

Vietnam’s shift: navigating the 2050 decarbonisation map

Vietnam’s energy transition strategy includes a net zero goal by 2050, a commitment to phase-out coal, and cuts to methane emissions. Importantly, the plan also clearly sets out its funding requirements. *TEI Times* analyses the country’s climate pledges, power mix and investment environment.

Vietnam’s energy transition is reaching a critical turning point. Investors face a complex mix of rapid growth and systemic challenges, as the country accelerates toward 2050 net zero goals. Beyond the potential for renewable expansion, successful ventures require navigating infrastructure bottlenecks, regulatory shifts, and structural market hurdles.

Decarbonisation commitments

Vietnam has taken significant steps in recent years on its path to decarbonisation, despite facing a great many hurdles. The country updated its climate commitments under the Paris Agreement through the publication of its Nationally Determined Contribution (NDC) in October 2022. It raised its targets to cut greenhouse gas emissions. On its own, without outside help, it pledged to reduce emissions by 15.8 per cent below projected levels by 2030, up from 9 per cent previously. With international financial support, that figure rises to 43.5 per cent, compared to 27 per cent before.

The updated NDC is more ambitious on paper, but independent assessments suggest it falls short of genuine progress, according to the

Climate Action Tracker, an independent scientific assessment of national climate action, as of late 2025. The targets remain consistent with around 4°C of global warming and require no major effort beyond policies already in place. Vietnam did make stronger promises at COP26 in 2021. The commitments included a net zero goal by 2050, a commitment to phase-out coal, and cuts to methane emissions, though these sit somewhat uneasily alongside the modest NDC targets. Importantly, the updated plan does set out its funding requirements clearly.

The net zero emissions by 2050 target is anchored in the nation’s National Climate Change Strategy, released in 2022. The strategy caps 2050 emissions at 185 MtCO₂e, calls for no new coal fired power projects after 2030, with gradual reduction of coal capacity from 2035, and positions wind and solar as dominant long-term sources. Also, the strategy underlines reliance on international finance. It signed a Just Energy Transition Partnership (JETP) with an International Partners Group comprising the EU, G7, Norway, Denmark, Asian Development Bank, and IFC. The JETP carries a pledged pipeline

of \$15.5 billion. In addition, Vietnam issued a Revised Power Development Plan 8 (PDP8) and amended its Electricity Law.

Energy mix

Vietnam’s primary energy supply is heavily dominated by fossil fuels. Coal accounted for more than half of the total mix and oil contributed a further 31 per cent in 2024. Natural gas plays a relatively modest role at just over 7 per cent, while hydro represents only 7 per cent of supply. Non-hydro renewables barely register at 3 per cent, and other sources are negligible. The electricity generation profile is similarly shaped by coal, which provided just over half of all power produced, also in 2024. Hydropower was the second largest contributor at around 29 per cent, reflecting the country’s longstanding reliance on its river systems. Renewables made up a more visible share of generation at 13.1 per cent, though still far below the levels required for a rapid transition. Natural gas contributed 7.2 per cent, and there was no contribution from oil and nuclear (see pie chart).

The amended PDP8, released in April 2025, outlines a steep expansion of electricity demand and system capacity through 2030 and 2050 (see chart). Commercial electricity consumption is projected to more than double by mid-century, while total capacity rises to over 205 GW by 2050 from roughly 90-100 GW in 2030. The plan accelerates a structural shift towards renewables, with non-hydro sources reaching up to three-quarters of the mix by 2050, alongside major growth in offshore wind, solar, and storage. Coal is fully phased out, while gas transitions progressively towards hydrogen and CCS-enabled technologies.

Transmission and distribution constraints and curtailment are, unsurprisingly, a key challenge to the path to net zero for a nation experiencing

fast-paced growth in electricity demand. The grid is strained by rapid renewable growth, regional imbalances, and outdated infrastructure. Major upgrades, storage deployment, and direct power purchase mechanism market reform are now central to easing congestion, attracting private investment, and securing reliable clean-energy expansion.

Investment environment

Vietnam has delivered strong GDP growth in recent years, and most experts expect this to continue. Stripping out inflation, the economy grew at around 6 per cent a year on average over the past five years. Construction and industry are key drivers, backed by a government commitment to \$200 billion of infrastructure investment by 2030. The country’s credit rating is at its highest-ever level, though it sits one notch below what global investors consider investment grade. Reaching that threshold by 2030 is a stated government priority. The main risks are rising inflation, gradual currency depreciation, and Vietnam’s vulnerability, as a heavily trade-dependent economy, to shifts in global demand and geopolitical instability.

Regulations change fast: a key decree on power purchase agreements was scrapped and replaced within eight months. Off-take agreements lack government guarantees, some state-owned buyers have withheld payments to existing projects, and grid bottlenecks in high-solar-resource regions create meaningful curtailment risk. Foreign developers have also felt the pressure of domestic preference, with two high-profile exits in 2023 and 2024, and a 2026 offshore wind award going to a Vietnamese conglomerate over a foreign developer that had invested in the project since 2019.

On the opportunity side, the pipeline is substantial. Vietnam is targeting 73 GW of solar by 2030 against roughly 21 GW today. A new corporate power purchase framework is opening direct off-take routes for industrial buyers. And a tripartite agreement signed in 2025 positions Vietnam as a potential clean-energy exporter to Singapore and Malaysia.

Policies and incentives

Vietnam has moved quickly to build a comprehensive legal framework for its energy transition. The Electricity Law 2024 sets the foundation, establishing the rules for competitive wholesale electricity markets, direct power purchase agreements, and offshore wind licensing. The PDP8, backed by a committed investment envelope of \$136 billion in the power sector by 2030, translates that framework into hard capacity targets and designated renewable zones.

Two decrees issued in March 2025 add important detail. Decree 57 enables direct power purchase agreements between renewable generators and large industrial consumers, with a hedging mechanism built into the wholesale market. Decree 58 sets out the preferential terms for offshore wind, including price ceilings by

region, though it requires a minimum 5 per cent state-owned enterprise stake in each project.

Vietnam also launched an emissions trading pilot in August 2025, covering around 150 facilities across thermal power, cement, and steel. A carbon trading exchange at the Hanoi Stock Exchange followed in early 2026. Full market operation is targeted for 2029.

Renewable energy projects can access meaningful tax incentives, including a 10 per cent corporate income tax rate, a four-year tax holiday, and import duty exemptions on equipment.

Investor backdrop

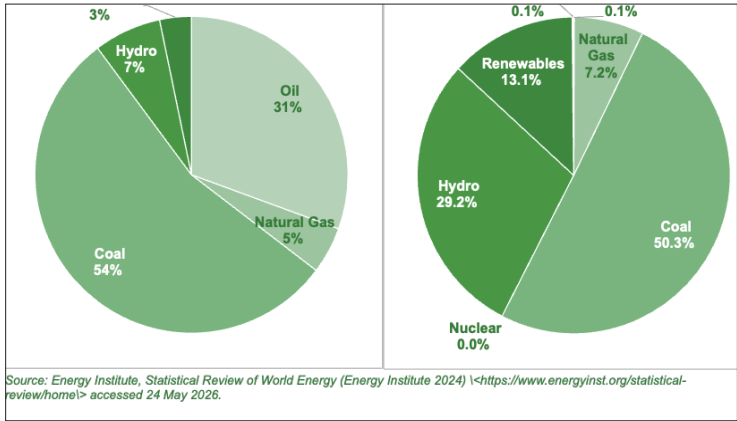
Recent deal activity reflects genuine investor appetite, spanning both operational acquisitions and early-stage development.

Sembcorp of Singapore acquired majority stakes in three Vietnamese wind and solar businesses for around \$131 million in 2024, bringing its total in-country capacity to 455 MW on completion. In the same year, UK-listed Gresham House acquired commercial and industrial rooftop solar developer Asia Clean Capital Vietnam through its SUSI Asia Energy Transition Fund. Pacifico Energy closed \$28.5 million in local bank debt for a 30 MW wind farm in 2025, backed by a signed power purchase agreement with EVN.

On the development side, Copenhagen Infrastructure Partners is advancing the 3500 MW La Gan offshore wind project in partnership with a local state-owned enterprise. A joint development agreement between PTSC, Sembcorp, and a Petronas and TNB consortium is exploring a sub-sea cable export route to Singapore and Malaysia. Vietnamese conglomerate VinEnergy was awarded the 750 MW Hon Trau offshore wind project in early 2026, ahead of a German developer that had been involved since 2019.

Development finance institutions are also active. The IFC committed a record \$310 million in climate finance to Vietnam in FY2024, the largest such deployment across the East Asia-Pacific region that year.

Prepared for The Energy Industry Times by Joseph Jacobelli of actE, a climate business and finance insights platform (asiacleantechnology.com).



Energy supply (left) and electricity generation (right) in Vietnam in 2024

CRITERIA	UNIT	BY 2030	BY 2050
Provide sufficient electricity for domestic demand and socio-economic development		For average GDP growth rate of about 10.0%/year in 2026–2030	For average GDP growth rate of about 7.5%/year in 2031–2050
Commercial electricity	TWh	500.4–557.8	1,237.7–1,375.1
Electricity production and import	TWh	560.4–624.6	1,360.1–1,511.1
Maximum capacity	GW	89.7–100	205.7–228.6
Reliability & access		Top 4 in ASEAN for supply reliability; top 3 for electricity access	Not mentioned
Self-consumed rooftop solar		50% of office buildings; 50% of houses	Not mentioned
Renewable energy (excl. hydro)		28–36%	74–75%
Inter-regional RE centres		Two centres	Not mentioned
RE for export (Singapore, Malaysia, etc)		5–10 GW export capacity by 2035	Not mentioned
Onshore & nearshore wind	GW	26.1–38.0 (14.2–16.1%)	84.7–91.4 (10.9%)
Offshore wind	GW	6–17 (3.2–7.2%)	113.5–139.1 (14.7–16.6%)
Solar power	GW	46.5–73.4 (25.3–31.1%) (highest)	293.1–295.6 (35.3–37.8%) (highest)
Hydropower	GW	33.3–34.5 MW (14.7–18.2%)	40.6 (4.8–5.2%)
Nuclear	GW	4–6.4 MW (2.2–2.7%)	10.5–14 (1.4–1.7%)
Storage	GW	10.0–16.3 (5.5–6.9%)	96–96.1 (11.5–12.4%)
Coal-fired	GW	31.1 (13.1–16.9%)	0 MW (coal fully phased out)
Domestic gas-fired	GW	10.9–14.9 (5.9–6.3%)	LNG: 7.9; Hydrogen: 7.0
LNG thermal	GW	22.5 (9.5–12.3%)	CCS: 1.9–2.3; Hydrogen co-firing: 18.2–26.1; Fully hydrogen: 8.6–11.3

Key data from Vietnam’s revised Power Development Plan VIII