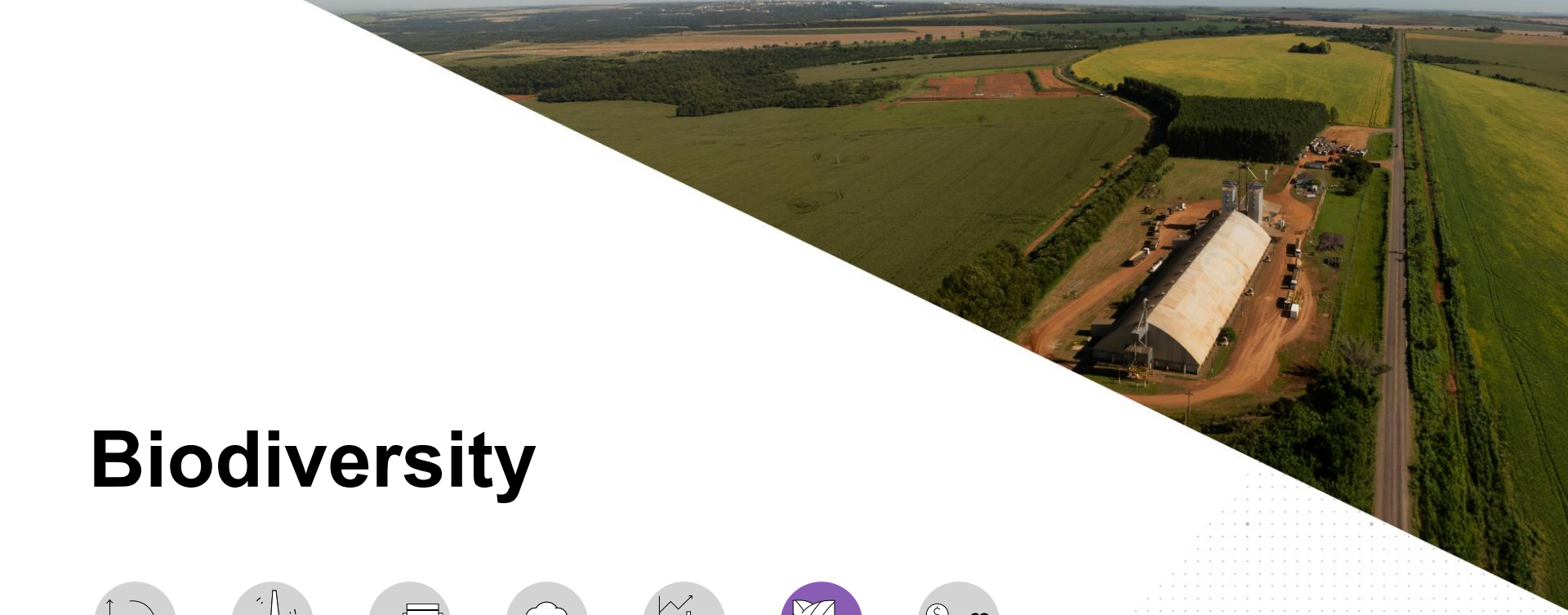
Since the Task Force on Climate-Related Financial Disclosures (TCFD) was disbanded in 2023, the Science-Based Targets initiative (SBTi) has become the new industry standard for sustainability commitments.

In Indonesia, 17 companies have set validated near-term decarbonization targets, including eight that have also set net-zero targets. These numbers are the second-highest among emerging economies in the region.

The textile, apparel and footwear industry dominates the list of SBTi signatories in Indonesia with five companies, followed by food and agricultural production with three firms.



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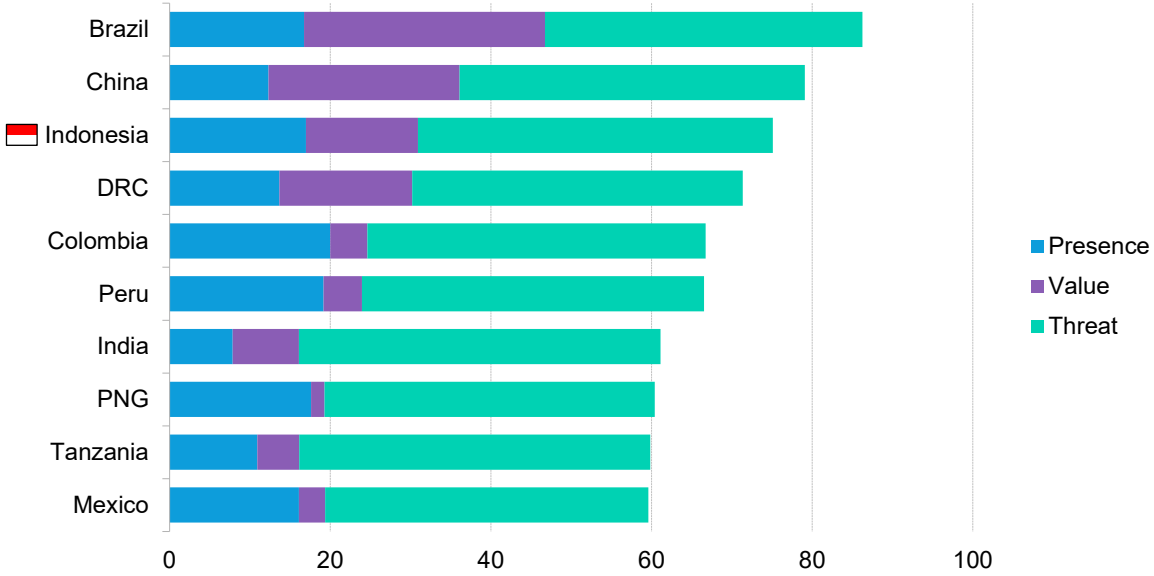
# Biodiversity

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# Indonesia is one of the world's top priorities for biodiversity protection

## Top 10 BloombergNEF biodiversity funding priorities, 2024




The BNEF biodiversity funding priority score is based on the presence of biodiversity, the value of natural ecosystem services, and the degree to which these resources face threats.

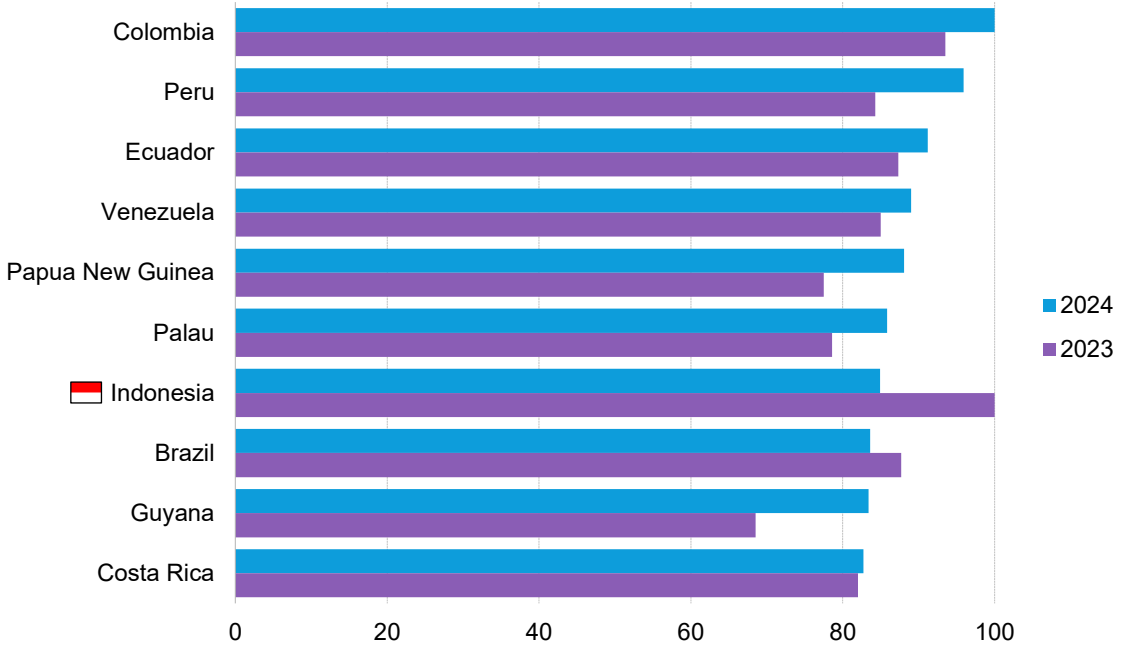
Indonesia has the third highest overall priority score in BNEF's index, with intact ecosystems that have plenty of species diversity and which provide services that support the local and global economies.

However, the high 'threat' score means these ecosystems are at risk from human population pressures, extractive and agricultural industries, or illegal trade.

*Source: BloombergNEF, Convention on Biological Diversity. Note: DRC stands for Democratic Republic of Congo and PNG stands for Papua New Guinea. Total priority score refers to weighted average of 'presence' (20%), 'value' (30%) and 'threat' (50%) indexes. 'Presence' indicates species richness, endemism or rarity; 'value' reflects ecosystem services and whether or not these are commercialized; 'threat' indicates the level of risk faced by species or habitat, and local authorities' ability to respond.*

# Indonesia has diverse natural ecosystems that it needs to protect

## Top 10 countries in BloombergNEF biodiversity presence index




*Source: BloombergNEF, Convention on Biological Diversity. Note: 'Presence' indicates species richness, endemism or rarity.*

The presence of biodiversity score indicates how connected natural habitats are and how many unique or rare species they contain.

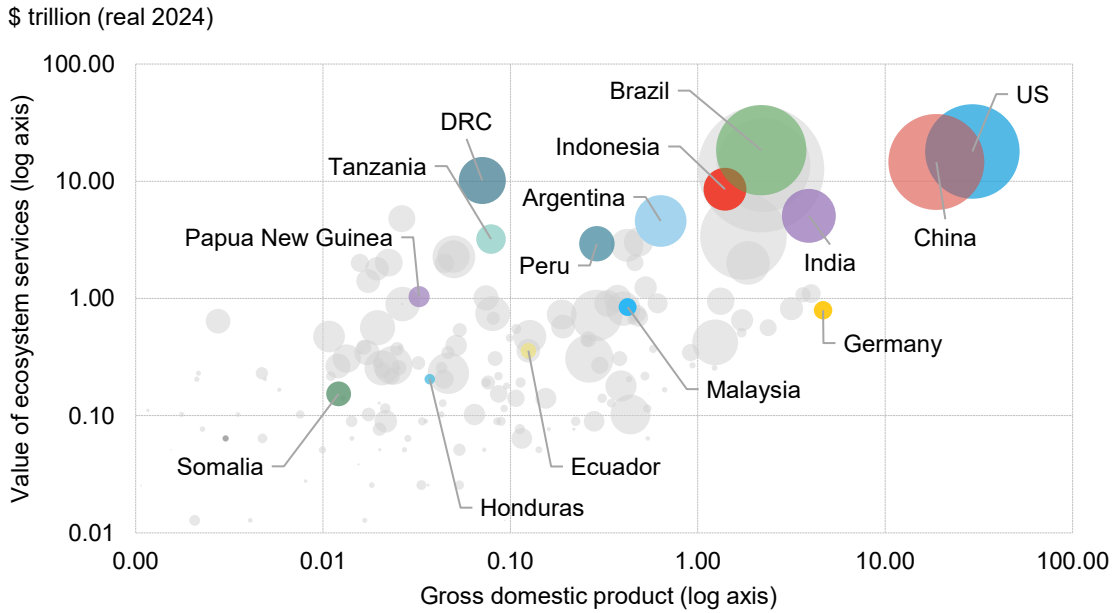
Indonesia has the seventh-highest presence score in 2024, reflecting its biological abundance and diversity.

However, the archipelago's presence score declined markedly from 2023 as habitat fragmentation threatens the country's wealth of native species.

Indonesia should aim to maintain its natural ecosystems while pursuing greater prosperity, especially as natural resource extraction plays a significant role in growing the country's economy.

# Indonesia's ecosystem services is the world's seventh most valuable

## Value of terrestrial ecosystem services




The ecosystem services provided by nature underpin many economic activities. These services include provisioning of material and energy extracted from nature, support of recreation, tourism, art and health, maintenance of air and soil quality, protection against natural disasters and disease, and habitat provision for plants and animals.

Indonesia has the world's seventh highest value of ecosystem services, which is defined as the aggregate value of the services outlined above. This highlights the importance of Indonesia's environment to the local and global economies – and why it is worth protecting.

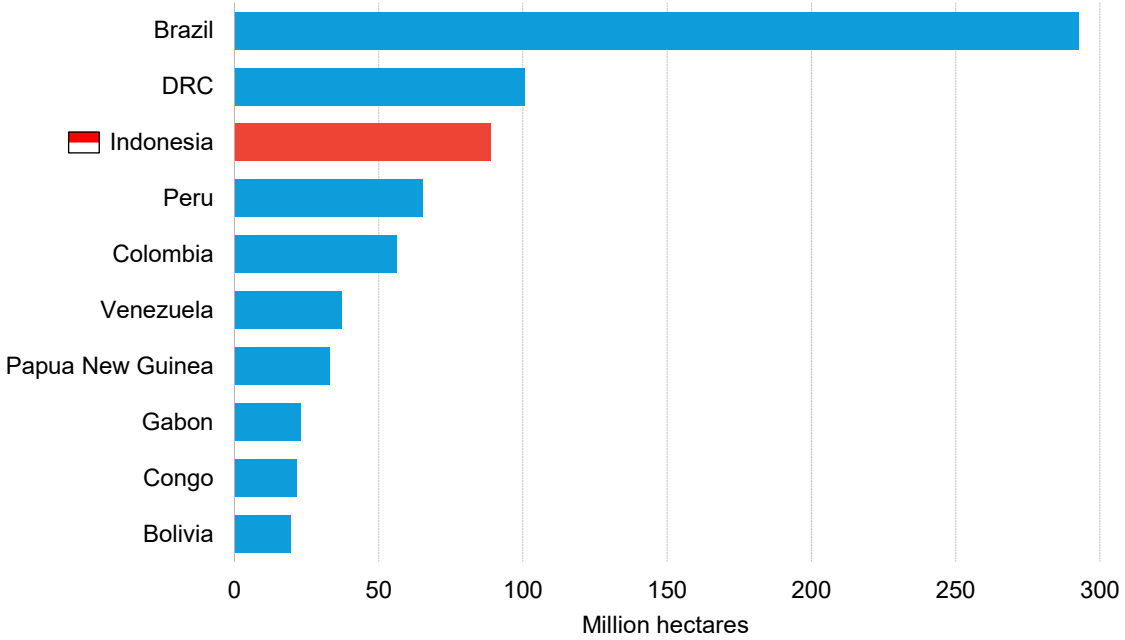
*Source: BloombergNEF, World Bank, Jiang et al, "Mapping Global Value of Terrestrial Ecosystem Services by Countries",* Ecosystem Services, *52, 2021. Note: DRC refers to the Democratic Republic of Congo. Bubble size represents each country's land area.*



BloombergNEF

# Indonesia is co-leading the formation of a forest conservation funding facility

## Countries with the largest undisturbed tropical moist forest area, 2024




*Source: European Union Joint Research Centre, BloombergNEF. Note: DRC refers to the Democratic Republic of Congo.*

Indonesia is home to one of the world's largest tropical forest covers, a biome that provides a variety of valuable ecosystem services, including by storing vast amounts of carbon.

However, about 3.1 million hectares of tropical forests are lost every year globally, releasing much of the absorbed carbon back into the atmosphere.

Indonesia and nine other countries are supporting Brazil to establish the Tropical Forest Forever Facility, a new financing mechanism to incentivize the long-term conservation of tropical forests. This program will be launched in COP30 in November 2025.



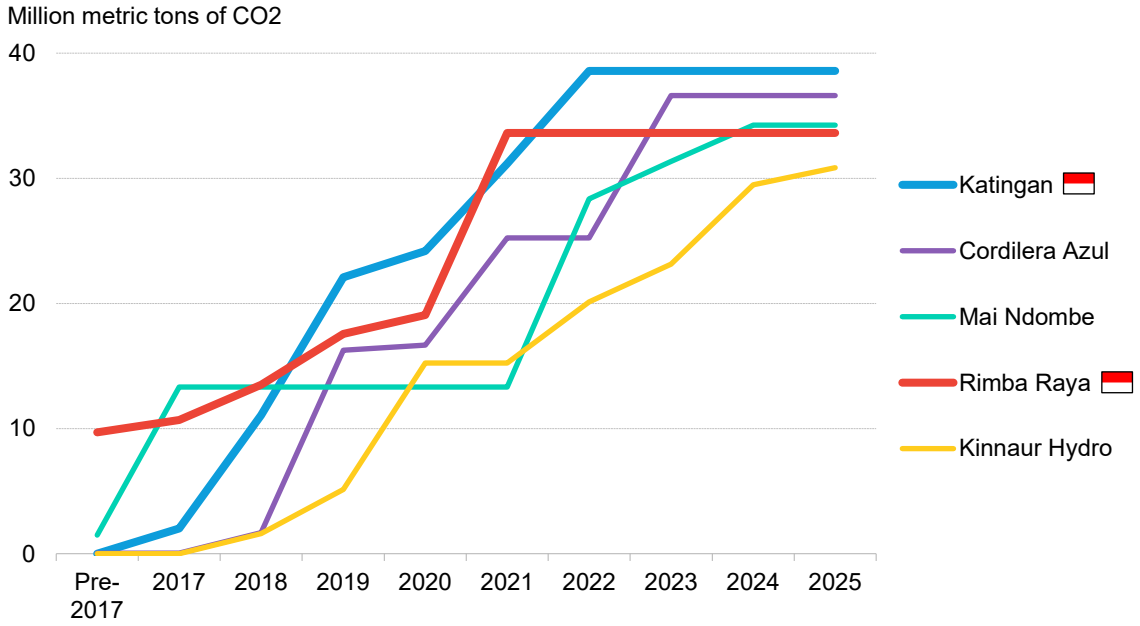
# Carbon markets

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# Indonesia's Katingan peatland is the king of carbon credit projects

## Five projects with the largest cumulative carbon credit issuance




The Katingan Peatland Restoration and Conservation Project is the world's top issuer of carbon credits, with nearly 40 million metric tons of carbon dioxide equivalent's worth of offsets issued since 2017. Katingan has retained its position despite not issuing any credits since 2023 due to Indonesia's ban on international trade of carbon credits.

Katingan is accompanied by Rimba Raya, another Indonesian project, in the global top credit issuer list.

Both Katingan and Rimba Raya have the highest rating of AA from BeZero Carbon, which look at a project's ability to avoid or remove a true ton of carbon.

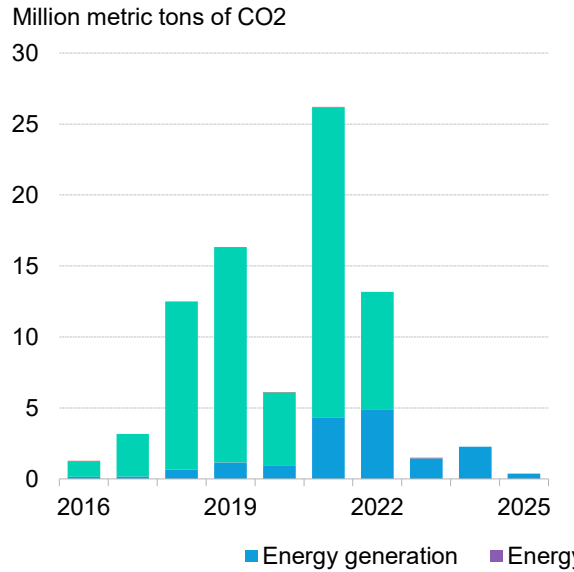
*Source: BloombergNEF, Verra, Gold Standard, American Carbon Registry, Climate Action Reserve. Note: Data is as of September 14, 2025.*



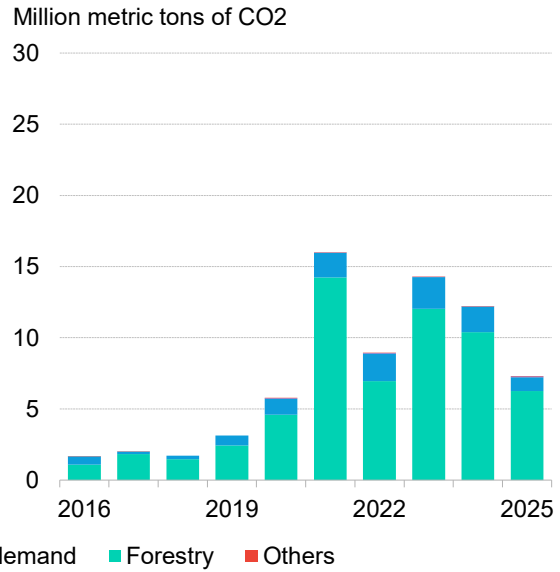
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# Resuming international forestry credit trading will boost Indonesia's issuance

## Annual issuance of carbon credits from Indonesian projects




## Annual retirement of carbon credits from Indonesian projects




Energy generation  Energy demand  Forestry  Others

*Source: BloombergNEF, Verra, Gold Standard, American Carbon Registry, Climate Action Reserve. Note: 'Others' includes waste, emissions and metal sectors. Data is as of September 14, 2025.*

While Indonesia-based projects remain on top for credit issuance for now, they won't stay there for long unless the country lifts its international credit trading moratorium in place since September 2022.

Following this ban, Indonesia's forestry credit issuance fell from a peak of 21.8 million in 2021 to 44,290 in 2023 and zero in 2024 and 2025.

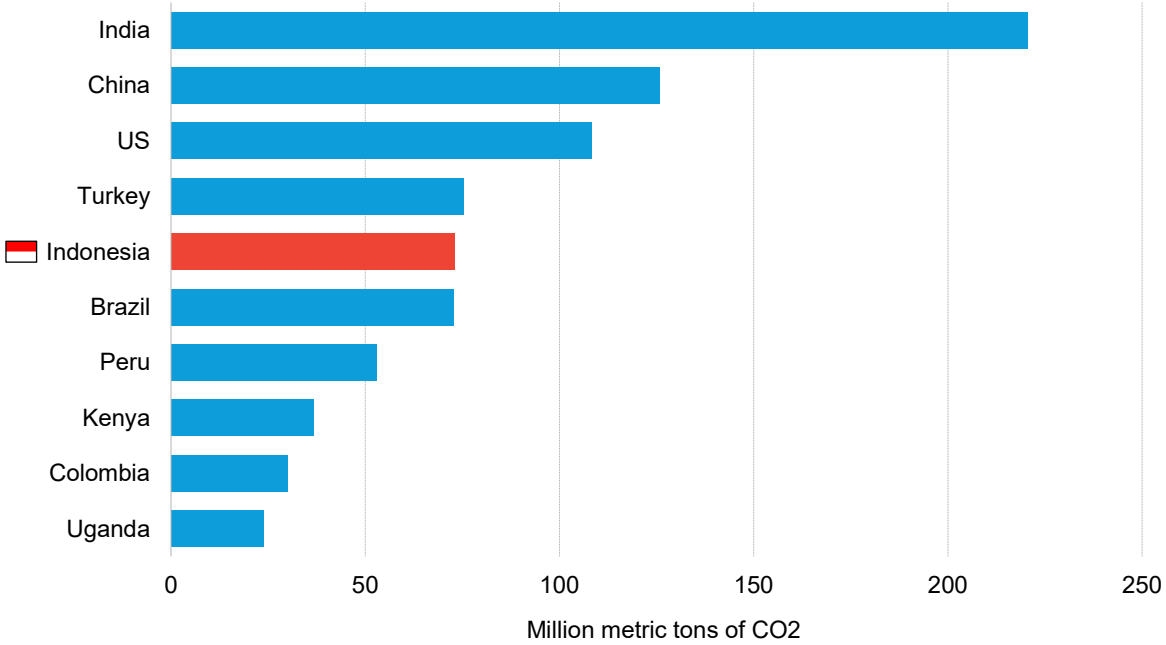
Falling Indonesian credit retirement in the past two years may have been indirectly caused by this ban, as some buyers prefer purchasing more recently issued credits.



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# Indonesia is the fifth-largest supplier of retired carbon credits

## Top suppliers of retired carbon credits, 2016-2025




Over the past decade, carbon credits have become an increasingly popular method for countries and companies to offset their greenhouse gas emissions.

From 2016 to September 2025, about 1.1 billion metric tons of carbon dioxide equivalent were offset by retiring credits from projects in the Verra, Gold Standard, ACR and CAR registries.

About 6.6% of those retired credits came from projects in Indonesia. The nature of these projects range from forestry and energy generation to energy demand reduction and waste.

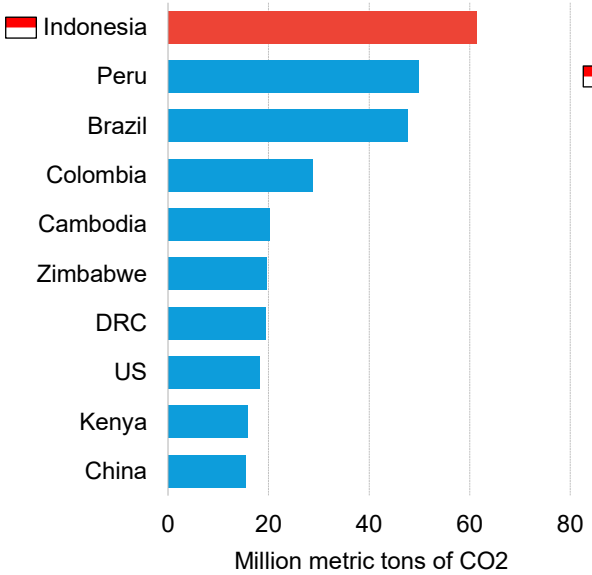
*Source: BloombergNEF, Verra, Gold Standard, American Carbon Registry, Climate Action Reserve. Note: Data is as of September 14, 2025.*



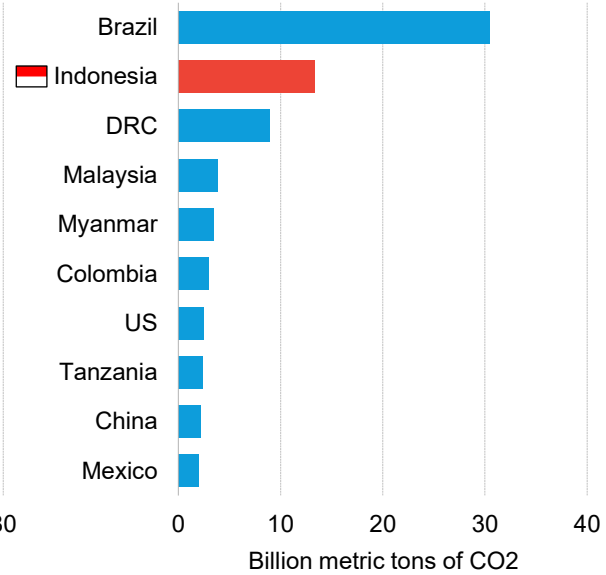
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# Indonesian forests are the world's top source of high-demand forestry credits

**Top suppliers of retired forestry carbon credits, 2016-2025**




**Top suppliers of nature-based carbon credits, 2024-2050**




*Source: BloombergNEF, Nature4Climate, Verra, Gold Standard, American Carbon Registry, Climate Action Reserve. Note: DRC refers to the Democratic Republic of Congo. Historical carbon credit retirement data is as of September 14, 2025.*

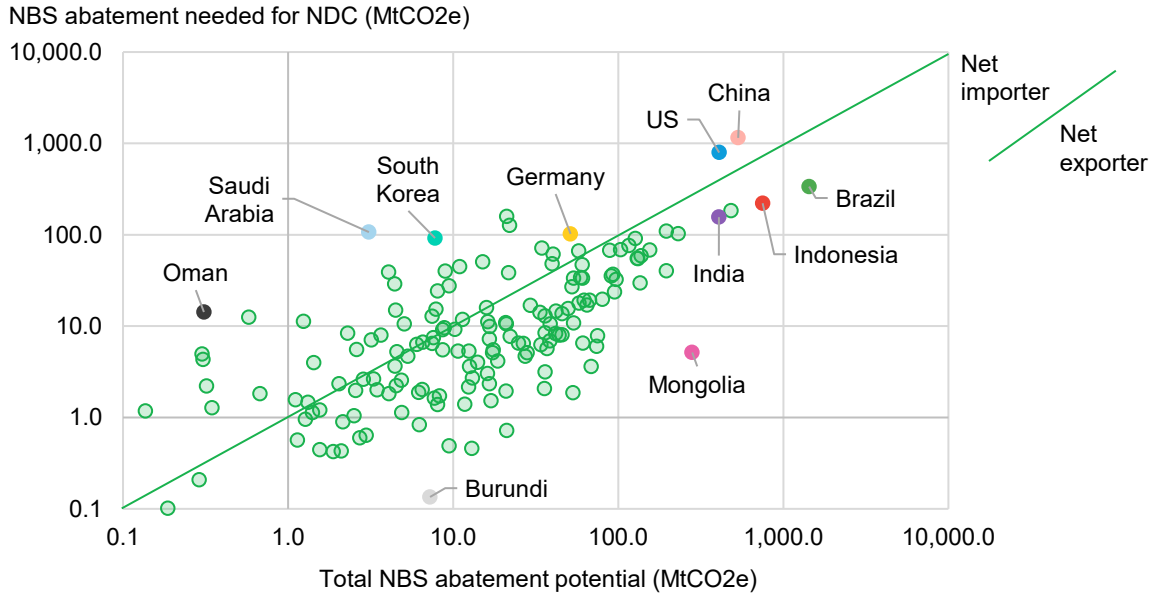
Forestry is the second most popular carbon credit sector, contributing a third of the 1.1 billion credits retired globally from 2016 to September 2025.

Over this period, more retired forestry credits were sourced from Indonesia than anywhere else. One of every six credits were purchased from projects based in the archipelago's forests.

BNEF modeling shows that Indonesia could generate about 13.4 billion forestry credits from 2024 to 2050. This represents a huge opportunity to maintain the country's ecosystem while bettering the livelihood of people living in the surrounding areas. However, this potential might only be unleashed if the international credit trade ban is lifted.

# Indonesia can provide enough forestry credits to cut its own and others' emissions

## Nature-based emissions abatement potential versus the amount needed to meet Nationally Determined Contribution (NDC) climate targets, by market




*Source: BloombergNEF, Naturebase. Note: Assumes 15% of countries' emission reduction targets in their NDCs is met with nature-based solutions (NBS). MtCO2e is million metric tons of carbon dioxide equivalent.*

Indonesia banned international credit trading in order to prioritize using those credits to reach the country's NDC climate goals.

BNEF's carbon credit supply modeling suggests that Indonesia can generate enough high-quality forestry credits to become a net exporter, even if the country relies heavily on nature-based solutions to meet its NDC target.

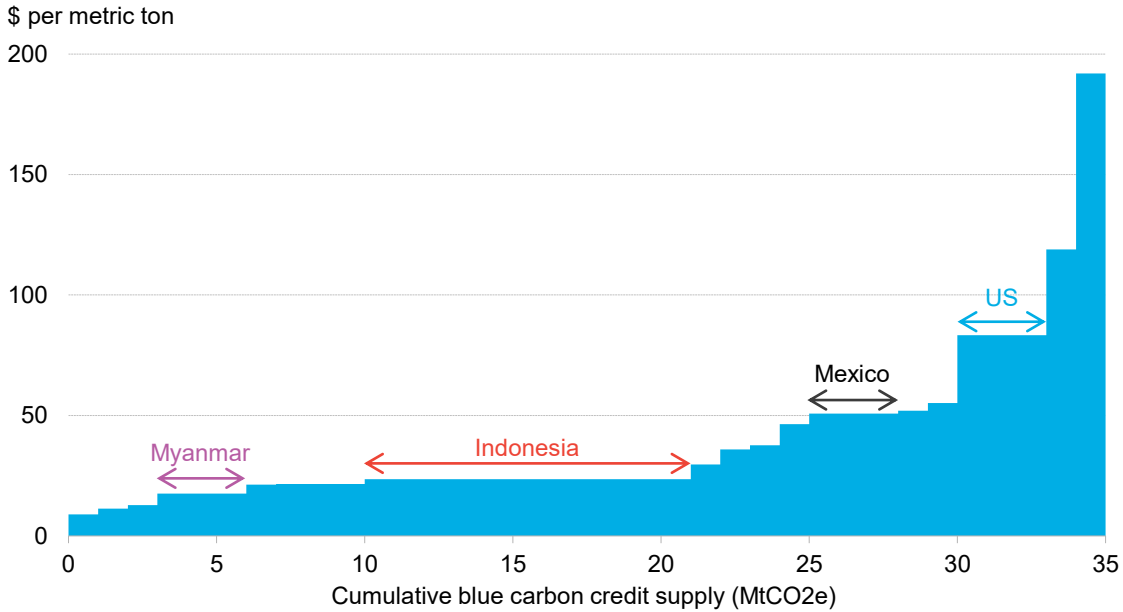
For example, covering 15% of Indonesia's emissions reduction goal would need about 221.4 million credits, just 30% of its forestry credit potential. However, this potential can only be fully tapped if Indonesia fulfills its decarbonization pledges.



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# Indonesia’s long coastlines hold vast emissions abatement potential

## Blue carbon marginal emissions abatement cost curve, 2050




Coastal and marine ecosystems like mangroves, salt marshes and seagrass can store significant amounts of carbon. However, they are threatened by infrastructure development, rising sea levels, extreme weather and pollution. Blue carbon credits can help facilitate the preservation of these ecosystems.

BNEF’s modeling shows that Indonesia could be the world’s largest supplier of blue carbon credits. In 2050, the country could produce enough credits to offset about 11 million metric tons of carbon dioxide equivalent at a low cost of $11/ton.

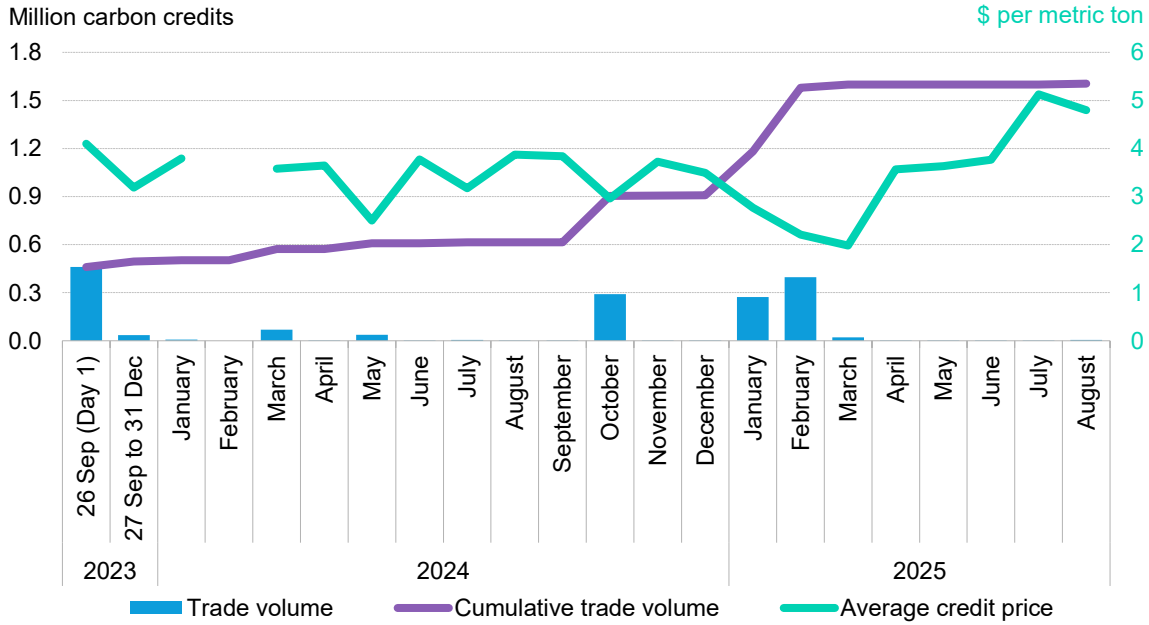
*Source: BloombergNEF, Naturebase. Note: Markets over $200/ton were excluded to prevent chart distortion. Countries with no reported data to the UN Food and Agricultural Organization were not included, regardless of abatement potential. MtCO2e is million metric tons of carbon dioxide equivalent.*



BloombergNEF

# National carbon market suffers from low liquidity due to delayed carbon tax

## Trade volume and average price in Indonesia's national carbon credit exchange




*Source: BloombergNEF, IDXCarbon. Note: IDXCarbon commenced trading on September 26, 2023. Monthly breakdown of trading data is available from January 2024. No trading activity was recorded in February 2024.*

Indonesia launched its domestic carbon credit market, IDXCarbon, in September 2023. Since then, credits worth about $5 million have been traded.

However, trading activity has been highly uneven and very thin in many months. Nearly 460,000 credits were sold on the exchange's opening day, but monthly trade volumes have not reached that level since.

Indonesia should implement its long-delayed carbon tax expansion to boost liquidity in IDXCarbon. More importantly, this policy would internalize the impact of emissions in the costs of goods and services, and thus guide customers toward more sustainable choices.

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We help commodity trading, corporate strategy, finance, and policy professionals navigate change and generate opportunities.

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