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The State of Asia's Energy Transition and the Outlook For 2025

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The State of Asia's Energy Transition and the Outlook For 2025 is developed by Energy Tracker Asia. Energy Tracker Asia commits to publishing high-value content, with the aim of showcasing the inevitable rise of clean energy in Southeast and East Asia by creating compelling stories and getting our stories to the people who need it most.

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The State of Asia's Energy Transition and the Outlook for 2025

Asia's booming economy and population growth will significantly increase the region's energy demand in the upcoming years. The International Energy Agency (IEA) finds that China will experience the biggest share of global electricity demand growth through 2026, while India will register the fastest growth rate among major economies.[1] The way Asian countries choose to meet the expected demand growth could be detrimental not only to their energy security and affordability but also to global emissions reduction progress and limiting global warming to 1.5°C.

While Asia kick-started its clean energy transition a little later than other regions, it is quickly catching up. The 27% share of solar and wind power in the region's electricity mix is close to the world average,[2] while countries like India, Indonesia and Vietnam, for example, have set interim targets for renewables to account for over 40% of their electricity generation by 2030.[3] Furthermore, investments in Asia's clean electricity sector significantly outweigh those in fossil fuels.[4]

1. IEA, Electricity 2024: Analysis and forecast to 2026
2. Ember, Asia
3. Ember, 2030 Global Renewable Target Tracker
4. IEA, World Energy Investment 2023

Importantly, Asia is the only region in the world on track with the global goal of tripling renewable energy capacity by 2030, mainly due to the efforts of China and India.[5]
Yet, it remains home to 82% of global coal power generation and has ambitious gas expansion plans in a bid to meet its record electricity demand growth.[2]

However, Asia's own history proves that renewables are more than capable of meeting this growth while also providing shelter from high fossil fuel import costs, strengthening energy security. While Asia was responsible for 90% of the global electricity demand growth between 2016 and 2023, the continent managed to meet 50% with clean electricity.[2]

5. Climate Analytics, Tripling renewables by 2030: interpreting the global goal at the regional level

China

In 2023, China was responsible for 51% of the new solar power generation and 60% of the new wind power generation globally.[6]

At the end of October 2024, the Chinese government unveiled a new clean energy plan to accelerate renewable energy consumption with interim targets for 2025 and 2030.[7] The plan's goals include increasing annual renewable energy consumption to 1 billion tonnes of standard coal equivalent (SCE) by 2025, a 30% jump from 2023 levels, and 5 billion tonnes of SCE by 2030, another 36% increase from the 2025 levels. The focus would be on solar and wind power. The plan also prioritises investments in grid expansion and modernisation, EVs and emerging green technologies.

In 2025, the country is expected to surpass its target of having 1,200 GW of clean power by 2030, reaching 1,500 GW.[3] According to experts, the country's CO_2 emissions have already peaked or will do so in 2025.[8]

The IEA projects that the country will meet all of its electricity demand growth between 2024 and 2026, driven mainly by the increased production of solar PV modules and batteries, with renewables and nuclear.[1] While China will add 40 to 50 GW of new coal-fired power plant capacity annually between 2024 and 2026, coal power's dominant role will be diminished to complement renewables and enhance energy security.

6. Ember, Global electricity review 2024
7. China Briefing, China's New Renewable Energy Plan: Key Insights for Businesses
8. The Guardian, China's CO2 emissions have peaked or will in 2025, say 44% of experts in survey

Between now and 2030, China will account for nearly 60% of all renewable energy capacity installed worldwide. By the decade's end, the country will have over half of the world's renewables.[9] Alongside India, it will be the engine behind the accelerated deployment of renewables, which, between 2024 and 2030, are expected to roll out at three times the pace of the previous six years.

9. The Guardian, China to head green energy boom with 60% of new projects in next six years

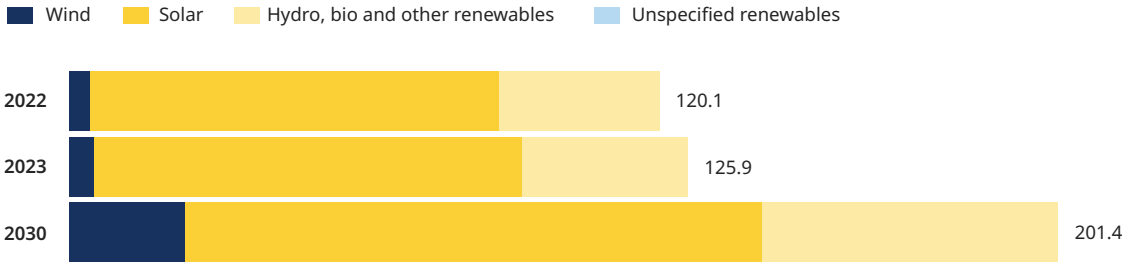
Japan

Japan's efforts to phase out fossil fuels continue to stall, with coal, oil and gas collectively accounting for around 85% of its energy supply.[10] The share of wind and solar in electricity generation (12%) remains below the global average (13%). [11]

The country aims for 38% renewable electricity by 2030.[3] However, this is well below the necessary levels for the IEA's Net Zero Emissions scenario, which sets out a target of 60% renewable electricity by 2030.

Japan - renewables targets vs existing capacity

Current renewable capacity compared to 2030 targets (GW)



Source: Ember, 2030 Global Renewable Target Tracker

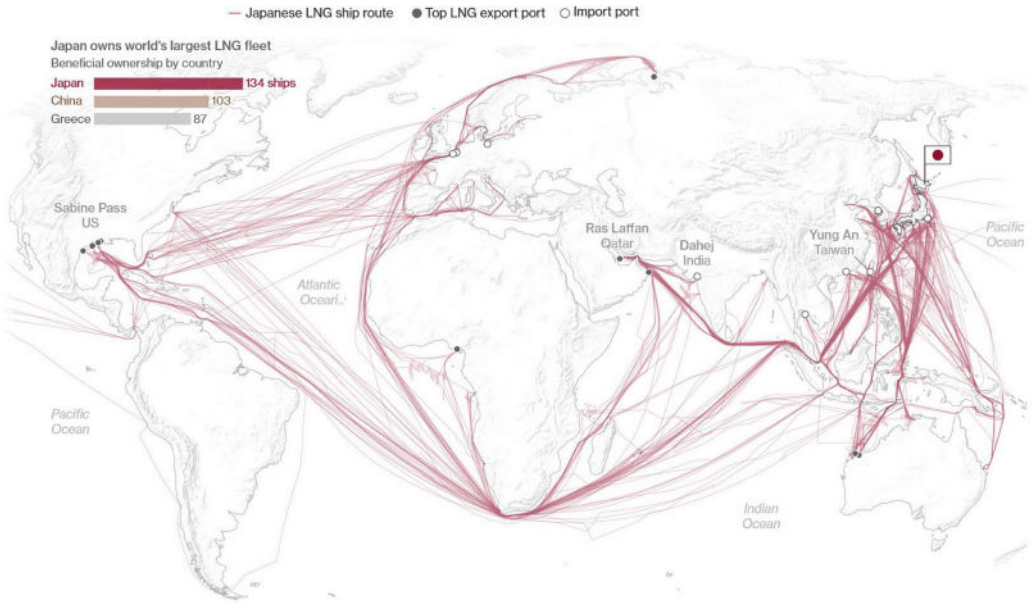
As per Bloomberg NEF's Net Zero Scenario, Japan has to reduce the share of unabated fossil fuels from 65% today to 18% by 2030.[12] The share of gas and coal with carbon capture and storage technology by 2030 would have to be just 11%.

10. IEA, Japan
11. Ember, Japan
12. Bloomberg NEF, Asia Pacific's Energy Transition Outlook

However, Japan is deeply entrenched in fossil fuels, remaining one of the leading international project financiers.[13] According to research by Bloomberg, Japan has largely ignored climate science, building a global natural gas empire. Southeast Asia is among the key target markets.[14]

Japan's Gas Empire

LNG vessels owned by Japanese companies facilitate global trade of the fuel



Note: The map shows voyages of LNG vessels with Japanese companies as beneficial owner or partial owner from March to May 2024.

Source: Bloomberg, How Japan Ignored Climate Critics and Built a Global Natural Gas Empire

13. Energy Tracker Asia, Japanese Banks Pour Billions Into Fossil Fuel Industry
14. Bloomberg, How Japan Ignored Climate Critics and Built a Global Natural Gas Empire

Japan plans to continue its revival of nuclear energy, with current goals indicating a steady increase in operating capacity between 2024 and 2026 and a 20% eventual share of nuclear power in the 2030 energy mix.[1]

In early 2025, Japan will present its 7th Strategic Energy Plan. The plan opens up an opportunity to significantly strengthen its national emissions reduction targets, improve its energy security and affordability and change its image from being the biggest climate laggard among the G7.[15] International partners[16] and investor groups[17] urged the Japanese government to pledge to ambitious national targets, extending beyond marginal decreases in carbon emissions and promoting actionable pathways for substantially scaling up renewable energy.

15. Energy Tracker Asia, Japan Puts the G7 Climate Leadership at Risk
16. International Trade Administration, Japan New Strategic Energy Plan
17. Asia Investor Group on Climate Change, Japan should set ambitious energy transition targets through the 7th Strategic Energy Plan – AIGCC position paper

South Korea

South Korea is drafting its 11th Basic Plan for Supply and Demand of Power, which includes policies for electricity supply and demand for the next 15 years (2024–2038). The working version reveals plans for firm reliance on nuclear power, with up to four new reactors in the pipeline. By 2038, the country aims to have 30 operational nuclear plants.[18]

LNG for heat and power generation is another key focus area, with most coal plants expected to be converted into LNG units. However, 12 coal-fired power plants will be transformed into pumped storage hydro or hydrogen power plants.

Regarding renewables, the country plans to expand the capacity from 23 GW in 2022 to 72 GW by 2030. By 2038, South Korea aims to build up to 115.5 GW of solar and wind power capacity and add around 4 GW through hydropower and biomass.

The plan's draft received intense criticism for lack of ambition.[19] Experts have pointed out that the weak targets won't help South Korea catch up to other nations. Currently, it has the lowest share of renewable energy generation among OECD countries, and its combined share of wind and solar (5%) lags behind the global average (13%).[20] The country also has the lowest energy efficiency among OECD countries, and the new draft won't improve it.[20]

18. Shin & Kim, Working draft of the Korean 11th Basic Plan for Supply and Demand of Power
19. Friedrich Ebert Stiftung, South Korea has given up on energy transition: Citizens must change the energy policy
20. Ember, South Korea

Furthermore, South Korea is the second-highest emitter per capita in the G20.[21] Aside from the criticism leveled at the nation by energy analysts and climatologists, South Korea's unambitious climate policies were also deemed unconstitutional in a historical win for climate litigation. In August, the Constitutional Court of Korea found the country's current climate measures insufficient for safeguarding citizens' rights, particularly those of younger generations, who will be the most affected by the worsening climate crisis.[22] The ruling is the first of its kind in Asia and could set a powerful example for the rest of the region. As a result of the court's decision, the government now has to set legally binding emissions reduction targets for 2031-2049 by February 2026.[23] South Korea's leadership said it would react with plans to implement follow-up measures.

21. Ember, G20 Per Capita Coal Power Emissions 2023
22. Earth.org, South Korean Youth Scores Historic Climate Victory, Setting Important Precedent for Climate Litigation in Asia
23. The Guardian, 'Typhoons have prevented me going to school': The children behind South Korea's landmark climate win

India

In 2024, India held the world's biggest parliamentary elections during a period of mounting weather extremes and record heatwaves. Prime Minister Narendra Modi won for a third time in a row, although with weakening support. According to analysts, major changes to India's climate and energy policy are unlikely.[24]

Under Modi's leadership, India has prioritised the green energy transition. The World Bank identifies the country as an example of impactful and effective climate policies, helping it become the fifth-leading solar market in the world and advancing its domestic clean energy technology manufacturing industry.[25]

By 2030, India plans to have 319 GW of solar, 110 GW of wind and 80 GW of hydro, bio and other renewable energy capacity, with the share in total generation reaching 42%.[3] The country has also started debating laws and legislative measures[26] to curb the impacts of climate change. Since 2019, it has been actively working to mitigate air pollution, although with little effect so far.[27]

However, the government has also pushed ahead with coal expansion plans, while the retirement of ageing and inefficient coal plants remains near zero. China and India alone accounted for 86% of the coal capacity under development.[28] India is already the world's second-biggest coal producer and plans to double its coal production rate to over 1.5 billion tonnes annually by 2030.[29]

24. CCPI, Interview series with CCPI country experts, #9 Lalit Chennamaneni
25. World Economic Forum, India is making strides on climate policy that others could follow
26. Down to Earth, Indian political parties must prioritise climate change on their manifestos
27. Energy Tracker Asia, Indian Elections 2024: Climate Change Should Take the Spotlight
28. Carbon Brief, Guest post: Just 15 countries account for 98% of new coal-power development
29. Ember, Coal mine methane's critical moment in India

According to the IEA, coal will remain the mainstay in India in the short term, but the share of renewables in electricity generation will reach 25% by 2026[1]. The government's plans include prioritising hydropower, nuclear, energy storage and increased power system efficiency, as well as improving the national grids and electricity market designs to support decarbonisation.

As the third biggest emitter globally, India's NDC submission will undoubtedly be among the hottest topics in the energy world in 2025. The government needs to show stronger ambition, particularly in reducing dependency on coal in favour of renewables and in strengthening targets for sectors beyond electricity, such as transport and industry.

Bangladesh

Battered by high energy costs and climate disasters, in 2024, Bangladesh continued its sluggish energy transition progress. The country generates just 2% of its electricity from renewables, with solar and wind responsible for less than 1%.[30] The government aims for 16% renewable generation by 2030, way below the 60% global target suggested by IEA's Net Zero Emissions scenario.

The massive dependence on fossil fuel imports continues to strain Bangladesh's economy, causing financial woes to businesses and households and often leaving the country without power.[31] Climate change adaptation costs the economy 6-7% of its annual budget[32] each year due to the reliance on fossil fuels, which drives up inflation and health costs, resulting from having the worst air quality in the world. At the same time, analysts reveal that Bangladesh could immediately deploy around 12.5 GW of solar power on rooftops and other available areas.[33]

The country's leadership has recognised the problem that fossil fuels pose to its economic and societal well-being and considers renewables as a potential way out. In November 2024, Bangladesh unveiled a 10-year tax break package for renewable energy projects, which will apply to power plants beginning commercial operation between July 1, 2025, and June 30, 2030.[34] The NDC update offers a prime opportunity to build on this by pledging to more ambitious targets that will help the country meet its growing energy demand in a more cost-efficient, self-sufficient and cleaner way.

30. Ember, Bangladesh
31. Energy Tracker Asia, How Bangladesh and Pakistan Can Survive the Energy Crisis
32. International Centre for Climate Change and Development, Climate change impacts in Bangladesh
33. The Japan Times, Bangladesh's energy plan faces gas dilemma as fuel crisis bites
34. PV Magazine, Bangladesh introduces 10-year tax exemption plan for renewables

Southeast Asia

Fossil fuels — led by coal — have met nearly 80% of Southeast Asia's rising energy demand since 2010.[35] This has put the region in a precarious situation, worsening its energy security, affordability, air pollution and environmental and climate risks.

The IEA projects that based on today's policy settings, Southeast Asia will account for 25% of global energy demand growth in the years up to 2035, second only to India.[36] Clean energy sources, such as wind, solar, bioenergy and geothermal, will meet over a third of that growth. However, about 35% of the additional demand in the years up to 2026 will be met by coal, with 25% coming from natural gas and 40% from renewables.[1]

By 2050, energy demand in Southeast Asia will overtake that of the European Union. Due to the continued reliance on fossil fuels, the region's energy-related CO2 emissions will increase by 35%. Furthermore, according to the IEA, today's policy settings leave Southeast Asia facing significant energy security risks — a consequence of the growing demand for natural gas and the increased reliance on imports.[36]

35. IEA, Southeast Asia Energy Outlook 2024
36. IEA, Southeast Asia's role in the global energy system is set to grow strongly over next decade

Scaling up clean technology investments and advancing more ambitious policies are crucial for changing course. Today, the region attracts just 2% of global clean energy investment, which must increase fivefold in 2035 to achieve the announced energy and climate goals.[36] For every dollar invested in fossil fuels in Southeast Asia, about 80 cents go to clean energy — far from the global ratio of nearly 2-to-1 in favour of renewables. According to the Lowy Institute, China is the region's largest source of international green finance.[37]

The much-needed power grid expansion and modernisation to support greater shares of variable renewable energy will also require significant investments, reaching up to USD 30 billion annually by 2035. The scaling up of clean energy investments should also be paired with efforts to decommission the region's relatively young fleet of coal-fired plants, with an average age of less than 15 years.[36]

However, the fact that many Southeast Asian countries face similar challenges, including strong fossil fuel import dependence and low energy security, high power costs, low renewable energy penetration and unstable energy grids, means they can seek solutions together. Recent initiatives, including regional grid infrastructure projects, clean energy exports and power trading arrangements, prove that, through collaboration, Southeast Asia can rapidly accelerate its transition to more secure, cleaner and more affordable energy.

37. Lowy Institute, International partners fall short in supporting Southeast Asia energy transition

Indonesia

As the world's largest thermal coal exporter,[38] third-leading coal producer,[39] and sixth-biggest CO_2 emitter,[40] Indonesia's energy transition is crucial not only to Southeast Asia's progress but also to global emissions reduction efforts. According to Climate Action Tracker, the nation's climate targets and policies are "critically insufficient," with a huge fleet of newly operating coal plants on course to increase the total power sector emissions to 400 $MtCO_2$ in 2030.[41]

In 2024, Indonesia changed leadership, with Prabowo Subianto winning the presidential elections. While details of his preferred energy policy are scarce at this stage, the new president is expected to take a "gradual" approach to weaning the country off its coal dependence.[42]

Currently, Indonesia operates Southeast Asia's largest coal plant fleet. The 249 units with 45.6 GW[43] in total capacity have an average age of around 12-13 years.[44] The country also has a massive captive coal problem[45] and is building a fleet of new coal plants to supply its booming nickel processing industry.[46]

38. IEEFA, Indonesia
39. Climate Adaptation Platform, Indonesia's Solution to Cut Coal Use
40. Statista, Distribution of carbon dioxide emissions worldwide in 2023, by select country
41. Climate Action Tracker, Indonesia
42. The Diplomat, Indonesia's Fossil Fuel Subsidies Threaten its Energy Transition
43. Centre For Research on Energy an Clean Air and Global Energy Monitor, Emerging captive coal power: Dark clouds on Indonesia's clean energy horizon
44. Mongabay, Early retirement for Indonesian coal plants could cut CO2, boost jobs, analysis says
45. Energy Tracker Asia, Addressing Captive Coal Power Crucial to the Decarbonisation of Indonesia
46. The New York Times, Indonesia's Vote: Three Takeaways for Climate Change

Regarding low-emissions power sources, the IEA notes that renewable generation will rise by around 8% annually by 2026, compared to 5% for coal and 6% for gas.[1] Under the Comprehensive Investment and Policy Plan (CIPP), conditional on receiving financial support from the Just Energy Transition Partnership (JETP), Indonesia will pursue a rapid expansion of solar and wind technologies, reaching 7.3 GW by 2025 and 72 GW by 2030.[1]

Under the country's new leadership, Indonesia aims to continue marching toward its goal of becoming a nickel mining centre for EV batteries and a global carbon capture and storage hub. Other priority areas include increased focus on biofuels and natural resource exploitation.[47] However, solar and wind deployment are unlikely to be among the key priorities of the new leadership.

47. Energy Tracker Asia, Indonesia's Energy Policy Under The New President Prabowo Subianto

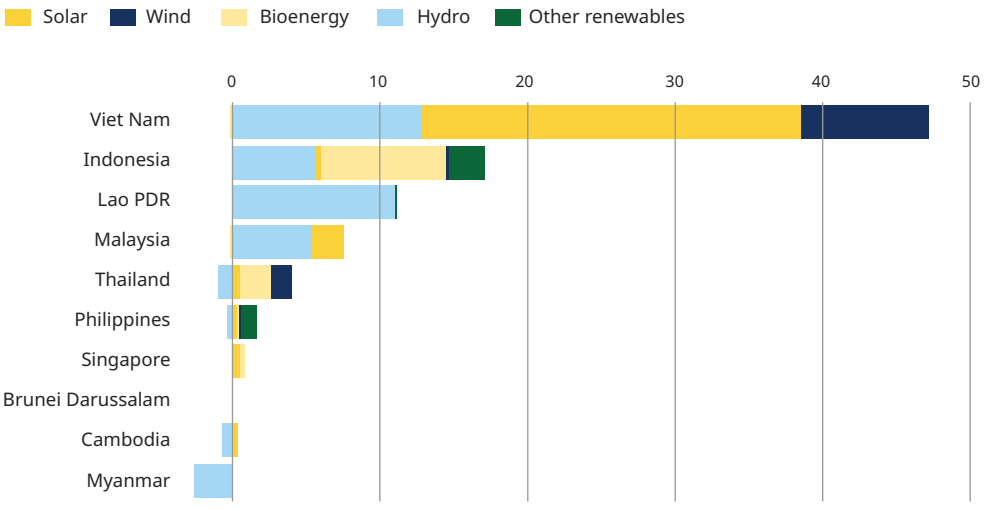
Vietnam

Vietnam has emerged as the green leader of Southeast Asia, making significant progress in renewables deployment and the development of clean technologies. The progress has been boosted by the country's efforts to create one of the most enabling and supporting environments for green technology and renewable energy development in ASEAN.[6]

According to the IEA,[1] new renewable capacity additions in Vietnam will bring the share of non-hydro renewable electricity in total generation to 19% in 2026, up from 16% in 2023. The share of gas will increase to 11% (up from 9%), while coal will drop to 43%, down from 46% in 2023.

Viet Nam has been a significant driver of renewables growth in the ASEAN region

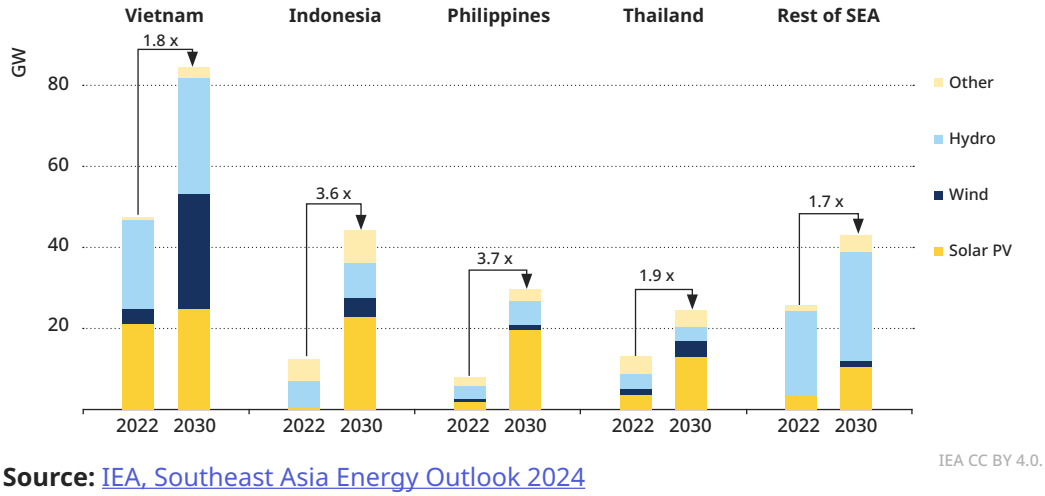
Change in generation in the 5 years to 2022 (TWh)



Source: Ember, ASEAN's clean power pathways: 2024 insights

Still, the IEA's Southeast Asia Energy Outlook 2024 notes that based on today's deployment plans, Vietnam will remain the largest renewable power market in the region by a wide margin. The country is set to be responsible for around a third of the new clean energy capacity additions by 2030.[35]

Installed renewables capacity in 2022 and policy targets for 2030 in Southeast Asia



Source: IEA, Southeast Asia Energy Outlook 2024

In October 2024, Vietnam signed a decree with policy guidelines for the rooftop solar market to stimulate self-produced and self-consumed solar energy.[48] With the draft, the government hopes to create favourable conditions and open viable commercial opportunities for foreign investors in Vietnam's renewable energy sector. Alongside the country's efforts to equip half of the office buildings and homes with rooftop solar panels, the measure would boost the local solar panel manufacturing industry.[1] Recently, Vietnam has emerged as the world's second-leading solar panel manufacturer after China[49] and is also already manufacturing EVs domestically, with the industry poised for significant growth.[50]

48. Vietnam Briefing, Vietnam Draft Decree on Rooftop Solar Power: New Opportunities on the Horizon for Investors
49. Statista, Distribution of solar photovoltaic module production worldwide in 2023, by country
50. KPMG, The EV 2024 Report: Vietnam's Market

Vietnam also aims to enter a pilot phase of its emissions trading system from 2025 to 2027, targeting official operation by 2028. However, the country's green energy transition faces challenges as well. As a coal-dependent economy, alongside Indonesia, it will have to ensure just and orderly transitions for workers and local economies. The JETPs of the two countries offer a good foundation, but it is necessary to build on them. Furthermore, despite targeting methane emissions reduction, Vietnam has several gas projects in the pipeline, awaiting final decisions by the end of the 2020s. The grid reliability and curtailment issues, highlighted by Vietnam's massive solar power growth in 2021, should also be addressed to unlock new capacity deployment.

However, with the mix of rich, untapped solar and wind power potential, ambitious policies — including direct power purchase introduction and developing a national green taxonomy — and a growing green technology manufacturing industry, Vietnam offers the brightest green energy transition prospects in Southeast Asia.

The Philippines

Today, solar and wind comprise just 3% of the country's electricity mix — way below the global average (13%) and the average among ASEAN countries (4.4%).[51] Still, due to deployed solar power,[52] the Philippines has managed to ensure significant savings from avoided fossil fuel import costs.[53]

Despite struggling with the second-highest electricity costs in Southeast Asia, after Singapore, the Philippines' fossil fuel reliance will continue to increase in the short term.[54] Around 3.5 GW of new coal power will come online by 2026.[1] Gas-fired output will increase by almost 9% on average between 2024 and 2026 due to domestic and foreign efforts to promote natural gas as a transition fuel.

As per the National Renewable Energy Program 2020-2040, the country targets a 35% share of renewables in the generation mix by 2030 and 50% by 2040.[3] Recently, the government introduced various incentives and policy measures to encourage more renewable energy investments and pivot away from coal and gas overreliance.[55] Among them are auction schemes, feed-in tariffs with guaranteed payments for 20 years, net metering, tax holidays and exemptions, duty-free importation of equipment and more.

51. Ember, The Philippines
52. Energy Tracker Asia, The Philippines' Choice: Going Clean or Going With SMC
53. Ember, The sunny side of Asia
54. Solar Up Philippines, Philippines' High Electricity Rates: Here's a Solution
55. Energy Tracker Asia, The Challenges of Financing Renewable Energy Projects in the Philippines

Like Vietnam, the Philippines has initiated strategic policies and regulations to boost rooftop solar power deployment.[6] Furthermore, the country is building the world's largest solar and battery storage power plant.[56]

According to the IEA's Southeast Asia Energy Outlook 2024, the Philippines will demonstrate the highest growth rate in the renewable power market in Southeast Asia by 2030.[35]

The country is also expected to play a major role in global battery manufacturing supply chains, with the Philippines and Indonesia among the world's top nickel producers.[1]

In 2025, the Philippines will have its mid-term elections, with the current president and his predecessor as the leading candidates. Political analysts don't expect major changes in the direction the country has taken, with topics like climate change unlikely to be key on the agenda.[57] However, it is crucial for the Philippines to break away from its dependence on gas imports, which cost the country twice as much as clean electricity.[58] Ensuring more affordable, cleaner and stable energy supplies is critical since the Philippines will experience one of Southeast Asia's highest anticipated economic and population growth rates in the upcoming decades.[1]

56. Energy Storage News, Philippines president breaks ground at world's largest solar and battery storage power plant
57. Business World, Climate action should take center stage in 2025 polls — analysts
58. Energy Tracker Asia, Natural Gas Rules in the Philippines Ignore High Costs and Economic Consequences [Op-Ed]

Thailand

In 2023, Thailand relied on fossil fuels for 84% of its electricity, with natural gas holding the biggest share (68%).[7] At the same time, solar and wind accounted for just 4.7%, less than the global average of 13%.

According to the IEA, Thailand's increasing reliance on LNG imports in the wake of the recent price increases has triggered concerns about another energy crisis.[1] The situation will change slightly in the years up to 2026, with the country expected to boost domestic natural gas production prompted by energy security concerns. Coal's share is expected to rise by 2%, while renewables will grow slightly. As a result, the country's emissions intensity will increase.

In September, Thailand launched its updated Power Development Plan (PDP). The plan aims for renewables to reach a 51% share in final energy consumption by 2037 — a substantial increase from the previous target of 36%.[59] More importantly, the PDP focuses specifically on solar, wind and biomass. It also introduces other measures, such as renewable energy PPAs in energy-intensive sectors like data centres, to ease foreign investors buying renewable electricity.

Thailand has one of the best solar power potentials in the region, and in recent years, its government has made moves to capitalise on it, mainly through fiscal incentives. Under current plans, the country has a FIT regime until 2030 and a distributed PV net billing scheme targeting 10 GW of rooftop PV capacity by 2037.[35] Moves like these can benefit the booming domestic solar panel manufacturing industry, with the country being the third biggest producer after China and Vietnam.

59. Watson Farley & Williams, Thailand Powers Up: New Renewable Energy Incentives and Opportunities in 2024

In 2024, Thailand announced it would introduce a carbon tax starting next year.[60] Alongside Switzerland, it participated in the first-ever transfer of carbon credits for emissions reduction under Article 6.2 of the Paris Agreement.[61]

There are also efforts to advance the EV transition, with recently introduced tax incentives for purchasing EVs and subsidies for their domestic manufacturing.[35] The measures are bearing fruit since EV sales in Thailand are higher than in many other Southeast Asian countries and are comparable to those in the United States. In 2024, China's BYD, the world's largest EV producer, opened its first factory in Southeast Asia in Thailand.[62] The country is also home to the region's first lithium-ion battery gigafactory.[63]

However, according to the IEA, for Thailand's energy transition to leap even further, the country needs higher investments in power grid system flexibility and for streamlining permitting procedures for new project developers.[35] Furthermore, while Thailand plans to reduce methane emissions, its current NDC lacks concrete targets.

60. Channel News Asia, 'No brainer': Thailand to become second in Southeast Asia to tax carbon emissions
61. SP Globa, Switzerland, Thailand conclude first Article 6.2 deal in landmark move for carbon markets
62. Reuters, China's BYD opens EV factory in Thailand, first in Southeast Asia
63. The Nation, Local company producing batteries to support Thailand's EV ambitions

Malaysia

Malaysia's National Energy Transition Roadmap (NETR) aims to reduce reliance on coal by increasing the use of gas and renewables. While gas-fired power generation will overtake coal by 2026, hydropower will dominate the growth in renewables.[1]

Furthermore, the country has several gas projects awaiting final investment decisions in the late 2020s.[35] Despite Malaysia being among the biggest energy-related methane emitters in the region, its NDC lacks specific action to address the problem.

Compared to the rest of ASEAN, Malaysia is lagging in deploying clean energy. The 1.5% share of solar and wind in its electricity generation is far below the region's average of 4.4%.[6] Paired with other renewables, the total reaches 19%. The country's current targets aim for a 40% share of clean power sources in the total energy capacity by 2035 and 70% by 2050.

While progress has been sluggish so far, the government plans to accelerate it through ambitious policies, such as introducing direct renewable purchases by corporate customers.[6] Earlier this year, the government also launched a third-party access scheme, allowing renewable energy producers to use the national electricity grid to deliver clean electricity to regional buyers.[64]

According to GlobalData, Malaysia is advancing toward its clean energy goal, and there is a real chance of hitting it due to the government's pledge to build up 18.4 GW of renewable capacity by 2040.[65] Furthermore, the country is also exploring the possibility of exporting 1 GW of clean power to Singapore through an undersea cable by 2032.[12]

64. Suruhanjaya Tenaga Energy Commission, Third Party Access System (TPA)
65. Global Data, Malaysia Power Market Trends and Analysis by Capacity, Generation, Transmission, Distribution, Regulations, Key Players and Forecast to 2035

The Malaysian government is also actively working to accelerate the transition to electrified transportation through measures like expanding consumer subsidies for purchasing electric two-wheelers, boosting incentives for investments in EV charging, and buying 150 electric buses.[35]

Recently, Malaysian authorities proposed a tax incentive for companies implementing CCS.

The government plans to make Malaysia a key player in the global green technology supply chain. The country has already claimed a spot among the world's leading solar PV manufacturers after China, Vietnam and Thailand.

Alongside Vietnam and Indonesia, Malaysia will be responsible for around 1% of the committed battery manufacturing capacity globally in 2030. At the start of this year, the government announced plans to build the region's largest battery energy storage system project, which should be completed by 2030.[66] The project intends to address the country's massive solar intermittency issues and help exploit its vast solar power potential.[67]

Since it also has notable rare earth refining capacities, Malaysia aims to hold a 10% share in the global production of rare earth oxides by 2030.[35] There are also plans to develop the country's polysilicon manufacturing industry and export production to solar PV manufacturers in Asia.

66. The Star, Lahad Datu's energy storage system to be region's largest
67. 67 Energy Tracker Asia, Malaysia Nears Its 40% Renewable Energy Target by 2035

Looking Towards 2025

The share of renewables in the global electricity supply is expected to rise to 35% in 2025 from 30% in 2023.[68] Clean electricity generation is also on course to eclipse the amount generated from coal. Despite the positive trends, Asian countries are expected to continue looking toward fossil fuels, driving global demand for gas in 2025.[69] According to the IEA, while demand for coal will decrease in China, it will continue to grow in India and ASEAN.[70]

However, there is clear momentum behind Asia's energy transition that, in 2025, could be further strengthened by two major events: Donald Trump's return to the US presidency and the submission of new NDCs.

The next US president plans to take his country out of the Paris Agreement, revert crucial climate policies, scale domestic fossil fuel exploration and impose taxes on imports, including from China and other Asian countries. This would leave a considerable gap in global climate action that Asian countries can step up and fill. In addition, it could motivate Asian economies to collaborate more strongly on projects in the field of energy and industry to compensate for potential economic losses from the tariff regime.

68. Asian Power, Global electricity demand to log highest levels in 2024-2025
69. Energy Connects, World Gas Use to Hit Record in 2025 Amid Fight for LNG, IEA Says
70. IEA, Coal Mid-Year Update - July 2024

China is already working in that direction and is shaping up to be a global green leader alongside Europe. The country has contributed to bringing global solar power costs down nearly 90% in the last decade, enabling widespread adoption.[71] Going forward, it will also continue advancing the development of the EV market on a global scale, but even more notably in Southeast Asia, where Chinese automakers hold over 70% of the market share.[72] The country will also maintain its firm grip on 80% of the global critical minerals supply chain, with investments extending mainly across Southeast Asia.[73]

Southeast Asia can benefit from China's leadership and accelerate its transition towards a cheaper, cleaner and more stable energy system. This would unlock funds for much-needed areas, including climate change adaptation, loss and damage and building resilience.

The NDC updates, due by February 2025 and with an implementation deadline of 2035, will reveal whether Asian countries will embrace the opportunity to lead the global clean energy transition — and with that — embark on a more sustainable future where fossil fuels are no longer a threat to nature, economies and people's health.

71. Our World in Data, Solar panel prices have fallen by around 20% every time global capacity doubled
72. Reuters, Chinese automakers retain grip over Southeast Asia's booming electric car market
73. US Department of State, Remarks at the U.S. Chamber of Commerce's Critical Minerals Summit

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