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Revised Power Plan VIII

Aimed at meeting growing electricity demand

On February 19, 2025, the Appraisal Council approved the Proposal for Adjusting the National Power Development Plan for the 2021–2030 period, with a vision to 2050 (Power Plan VIII or NPDP8). Subsequently, further revisions and additions were made before its submission to the Prime Minister for approval. Below are some key points from the proposed adjustments:

By 2025, electricity demand is expected to grow in line with forecasts, while power generation development falls significantly behind target

- By the end of 2024, national electricity consumption and peak load capacity (Pmax) reached 275 billion kWh and 49 GW, meeting 89% and 96% of the forecasts in Power Plan VIII, respectively. However, total newly installed capacity reached only 50% (75 GW out of the planned 150 GW by 2030), posing pressure to expand capacity to meet electricity demand, which is projected to exceed 500 billion kWh by 2030.

Electricity consumption growth is projected to achieve 10.3% YoY by 2030 in the base case scenario

- GDP growth and the electricity intensity ratio (million kWh/million VND) are key assumptions in forecasting electricity consumption growth. Accordingly, in the base case scenario, GDP growth targets for 2026–2030 and 2031–2050 are set at 8.0% and 7.5%, respectively (6.6%–6.5%/10%–7.5% in the bear and bull case scenarios). The electricity intensity ratio is expected to decline over time from 45.4 in 2025 to 26.5 in 2035, driven by improved energy efficiency. Electricity consumption in the base case is projected to reach 500 billion kWh by 2030 (reflecting a compound annual growth rate (CAGR) of 10.3%), which is 5 billion kWh below the previous forecast in Power Plan VIII.

Coal supply will remain consistent domestically, but gas sources are dwindling

- Thermal coal meeting quality standards for power generation typically accounts for 80% of total production, with projected outputs of 36.3 million tons in 2025, 39.8 million tons in 2030, and 39.5 million tons in 2035. The domestic gas supply for power generation is expected to be ~7 billion cubic meters (bcm) per year during 2026–2030, increasing to ~13 bcm per year during 2031–2045 following the commissioning of the Blue Whale (Ca Voi Xanh) gas field. According to PetroVietnam (PVN), due to Malaysia's rising gas demand in the coming years, Petronas may cease supplying gas to Vietnam from 2028 onwards. Therefore, by 2030, only the O Mon gas-fired power plant is likely to be operational. Other projects will only come online before 2030 if power purchase agreements (PPA) and gas supply agreements (GSA) are finalized before 2026.

LNG power projects face challenges in securing power purchase agreements, with a projected capacity addition of only 2.8 GW in the bear case scenario

- Power Plan VIII approves the development of 13 LNG thermal power projects, totaling 22,500 MW by 2030, and an additional two projects, totaling 2,800 MW in the 2031–2035 period. Among these, two are now under construction, namely Nhon Trach 3 & 4 and LNG Hiep Phuoc Phase I. However, most LNG thermal power projects are encountering challenges in finalizing PPAs, securing financing, and dealing with the risk of LNG price volatility. The additional capacity from LNG sources in the bear/base/bull case scenarios is projected to reach 2.8 GW, 8.8 GW, and 22.5 GW by 2030.

Nuclear power is forecast to contribute an additional 2,400 MW (2×1,200 MW) in the 2031–2035 period in the base case scenario

- Nuclear power projects are currently undergoing site surveys and feasibility assessments. To date, only Phuoc Dinh and Vinh Hai have been officially designated for nuclear power plant construction. Furthermore, other potential sites (two in Quang Ngai and one in Binh Dinh) are under consideration for the development of four large-scale reactor units. In the base case scenario, Vietnam may commission the Ninh Thuan I Nuclear Power Plant (2×1,200 MW) in the 2031–2035 period and the Ninh Thuan II Nuclear Power Plant (2×1,200 MW) in the 2036–2040 period.

Given limited potential for traditional hydropower development, the focus is shifting towards pumped storage hydropower

- As of the end of 2024, the total installed hydropower capacity is approximately 24,200 MW, including 18,300 MW from medium and large hydropower sources. This indicates that the potential of medium and large hydropower sources has been almost fully exploited. The total additional capacity expected by 2030 is about 2,800 MW, with ~765 MW already operational by 2024. Pumped storage hydropower (PSH) projects carried over from the Revised Power Plan VII, with a total capacity of 2,400 MW, include Bac Ai (1,200 MW) in the 2021–2030 period, and Dong Phu Yen (900 MW) and Don Duong Phase 1 (300 MW) in the 2031–2035 period.

The mobilization of renewable energy sources will be expanded to compensate for LNG power shortfalls

- In the base case scenario, due to project implementation delays, most domestic LNG and gas-fired power plants are anticipated to become operational towards the end of the 2026–2030 period. To secure electricity supply from 2026 to 2029, investments in small-scale hydropower, wind power, solar power, energy storage batteries, and flexible thermal power must be accelerated beyond the original Power Plan VIII targets. Specifically, by 2030, the total capacity of onshore wind power and solar power should reach 25,798 MW and 30,441 MW, respectively, representing increases of 19,506 MW and 13,778 MW compared to installed capacities in 2025. While wind power is expected to see an additional 3,918 MW (+17.9%), the original Power Plan VIII lacks a specific implementation plan for solar power.

Table 1. Vietnam – National power capacity planning in the base case scenario

Full-year target (GWh)	2025F	2030F	2050F	CAGR (2025–2030)	CAGR (2030–2050)	NPDP8 2050	+/-% 2050
Total demand	345,598	560,375	1,360,071	10%	5%	1,378,520	-1%
Total electricity generation	345,598	560,375	1,360,071	10%	5%	1,378,520	-1%
Renewable energy contribution	38%	44%	83%	6 pts	39 pts	69%	14 pts
Nuclear power	–	16,604	–	n.a	n.a	–	n.a
Coal-fired power	169,590	164,371	–	-1%	n.a	–	n.a
Coal-fired power (co-firing biomass/ammonia)	–	–	74	n.a	n.a	–	n.a
Coal-fired power with carbon capture and storage (CCS)	–	–	–	n.a	n.a	–	n.a
Coal-fired power fully converted to biomass/ammonia	–	–	72,461	n.a	n.a	72,461	0%
Domestic gas-fired power to LNG turbines	33,438	40,297	30,017	4%	-1%	56,121	-47%
Domestic gas-fired power to LNG and hydro turbines	–	–	1,650	n.a	n.a	1,650	0%
Domestic gas-fired power to hydro turbines	–	–	31,851	n.a	n.a	31,851	0%
New LNG turbines	3,654	84,235	–	87%	n.a	–	n.a
LNG turbines with carbon capture and storage (CCS)	–	–	–	n.a	n.a	–	n.a
LNG turbines (co-firing hydrogen)	–	–	16,033	n.a	n.a	16,033	0%
Hydrogen-fired turbines	–	–	113,839	n.a	n.a	113,839	0%
Oil-fired turbines	287	–	–	n.a	n.a	–	n.a
Flexible power sources	1,702	9,946	109,716	42%	13%	109,716	0%
Hydropower	86,234	101,448	114,821	3%	1%	114,821	0%
Onshore and coastal wind power	19,371	58,395	219,230	25%	7%	219,230	0%
Offshore wind power	25,820	119,641	291,100	36%	5%	291,100	0%
Solar power	25,062	136,093	415,845	40%	6%	291,518	43%
Pumped storage hydropower (PSH) and energy storage batteries *		-709	-10,900	n.a	15%	-6,848	59%
Imported electricity	7,974	25,012	62,201	26%	5%	37,034	68%
Combined heat and power (Cogeneration)	–	–	–	n.a	n.a	–	n.a
Coal-fired power for reservation	–	–	–	n.a	n.a	–	n.a

Source: Revised Power Plan VIII, KB Securities Vietnam

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(based on expectations for absolute price gains over the next 6 months)

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Investment Ratings for Sectors

(based on expectations for absolute price gains over the next 6 months)

Positive:	Neutral:	Negative:
Outperform the market	Perform in line with the market	Underperform the market

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