

Official Approval of National Power Plan VIII.

The National Power Plan VIII (PP8) for the period 2021 – 2030, with a vision to 2050, was officially approved on May 15th, 2023. We would like to highlight a few key points:

Objective

- PP8 stipulates the development of power sources and transmission grids at voltage levels of 220 kV or higher, industries and services on renewable energy (RE) and new energy in the territory of Vietnam in the period of 2021 – 2030, with a vision to 2050, including works connecting power grids with neighboring countries.
- Ensuring national energy security, meeting sufficient electricity demand, achieving socio-economic development goals with an average GDP growth rate of c.7% / year in the period of 2021 – 2030, about 6.5–7.5% / year in the period of 2031 – 2050.
- Furthermore, successfully implementing energy transition associated with production modernization, smart grid construction, advanced power system management, in line with the global trend toward green transformation, emission reduction, scientific and technological advancement. At the same time, forming an overall energy industry ecosystem based on RE.
- Ensuring a reliable and secure power supply. Aiming for 2030, the reliability of electricity supply will be in the group of 4 leading ASEAN countries, the electricity access index will be in the group of 3 leading ASEAN countries. Striving to 2030, 50% of office buildings and 50% of residential houses will reach self-supplied energy through rooftop solar (not connecting into the national transmission system).

Perspective

- Electricity is a vital sector that must be one step ahead order to pave the way for the nation's sustainable development, build an independent and self-reliant economy, enhance the living standards and ensure national defense and security.
- Respecting to the National Plan in Decision 45 – Course VIII and Resolution number 81/2023/QH15 on Jan 9th, 2023.
- Optimization of power source, transmission, distribution, and efficient use of electricity, in tandem with preservation of natural resources and the environment, and ensuring national energy security at the lowest cost.
- Encouraging all economic sectors to participate in the development of electricity industry based on the principle of healthy competition, implementing the market mechanism for electricity selling prices, and protecting the interests of the all parties.
- Following the global trend of science and technology development, particularly in RE, associated with the transformation of the nation's economy into a green and low carbon economy. The energy transition must be in line with international trends and ensure sustainability, fairness and justice.
- Utilizing domestic energy resources efficiently and effectively, in conjunction with reasonable imports and exports, and considering the development of RE as an opportunity to advance the entire ecosystem of energy industry.

Investment capital

- 2021-2030: the total investment in development of power sources and transmission grids is about 134.7 billion dollar;
- 2031-2050: the investment capital would be c.399.2 – 523.1 billion dollar, of which source: 364.4-511.2 billion dollar, and grid: 34.8-38.6 billion dollar, will be more precise in the next plan.

Emission target

PP8 seeks to aggressively develop RE. By 2050, the proportion of RE will increase to 67.5 – 71.5%. Greenhouse gas emissions from power generation will reach about 204-254 million tons by 2030 and remain about 27-31 million tons by 2050. Aim to reach peak emissions of no more than 170 million tons by 2030 with the support of international partners implementing JETP commitments fully and substantively.

Output

	2021 – 2030		2031 – 2050
Average GDP growth	7%		6.5 – 7.5%
	2025	2030	2050
Commercial output: bn kWh	335	505	1,114
Produced and Import: bn kWh	378	567	1,224

Sources: MoIT, ACBS

Source¹

Capacity: MW	2030	Proportion
Hydro	29,346	18.5%
Coal-fired	30,127	19.0%
Domestic gas turbines	14,930	9.4%
LNG	22,400	14.2%
Onshore	21,880	13.8%
Offshore	6,000	3.8%
Solar	20,591	13.0%
Biomass	2,270	1.4%
Pumped-storage hydro	2,400	1.5%
Storage battery	300	0.2%
Import	5,000	3.2%
Other	3,000	2.0%
Total	158,244	100.0%

Sources: MoIT, ACBS

Coal-fired: Only implement projects listed in PP7 and under construction by 2030. Those plants which have been in operation for over 20 years will transfer to use ammoniac / biomass. Those plants cannot convert to use biomass will be shut down after 40 years of operation

Continuing 6 projects – 6,125 MW; stagnant 11 projects – 13,220 MW, transferring 1 project to use LNG as input – 1,200 MW, for 4 BOT projects, the Ministry of Industry and Trade (MoIT) will discuss solutions with investors.

Gas turbines: prior to the domestic gas field, supplement with imported LNG when necessary, concentrate to infrastructure and facility development proportional to the scale. After 2035, new LNG gas turbines projects will be stagnant.

Accelerating gas extraction in Block B and Blue Whale fields and 6,900 MW combined gas turbines projects including O Mon II, III and IV- 3,150 MW and Dung Quat I, II and III – 3,750 MW. Transferring O Mon I in order to utilize gas from Block B field. Kien Giang I and II – 1,500 MW will be stagnant due to unidentified input source field.

Solar: It is expected there will be 2,600 MW self-supplied by 2030, not connect to the national grid system. 27 projects – 4,136.25 MW have not yet identified investors will be stagnant until after 2030.

¹ Project's details in the appendix.

Grid

2021 - 2030	Substation: unit		Grid: km	
	News	Overhaul	News	Overhaul
500 kV	49,350	38,168	12,300	1,324
220 kV	78,525	34,997	16,285	6,484

Sources: MoIT, ACBS

Limit inter-regional transmission to a reasonable level, reduce transmission over long distances, and minimize the construction of new inter-domain transmission lines prior to 2030.

The plan is to construct a one-way super high-voltage transmission line between the Central and South-Central regions after 2030 in order to fully exploit the offshore wind power potential.

Demanded land area

Unit: ha	2021 - 2030
Total	88,101 – 97,102
Coal-fired	3,561 – 5,705
Gas turbines	873 – 1,200
Hydro	45,249
Solar	1,600
Wind power	4,685 – 7,469
500kV substation	3,203 – 3,455
220kV substation	3,576 – 3,926
500kV grid	12,620 – 13,837
220kV grid	14,329 – 14,656

Sources: MoIT, ACBS

Comment

The official ratification of PP8 will establish a foundation and strengthen the legal framework for the development of power projects, along with the infrastructure in general, with a particular emphasis on RE development, notably offshore wind power. In addition, the necessary upgrade of the power grid system to overcome the primary drawback of RE, which is its dependent on weather conditions, and optimal exploitation of these types in accordance to each region. Accordingly, we expect businesses with operations in infrastructure construction, transmission lines and substations such as **PC1** and **TV2**, will benefit first in the value chain. Moreover, businesses in gas turbines and RE sectors will also benefit from long-term energy transition such as **POW** and **GEG**.

PP8 has not yet mentioned specific solutions for transitioning RE projects that are presently experiencing difficulties as a result of drastically lower selling prices compared to previous FIT scheme, resulting in insolvency due to inability to pay interest expenses.

Associate, Research Department
Toan Pham

toanpd@acbs.com.vn

Appendix

Energy type	Project	2021 - 2030	Information
LNG	14	21,024	2021 - 2030
1	Quang Ninh	1,500	PP7 adjusted version
2	Thai Binh	1,500	
3	Nghi Son	1,500	
4	Quang Trach II	1,500	Transfer to LNG – Announcement 54/TB-VPCP on Feb 25 th , 2022
5	Hai Lang I	1,500	PP7 adjusted version
6	Ca Na	1,500	PP7 adjusted version
7	Son My II	2,250	PP7 adjusted version
8	BOT Son My I	2,250	PP7 adjusted version
9	Long Son		After 2030 – 1,500 MW
10	Nhon Trach III, IV	1,624	PP7 adjusted version
11	Hiep Phuoc I	1,200	PP7 adjusted version
12	Long An I	1,500	PP7 adjusted version
13	Long An II		After 2030 – 1,500 MW
14	Bac Lieu	3,200	PP7 adjusted version
Coal-fired	6	6,125	On construction
1	Na Duong II	110	PP7 adjusted version
2	An Khanh - Bac Giang	650	PP7 adjusted version
3	Vung Ang II	1,330	PP7 adjusted version
4	Quang Trach I	1,403	PP7 adjusted version
5	Van Phong I	1,432	PP7 adjusted version
6	Long Phu I	1,200	PP7 adjusted version
Điện than	5	7,220	Pending
1	Cong Thanh	600	Transfer to LNG
2	Nam Dinh I	1,200	
3	Quang Tri	1,320	
4	Vinh Tan III	1,980	
5	Song Hau II	2,120	
Domestic gas turbines	10	7,900	
1	O Mon I	660	Block B field
2	O Mon II	1,050	Block B field
3	O Mon III	1,050	Block B field
4	O Mon IV	1,050	Block B field
5	Dung Quat I	750	Blue Whale field
6	Dung Quat II	750	Blue Whale field
7	Dung Quat III	750	Blue Whale field
8	Mien Trung I	750	Blue Whale field
9	Mien Trung II	750	Blue Whale field
10	Quang Tri	340	Bao Vang field
Pump-storage hydro	4	2,400	

	1	Bac Ai	1,200	PP7 adjusted version
	2	Phuoc Hoa	1,200	PP7 adjusted version
	3	Dong Phu Yen		After 2030 – 900 MW
	4	Don Duong I		After 2030 – 300 MW
Solar	27	4,136.3	Stagnant until after 2030	
	1	An Cu	40	
	2	Hong Liem 6.1	40	
	3	Ayun Pa	20	
	4	Ninh Sim	32	
	5	Ia Rsuom	11.8	
	6	Dam An Khe	40	
	7	Dam Nuoc Man	40	
	8	Loc Thanh 1-1	40	
	9	Hai Ly Binh Phuoc 1	40	
	10	Song Binh	200	
	11	Tan Xuan	23.6	
	12	Easup I	40	
	13	Ia Lop I	40	
	14	Buon Tua Srah	312	
	15	Cu Knia	144	
	16	Ea Tling	76	
	17	Xuyen Ha	104	
	18	Floating solar Tri An	928	
	19	Tri An	101	
	20	Phuoc Trung	40	
	21	Phuoc Huu II	184	
	22	Xanh Song Cau	150	
	23	Ho Khe Go	200	
	24	Floating solar Vuc Mau	160	
	25	Tam Bo	40	
	26	Phong Hoa	40	
	27	Dau Tieng - remaining	1,050	

Sources: MoIT, ACBS

CONTACTS

Ho Chi Minh City Head Office

Leman, 117 Nguyen Dinh Chieu, Dist. 3, HCMC
Tel: (+84 28) 7300 7000

Hanoi Office

10 Phan Chu Trinh, HoanKiem Dist., Ha Noi
Tel: (+84 24) 3942 9395
Fax: (+84 24)3942 9407

RESEARCH DEPARMENT

Manager– Property

Truc Pham
(+84 28) 7300 7000 (x1043)
trucptt@acbs.com.vn

Manager– Financials

Hung Cao
(+84 28) 7300 7000 (x1049)
hungcv@acbs.com.vn

Manager – Consumer-

related, Technology
Chi Luong
(+84 28) 7300 7000 (x1042)
chiltk@acbs.com.vn

Associate– Oil & Gas

Hung Phan
(+84 28) 7300 7000 (x1044)
hungpv@acbs.com.vn

Associate – Consumer-

related, Media
Trung Tran
(+84 28) 7300 7000 (x1045)
trungtn@acbs.com.vn

Associate –

Construction materials
Huy Huynh
(+84 28) 7300 7000 (x1048)
huyha@acbs.com.vn

Associate – Energy

Toan Pham
(+84 28) 7300 7000 (x1051)
toanpd@acbs.com.vn

Associate –Macro

Hoa Nguyen
(+84 28) 7300 7000 (x1050)
hoant@acbs.com.vn

Associate – Macro

Minh Trinh Viet
(+84 28) 7300 7000 (x1046)
minhtvh@acbs.com.vn

Associate – Technical

Phuoc Luong
(+84 28) 7300 7000 (x1047)
phuocld@acbs.com.vn

Analyst – Technical

Huu Vo
(+84 28) 7300 7000 (x1052)
huvvp@acbs.com.vn

Director – Institutional sales

Huong Chu
(+84 28) 7300 7000 (x1083)
huongctk@acbs.com.vn

Customer Support

Institutional Client
Thanh Le
(+84 28) 7300 7000 (x1089)
thanhln@acbs.com.vn

Trader

Huynh Nguyen
(+84 28) 7300 7000 (x1088)
huynhntn@acbs.com.vn

Trader

Thanh Tran
(+84 28) 7300 7000 (x1085)
thanhtt@acbs.com.vn

Trader

Thao Nguyen
(+84 28) 7300 7000 (x1087)
thaont@acbs.com.vn

Trader

Dung Ly
(+84 28) 7300 7000 (x1084)
dungln.hso@acbs.com.vn

Trader

Nhi Nguyen
(+84 28) 7300 7000 (x1086)
nhinp@acbs.com.vn

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