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Vietnam's PDP8 gets a makeover

On April 15, 2025, just under two years after unveiling the original National Power Development Plan for the 2021–2030 period, with a vision up to 2050 (the "PDP8")[1], the prime minister approved updates to the PDP8 (the "Amended PDP8")[2]. In keeping pace with revised GDP growth ambitions, the Amended PDP8, among other things, significantly increases its targets for the country's power capacity and further emphasizes renewable energy's role in the overall energy mix. Subsequently, the Ministry of Industry and Trade released an implementation plan[3] detailing the strategy for executing the Amended PDP8 (the "Implementation Plan"). This article outlines these and other key amendments.

[1] Decision No. 500/QD-TTg dated May 15, 2023
[2] Decision No. 768/QD-TTg dated April 15, 2025
[3] Decision No. 1509/QD-BCT dated May 30, 2025

Increased total capacity targets with increased emphasis on renewables

The Amended PDP8 continues focusing on developing the electricity sector as a key element of sustainable national growth. It stresses long-term, efficient strategies prioritizing national interests while optimizing power generation, transmission, and distribution. To match higher GDP growth targets and ambitious socio-economic goals, the Amended PDP8 significantly revises its total electricity capacity goals. The capacity targets increased from 90.5 GW to 89.655 GW–99.934 GW by 2030 and from 185.19 GW–208.56 GW to 205.7 GW–228.6 GW by 2050. The plan places even more emphasis on renewables, aiming for maximum growth in renewable power sources (excluding hydropower) such that renewable energy makes up approximately 28–36% of the energy mix by 2030 and about 74–75% by 2050. Details of the Amended PDP8's electricity mix for the period up to 2030 by power source can be found in Annex 1 hereto.

Renewable energy strategy

Key aspects of the Amended PDP8 strategy for "maximum growth" of renewable energy include the below.

Solar power as the workhorse

The capacity of concentrated solar power increased from 12,836 MW (solely for concentrated solar power) in the PDP8 to 46,459 MW (combined both concentrated solar and rooftop solar power) in the Amended PDP8. While not quite an apples-to-apples comparison, this represents a 3.5X increase in expected capacity with concentrated solar also accounting for the largest percentage of the electricity mix by both 2030 and 2050.

Solar power must include storage batteries

The PDP8 required solar power to be developed in combination with storage batteries only when market prices became more favorable. The Amended PDP8 now mandates that solar power development includes storage batteries with a minimum capacity ratio of 10% and storage for two hours.

Ambitious goals for self-generation, self-consumption rooftop solar power

The Amended PDP8 has discontinued the priority policy that promoted the development of rooftop solar power by households and entities on a no-capacity-limit basis. Despite this change, it still emphasizes the development of self-generation, self-consumption rooftop solar power up to 2030. The Amended PDP8 sets an ambitious goal that by 2030, 50% of administrative office buildings and 50% of residential houses should utilize self-generation, self-consumption rooftop solar power.

Changes in wind power development

According to the original PDP8 plan, offshore wind power capacity was expected to reach around 6,000 MW by 2030. However, no projects have been approved for investment or implementation so far. In light of this, the Amended PDP8 revises these expectations, planning for offshore wind power projects with total capacity ranging from 6,000 MW to 17,032 MW to begin operations between 2030 and 2035, extending slightly beyond the initial planning period of PDP8.

The Amended PDP8 also discontinues the initiative to prioritize or allow unrestricted offshore wind development. This decision is based on several significant challenges, including the lack of uniform legal regulations, the need for substantial capital investments, and concerns related to national defense and security.

Instead, over the next five years, Vietnam will focus on developing onshore and nearshore wind power projects with capacities ranging from 26,066 MW to 38,029 MW, representing an increase of about 15% compared to the original PDP8. The Amended PDP8 prioritizes allocating new wind power sources in provinces with strong wind potential and/or challenging economic conditions. The planning and

development of onshore and nearshore wind power projects will also be subject to provincial plans (ex. power, land use and construction plans).

Renewable energy is expected to be a significant portion of the DPPA scheme

The Amended PDP8 acknowledges that, according to the latest data, there are over 1,500 large-scale buyers (accounting for 25% of the total market) who each consume at least 1 million kWh per year and are eligible to participate in the DPPA scheme. While no explicit goals are set for DPPAs up to 2030, the proportion of renewable energy within the DPPA scheme is anticipated to reach 30-60% of total generated renewable energy by 2050.

Biomass power and green power sources no longer just a possibility

The Amended PDP8 prioritizes and encourages the development of biomass power and waste-to-energy by using agricultural and forestry by-products to promote afforestation and otherwise address environmental issues. By 2030, the Amended PDP8 aims to achieve a biomass power capacity of 1,523–2,699 MW, waste-to-energy capacity of 1,441–2,137 MW, and geothermal and other new energy source capacity of around 45 MW. In contrast, the original PDP8 limited itself to the possibility of developing these power sources if there were sufficient resources.

Other key revisions

Other key revisions, including with respect to thermal power development and general power strategy goals include the following.

Expanded nuclear power objectives

The Amended PDP8 now sets out clear goals for nuclear power projects. Between 2030 and 2035, the Ninh Thuan 1 & 2 Nuclear Power Plants will be put into operation with a capacity of 4,000–6,400 MW. By 2050, the system will need to add approximately 8,000 MW of nuclear power to provide a base-load power supply, with the potential to increase according to demand. Additionally, the Amended PDP8 mandates that nuclear power projects adhere to stringent standards, ensuring a safe and reliable electricity supply. These projects must also meet the N-2 criteria, a standard that was previously only applicable to especially important load areas in the original PDP8.

Greenhouse gas emission targets

The original PDP8 aimed to limit emissions to approximately 204–254 million tons by 2030, reducing to around 27–31 million tons by 2050. In contrast, the Amended PDP8 sets a more stringent objective limiting emissions to between 197–199 million tons by 2030, and a fixed target of 27 million tons by 2050. Both versions share the goal of capping peak emissions at no more than 170 million tons by 2030, contingent on the full and effective implementation of commitments under the Just Energy Transition Partnership (JETP) by international partners. The amendment reflects a more aggressive approach to reducing emissions in the near term, indicating a stronger commitment to environmental sustainability.

Legal framework development

With the adoption of the new Electricity Law[4] in 2024, the Amended PDP8 assigns authorities to complete the development of a pricing scheme based on market principles. It also tasks the authorities with reviewing the current legal system to begin developing regulations for nuclear power.

Introduction of power export ambitions

The Amended PDP8 introduces a new goal of developing renewable and new energy sources for export to neighboring countries such as Singapore and Malaysia. The target is to achieve an export capacity of

[4] The new Electricity Law No. 61/2024/QH2015 adopted by the National Assembly on November 30, 2024

approximately 5,000–10,000 MW by 2035. This capacity may be increased based on the importing countries' needs, while ensuring Vietnam's high economic efficiency, national power security, and national defense.

Plan for the development of an industrial and service ecosystem for renewable energy

Vietnam plans to establish two major inter-regional Renewable Energy Industrial and Service Centers. The Northern Center will be located across Hai Phong, Quang Ninh, Thai Binh Provinces and the South-Central and Southern Center will be established across Ninh Thuan and Binh Thuan Provinces, Ba Ria-Vung Tau and Ho Chi Minh Cities, with the possibility of future expansion into adjacent areas. These centers are designed to serve as key drivers in the development of the country's renewable energy sector and to support national defense objectives. Both centers will focus on manufacturing renewable energy equipment, providing seaport and logistics services, developing low-carbon industrial zones, and creating institutions for research and training.

Land use requirements by 2030

The estimated land required for power generation and infrastructure development through 2030 is projected to range from 89,900 to 93,360 hectares. This allocation is intended to support the planned expansion and modernization of the energy sector and related infrastructure, ensuring alignment with national development goals for the coming years.

Investment capital requirements

From 2025 to 2030, Vietnam is projected to require approximately VND2,876,397 trillion (USD118.2 billion) for the development of power generation sources. In addition, an estimated VND440,464trn (USD18.1bn) will be needed for transmission grid projects during the same period.

For the subsequent period from 2031 to 2035, the investment requirements are estimated at VND2,776,624trn VND (USD114.1bn) for power source development and VND386,927trn VND (USD15.9bn) for transmission grid projects.

These figures highlight the significant capital needed to support Vietnam's ongoing efforts to expand and modernize its power infrastructure, ensuring reliable energy supply and supporting economic growth.

Evaluation of power projects progress

According to Appendix II.1 of the Implementation Plan, the progress of various power projects is summarized as follows:

- LNG power projects: Operations for LNG power projects in Tables 1 and 2, Appendix II.1 of the Implementation Plan are scheduled to commence between 2031 and 2035, in line with the current planning timeline.
- Coal-fired plants: Coal-fired power plants in Table 3, Appendix II.1 of the Implementation Plan currently under construction are targeting commissioning dates between 2025 and 2027. However, Table 4 of the same Appendix II.1 notes that several coal-fire projects are experiencing delays and proposed for termination.
- Hydropower plants: According to Tables 7 and 8, Appendix II.1 of the Implementation Plan, a number of hydropower plants are already operational. Most of the remaining projects are expected to be commissioned by 2030, with significant capacity growth projected in the years that follow.
- Nuclear and battery storage projects: Operations for both nuclear and battery storage projects are scheduled to commence between 2025 and 2035. Details regarding two new nuclear projects and

four new battery storage projects are added in Tables 10 and 11, Appendix II.1 of the Implementation Plan.

- Wind and solar power: Wind and solar power projects are progressing steadily, with both sectors experiencing consistent increases in capacity. Tables 12, 13 and 14, Appendix II.1 of the Implementation Plan confirm the operation of (a) projects approved in the previous Power Development Plan for the 2021–2030 period with a vision toward 2050 and its amendments according to Decision No. 262/QD-TTg of the prime minister dated April 1, 2024 and Decision No. 1682/QD-TTg of the prime minister dated December 28, 2024, and (b) projects approved for continued implementation based on Resolution No. 233/NQ-CP dated December 10, 2024 of the government. The offshore wind power projects scheduled to become operational in 2030 and 2035 are detailed in Tables 17 and 18, Appendix II.1 of the Implementation Plan.

Conclusion

The Amended PDP8 and its Implementation Plan bring a renewed sense of optimism by outlining a significantly higher total capacity for the periods leading to 2030 and 2050, ensuring energy security for Vietnam. Investors, developers and the lending community should closely monitor the development of all regulations and guidance from the government and the MOIT to understand the full implications and the potential opportunities in the sector.

ANNEX 1. SUMMARY OF CHANGES IN TARGET CAPACITY BY POWER SOURCE FOR THE PERIOD TO 2030

	PDP8		Amended PDP8 (For the period to 2030)				Implementation Plan of Amended PDP8	
Power type	**Capacity (MW)**	**Ratio**	**Revised capacity (low) (MW)**	**Revised ratio (low)**	**Revised capacity (high) (MW)**	**Revised ratio (high)**	**Capacity**	**Relevant Schedule and Table**
Onshore wind (+nearshore wind in the revised version)	21,880	14.5%	26,066	14.2%	38,029	16.1%	26,066 – 38,029	Table 12 and 13, Appendix II.1
Offshore wind	6,000	4.0%	6,000		6,000		6,000	Tables 17 and 18, Appendix II.1
Concentrated solar power (+ rooftop solar power in the revised version)[5]	10,236	6.8%	46,459	25.3%	73,416	31.1%	46,459 – 73,416	Table 14, Appendix II.1
Self-generated, self-consumed solar (removed in the revised version)	2,600	1.7%						
Biomass Power			1,523		2,699		1,523 – 2,699	Table 15, Appendix II.1
Electricity generated from waste, solid waste (separated from Biomass Power in the revised version)	2,270	1.5%	1,441		2,137		1,441 – 2,137	Table 16, Appendix II.1
Geothermal power and other new energy sources (newly added in the revised version)			45		45			
Hydropower	29,346	19.5%	33,294	14.7%	34,667	18.2%	33,294 – 34,667	Tables 7and 8, Appendix II.1
Pumped-storage hydro power	2,400	1.6%	2,400	5.5%	6,000	6.9%	2,400 – 6,000	Table 9, Appendix II.1
Nuclear power			4,000		6,400		4,000 – 6,400	Table 10, Appendix II.1
Storage batteries	300	0.2%	10,000		16,300		10,000 – 16,300	Table 11, Appendix II.1

[5] Excluding the following types of projects: (i) any power source that does not affect or as a minimal impact on the national power system, (ii) any power source that is not connected to, nor sell electricity to the national power system (except in cases of electricity export and import), (iii) any low voltage power grid and (iv) any renovation or upgrade of an existing power project that does not increase the scale of capacity or voltage level, and does not generate a need for land use.

	PDP8		Amended PDP8 (For the period to 2030)				Implementation Plan of Amended PDP8	
Power type	**Capacity (MW)**	**Ratio**	**Revised capacity (low) (MW)**	**Revised ratio (low)**	**Revised capacity (high) (MW)**	**Revised ratio (high)**	**Capacity**	**Relevant Schedule and Table**
Co-generation of electricity, utilizing waste heat, blast furnace gas, and by-products of technological processes in industrial facilities	2,700	1.8%					1,404	Table 5 Appendix II.1
Coal-fired thermal power	30,127	20.0%	31,055	13.1%	31,055	16.9%	31,055	Tables 3 and 4, Appendix II.1
Domestic gas-fired thermal power	14,930	9.9%	10,861	5.9%	14,930	6.3%	14,930	Table 6, Appendix II.1
LNG thermal power	22,400	14.9%	22,524	9.5%	22,524	12.3%	22,524	Tables 1 and 2, Appendix II.1
Flexible power source	300	0.2%	2,000	1.1%	3,000	1.3%	2,000 – 3,000	Table 19, Appendix II.1
Imported power	5,000	3.3%	9,360		12,100		9,360 – 12,100	Table 20, Appendix II.1
Total	**150,489**		**209,028**		**269,302**			

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