VIETNAM ACCESS DAYS 2025

BLOCK B, LNG & RENEWABLE POWER

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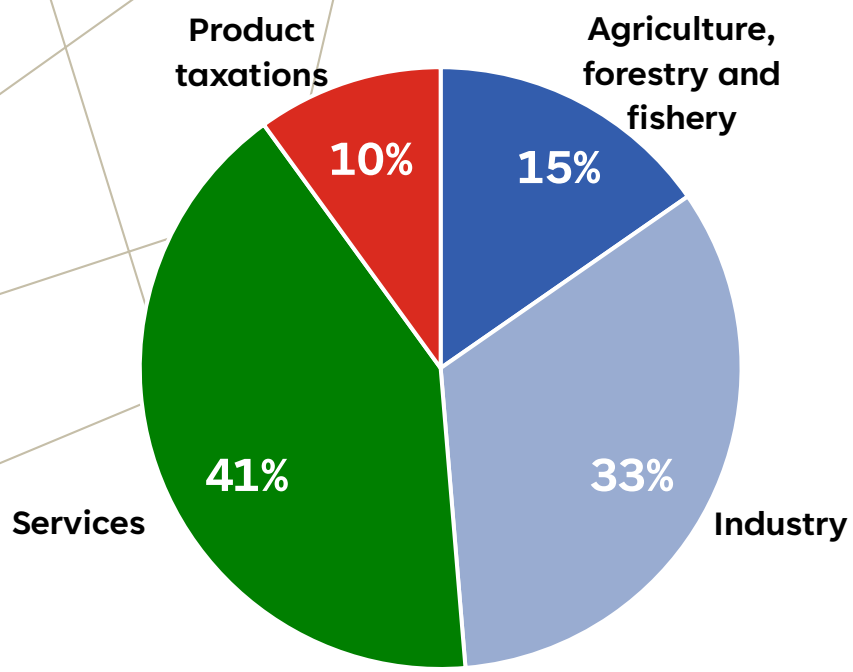
VIET NAM MACRO ECONOMY MANAGEMENT

IN SUMMARY VIETNAM OVERVIEW

Vietnam 2024 Economy Structure



GDP in 2024 : 470 billion USD

Economy Structure: Services 41.32%; Agriculture, forestry and fishery: 15.35% ; Product taxations: 10%; Industry 33.34%.

General information:

Population: 99 million

Area: 331,698 sq km (land)

Water: 21,140 sq km

GDP: USD 470 billion (2024 report)

GDP per capita: 4,500 USD

Development growth rate: 8,02% in 2022, 5,05% in 2023 and 7,09% in 2024

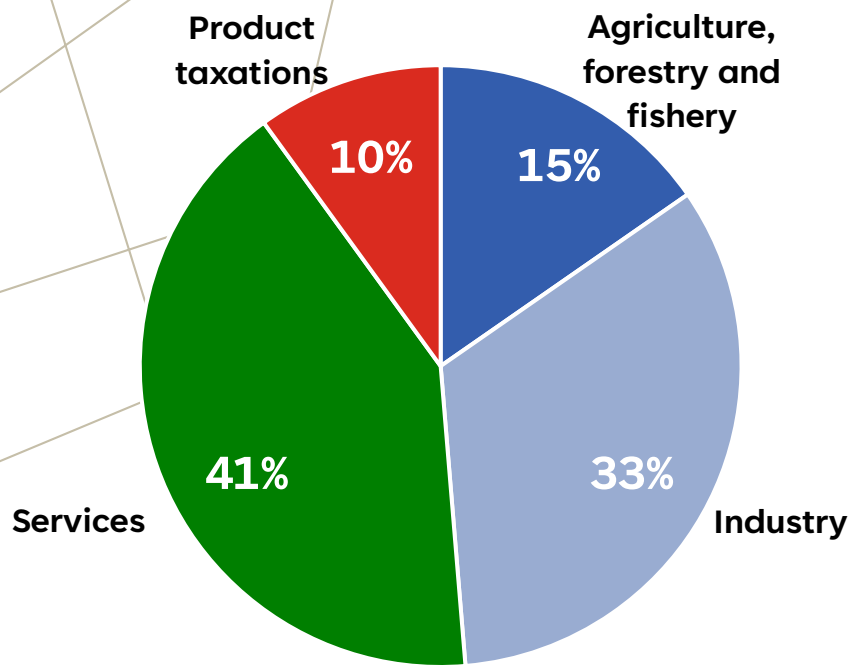
Inflation: 3,15% in 2022, 3,25% in 2023 and 4,14% in 2024

Government debt by 2023: 34%

Vietnamese Government is the single political party regime

INDUSTRY STRUCTURE

Vietnam 2024 Economy Structure



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Oil and Gas (PVN)

is the **Government owned group** and one of the key production and supply of oil and gas fuel to the industry and society and contribute ~ 9 % to the GDP (1 trillion VND) 42 billion USD) and net 165 thousand billion VND (equivalent 8 billion USD to the state budget in 2024).

Power Sector (EVN)

is the **Government owed group** involved in power generation, transmission and retail of power for the industry and society. In last 3 years, **EVN suffered big losses**: 1,3 billion USD in 2022, 1,1 billion USD in 2023, and 530 million USD in the first 2 quarters in FY 2024. Due to the efforts of optimized management and 4,8% increase of retailed power price (from average 9USCent/kWh), EVN has successfully **escaped from the loss last 2 quarters in 2024.**

GOVERNMENT POLICY

With the recent aggressive actions from the US President and European Community, it is predicted that the Russia-Ukraine war will be ended, depending on negotiation efforts. Thus, the domestic oil and gas and power industries will be affected, both positively and negatively, including:

Positive:

1) The imposition of an **export tax of over 10% on goods from China** will be an opportunity for ASEAN countries and Vietnam to attract investment in civil industry and manufacturing. In particular, a large part of the world's **leading technology companies will shift from China to Vietnam**. From there, the **demand for electricity and oil and gas will also increase**. A series of mixed thermal power projects using natural gas and imported LNG will be developed synchronously, satisfying the demand for an increase of over 10% in energy consumption.

2)Vietnam Government, through MOIT, will speed up functional approvals for projects development, so that the investors can **shorten the procedures for arrangement of Project Financings** with International banks and financial bodies by ECA model.

3) **Bao Vang gas field development, the cooperation with Gazprom might accelerate**

4) **Hai Thach – Moc Tinh gas field further expansion with capex of USD0.8bn on more drilling**

Negative

Oil and coal fuel prices will be more competitive, forecast to **decrease slightly from 5% to 10%.** These are **slightly negative for oil & gas stocks** but should be **slightly positive for thermal power plants** with lower variable components in PPA and DPPA.

POWER SECTOR

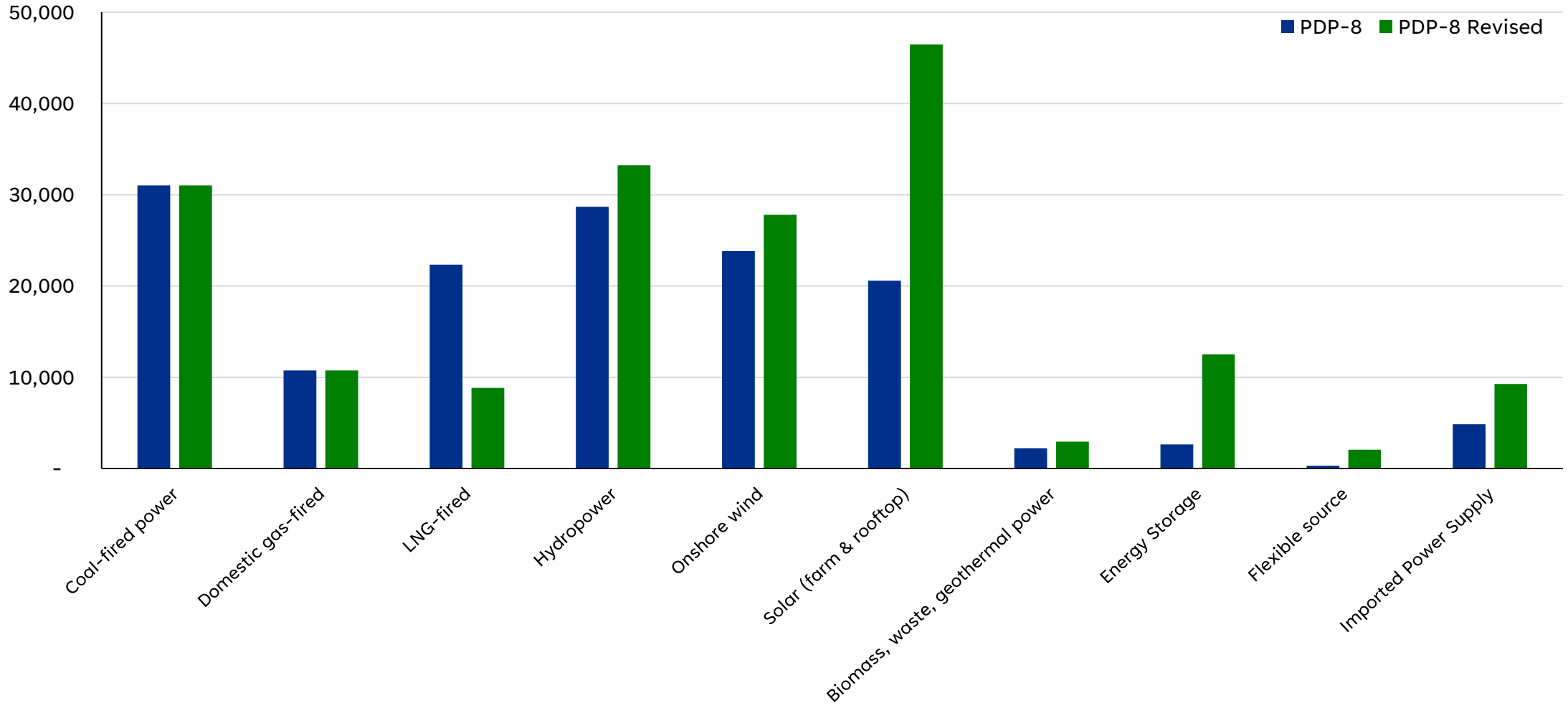
For the policy of **stabilizing the macro economy and supporting the business communities and society**, the Government still maintains the management and regulation of the energy sector through the Electricity Law, Petroleum Law; Law on Management and Use of State Capital Invested in Production and Business at Enterprises.

- These legal frameworks to be specified by decrees (applicable to gas-fired, renewable, coal-fired powers) and PPA, DPPA, GSA and GSPA.
- Where **PVN and EVN will play important roles for national security and bridges to get more foreign investments.**

Due to some **shortcomings and overlaps between the applicable laws**, the Government has supplemented and amended the Electricity Law and the Petroleum Law to **minimize functional approvals to accelerate the implementation** of projects development, in accordance with international standards.

The legal frameworks including laws, decrees, contracts and related regulations, after amendment, **will be applied consistently and throughout the whole life cycle of projects** according to the energy transition policy and the PDP VIII.

COMPARISON OF POWER SOURCE CAPACITY BETWEEN PDP-8 AND PDP-8 REVISED



POWER SECTOR: REVISED PDP VIII

On February 19, the National Appraisal Council completed its review and accepted the final version of the revised Power Development Plan (PDP) VIII. The plan is targeted for formal approval by the Prime Minister at the end of February 2025. A summary of the revised PDP VIII is provided below:

NATIONAL INSTALLED CAPACITY TARGET BY 2030F (MW)	DRAFT REVISED PDP VIII	DRAFT VS CURRENT PDP VIII (CHANGE)
Coal-fired	31,055 MW (accounting for 16.9-13.1%)	unchanged
Domestic gas-fired	10,861 MW (accounting for 5.9-4.6%)	unchanged
LNG-fired	8,824 MW (accounting for 4.8-3.7%)	down by 13,576 MW (due to slow progress in assessing power sources)
Hydroppower	33,294-34,667 MW (accounting for 18.2-14.7%)	up by 4,560-5,275 MW
Onshore wind	27,791-28,058 MW (accounting for 13.2-14.4%)	up by 3,949-5,321 MW
Solar (farm & rooftop)	46,459-73,416 MW (accounting for 25.3-31.1%)	an increase compared to PDP VIII from 25,867-52,825 MW
Biomass power, waste and geothermal	2,979-4,881 MW (accounting for 1.6-2.1%)	an increase compared to PDP VIII from 709-2,611 MW
Energy storage	12,394 - 22,271 MW (accounting for 6.8-9.4%)	an increase compared to PDP VIII from 9,694-19,571 MW
Flexible source	2,000-3,000 MW (accounting for 1.1-1.3%),	an increase from 1,700-2,700 MW
Total	**183,291-236,363 MW**	**an increase of about 27,747-80,819 MW**

PPA-DPPA-GSA-PROJECT FINANCING (1)

The Government shall not issue any GGU and with the current national GDP structure, projects development in Vietnam will **soon no longer depend on ODA Loans.** Accordingly, for the new economic model and project development concepts, except for 100% foreign investor capital, **Project Financings will be approx. 30% equity and 70% ECA bank loans.**

Project ECA Model are supported by International banks and financial bodies from different resources: US, EU, Japan, Korea and China which require key original materials and equipment supply in individual projects.

By the new development concept, **MOIT may need to issue some new legal frameworks to support and expedite the functional approval** and development schedules.

The revised PDP VIII requires a total CAPEX of approximately 118 to 148 billion USD for new generation projects from 2025 to 2030. Under Vietnam's positive development scenario, with GDP growth projected at 7% to 8%, electricity consumption demand is expected to increase by more than 10%. **Compared to global standards, Vietnam's current power prices in PPAs do not fully reflect CAPEX, OPEX, input fuel costs, transportation, and transmission expenses, making it less attractive to foreign investors**. Therefore, alongside the adjusted PDP VIII, the **MOIT must supplement and refine existing regulations**—such as **price terms in PPAs** and **increasing output commitment levels**—to **provide investors with a solid basis for synchronized implementation**.

For power transmission projects solely owned by EVN, the revised PDP VIII also requires an additional 18 to 24 billion USD from 2025 to 2030. Given the current wide operating margin and transmission overloading, the Government will likely assign other state-owned corporations, such as **PVN and Vinacomin, to share the burden with EVN by taking over some transmission projects for investment and operation.** This development strategy also ensures national security.

PPA-DPPA-GSA-PROJECT FINANCING (2)

1) Retail electricity price : Since EVN suffered **big losses by maintaining a fixed price mechanism** based on a component of power consumption (the actual amount), electricity price has been **proposed to apply two-component power price**, including the price that consumers pay for the **registered capacity** and the price for the **amount of power consumed.**

2) DPPA: tentatively be issued to **apply within March 2025**. This will be a back born for renewable and solar projects.

3) GSA, GSPA:

- **pass through mechanism from GSA (gas price) to PPA (power price)** for mega projects in the oil and gas sector such as **Block B O Mon, or Blue Whale** in upcoming years,
- and commitment for the design capacity and **consumption output (Qc) to share the risks and harmonized benefits** between suppliers and consumers.

4) Project financing: to support investors, **MOIT will minimize the risk of project delays by cutting off unnecessary paper-works and shorten functional approvals** for Project Licenses, Land Clearances, Feasibility Studies (FS), Conceptual or Front-End Engineering Designs (FEED), GSA, GSPA, to optimize the development process. These documentations, agreements will be the basis to arrange international bank loans and owner capital investment.

After revised PDP VIII, as no further GGU issuance, MOIT is currently reviewing frameworks for optimal solutions such as prioritized power sectors and developers, thus, **EVN will focus on distribution/retail sector**, while **PVN, Vinacomin will involve more in generation and transmission system** to ensure projects designed in PDP VIII will be commercially **developed as schedule.**

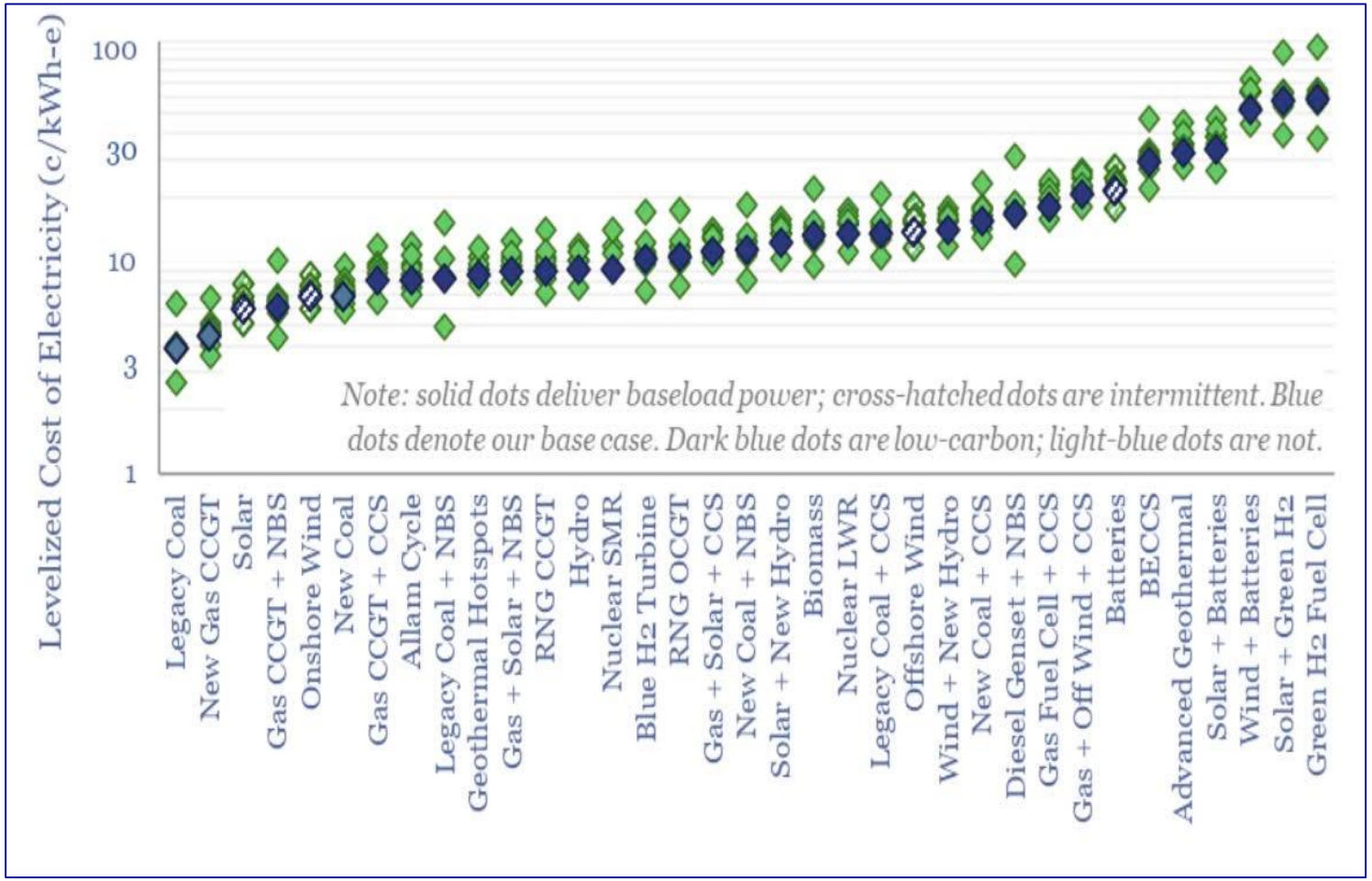
CONCLUSION

Arranging Loan Financing and Equity Capital (Owner's Capital): The required CAPEX ranges from USD 118 to 140 billion from now until 2030, posing significant challenges.

Compared to global benchmarks, the **electricity selling price in PPAs does not fully cover CAPEX, OPEX, transportation, and transmission costs.**

Conclusion: Therefore, there is a pressing need to detail cost components to accurately determine the electricity price structure.

Global Levelized Cost of Electricity (US cents/kWh-e)



THANK YOU

DOMESTIC GAS PROJECTS

No	Project	Capacity (MW)	Province/City	COD	Remark
1	O Mon 1	660	Can Tho	Operating	
2	O Mon 2	1.050	Can Tho	2028	
3	O Mon 3	1.050	Can Tho	2030	
4	O Mon 4	1.050	Can Tho	2028	
5	Dung Quat 1	750	Quang Ngai	2030	
6	Dung Quat 2	750	Quang Ngai	2030	
7	Dung Quat 3	750	Quang Ngai	2030	
8	Mien Trung 1	750	Quang Nam	2030	
9	Mien Trung 2	750	Quang Nam	2030	
10	Quang Tri	340	Quang Tri	2030	

LNG PROJECTS

No	Project	Capacity (MW)	Province/City	COD	Remark
1	Nhon Trach 3&4	1.624	Dong Nai	6/2025	NT 4 COD end of 2025
2	LNG Hiep Phuoc	1.200	HCMC	2028	Under construction
3	LNG Bac Lieu	3.200	Bac Lieu	2029	FS preparation
4	LNG Son My 1	2.250	Binh Thuan	2029	FS preparation
5	LNG Son My 2	2.250	Binh Thuan	2029	FS preparation
6	LNG Quang Ninh	1.500	Quang Ninh	2029	FS preparation
7	LNG Hai Lang	1.500	Quang tri	2029	FS preparation
8	LNG Thai Binh	1.500	Thai Binh	2030	Seeking for investors
9	LNG Nghi Son	1.500	Thanh Hoa	2030	Seeking for investors
10	LNG Ca Na	1.500	Ninh Thuan	2029/2030	Seeking for investors
11	LNG Quang Trach	1.500	Quang Binh	2029/2030	
12	LNG Quynh Lap	1.500	Nghe An	2029/2030	
13	LNG Long An	1.500	Long An	2029/2030	FS preparation

RENEWABLE: OFFSHORE WIND

No	Project	Capacity (MW)	COD	Remark
1	Northern	2.500	By 2030	
2	North Central	0	By 2030	
3	Central	500	By 2030	
4	Highland	0	By 2030	
5	South Central	2.000	By 2030	
6	Southern	1.000	By 2030	
	Total	**6.000**	By 2030	

RENEWABLE: NEARSHORE AND ONSHORE WIND

No	Project	Capacity (MW)	COD	Remark
1	Ha Noi	0	By 2030	
2	Hai Phong	2,3	By 2030	
3	Hai Duong	0	By 2030	
4	Hung Yen	0	By 2030	
5	Ha Nam	0	By 2030	
6	Nam Dinh	0	By 2030	
7	Thai Binh	70	By 2030	
8	Ninh Binh	0	By 2030	
9	Ha Giang	0	By 2030	
10	Cao Bang	0	By 2030	
11	Lao Cai	0	By 2030	
12	Bac Kan	400	By 2030	
13	Lang Son	1.444	By 2030	

RENEWABLE: NEARSHORE AND ONSHORE WIND

No	Project	Capacity (MW)	COD	Remark
14	Tuyen Quang	0	By 2030	
15	Yen Bai	200	By 2030	
16	Thai Nguyen	100	By 2030	
17	Phu Tho	0	By 2030	
18	Vinh Phuc	0	By 2030	
19	Bac Giang	500	By 2030	
20	Bac Ninh	0	By 2030	
21	Quang Ninh	400	By 2030	
22	Lai Chau	0	By 2030	
23	Dien Bien	300	By 2030	
24	Son La	400	By 2030	
25	Hoa Binh	0	By 2030	
26	Thanh Hoa	300	By 2030	

RENEWABLE: NEARSHORE AND ONSHORE WIND

No	Project	Capacity (MW)	COD	Remark
27	Nghe an	70	By 2030	
28	Ha Tinh	700	By 2030	
29	Quang Binh	1.130	By 2030	
30	Quang Tri	1.800	By 2030	
31	Thua Thien Hue	50	By 2030	
32	Da Nang	0	By 2030	
33	Quang Nam	0	By 2030	
34	Quang Ngai	0	By 2030	
35	Kon Tum	154	By 2030	
36	Gia Lai	1.842	By 2030	
37	Dak Lak	1.375	By 2030	
38	Dak Nong	730	By 2030	
39	Binh Dinh	250	By 2030	

RENEWABLE: NEARSHORE AND ONSHORE WIND

No	Project	Capacity (MW)	COD	Remark
40	Phu Yen	462	By 2030	
41	Khanh Hoa	102	By 2030	
42	Ninh Thuan	1.127	By 2030	
43	Binh Thuan	907	By 2030	
44	Lam Dong	217	By 2030	
45	Ho Chi Minh City	0	By 2030	
46	Binh Phuoc	50	By 2030	
47	Tay Ninh	0	By 2030	
48	Binh Duong	0	By 2030	
49	Dong Nai	0	By 2030	
50	Ba Ria – Vung Tau	150	By 2030	
51	An Giang	50	By 2030	
52	Tien Giang	250	By 2030	

RENEWABLE: NEARSHORE AND ONSHORE WIND

No	Project	Capacity (MW)	COD	Remark
53	Ben Tre	1,100	By 2030	
54	Kien Giang	137	By 2030	
55	Can Tho	0	By 2030	
56	Hau Giang	100	By 2030	
57	Tra Vinh	1,130	By 2030	
58	Soc Trang	1,613	By 2030	
59	Bac Lieu	1,210	By 2030	
60	Ca Mau	1,060	By 2030	
	Total	**21,880**		