

PDP VIII and LNG projects in Vietnam

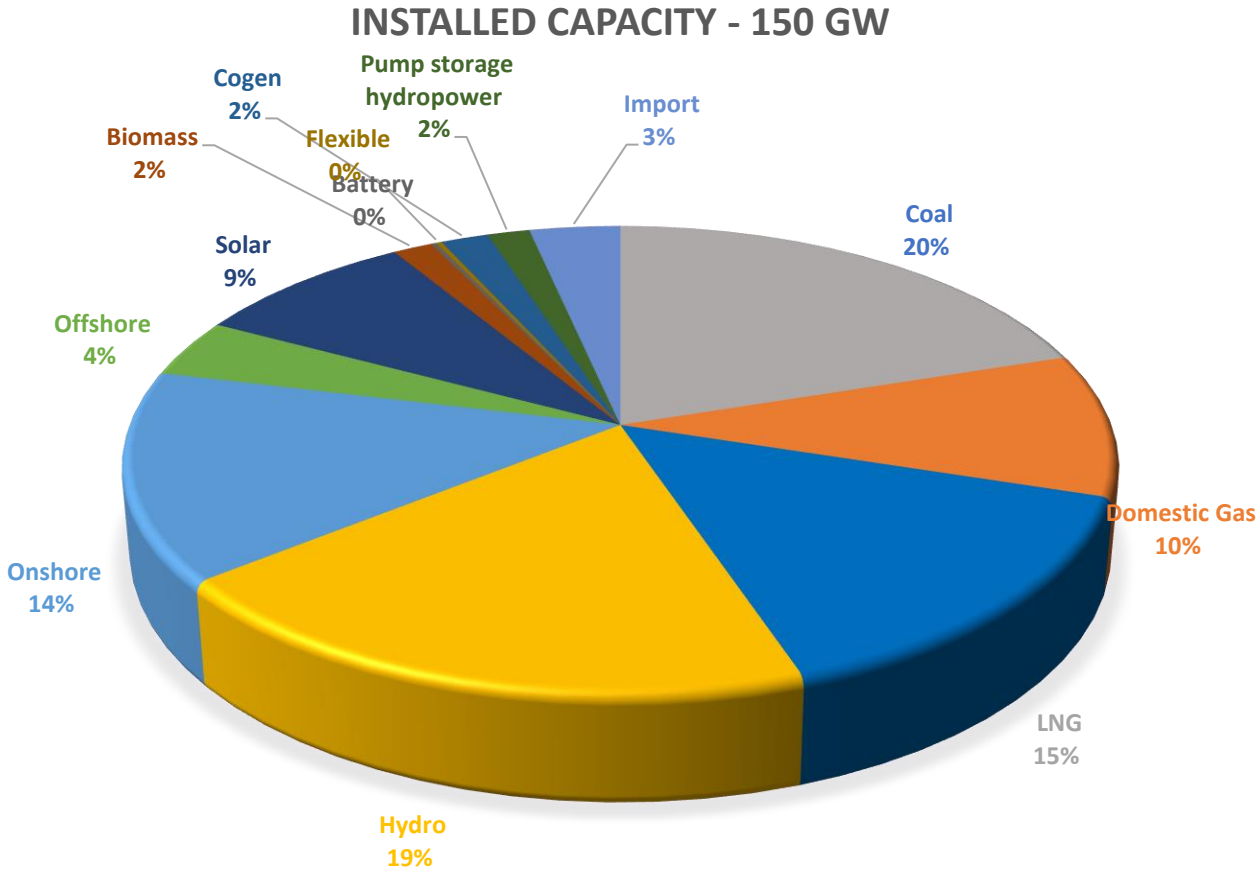
May 2023,
Hai Le Tien, IN Hanoi

MAIN FINDINGS

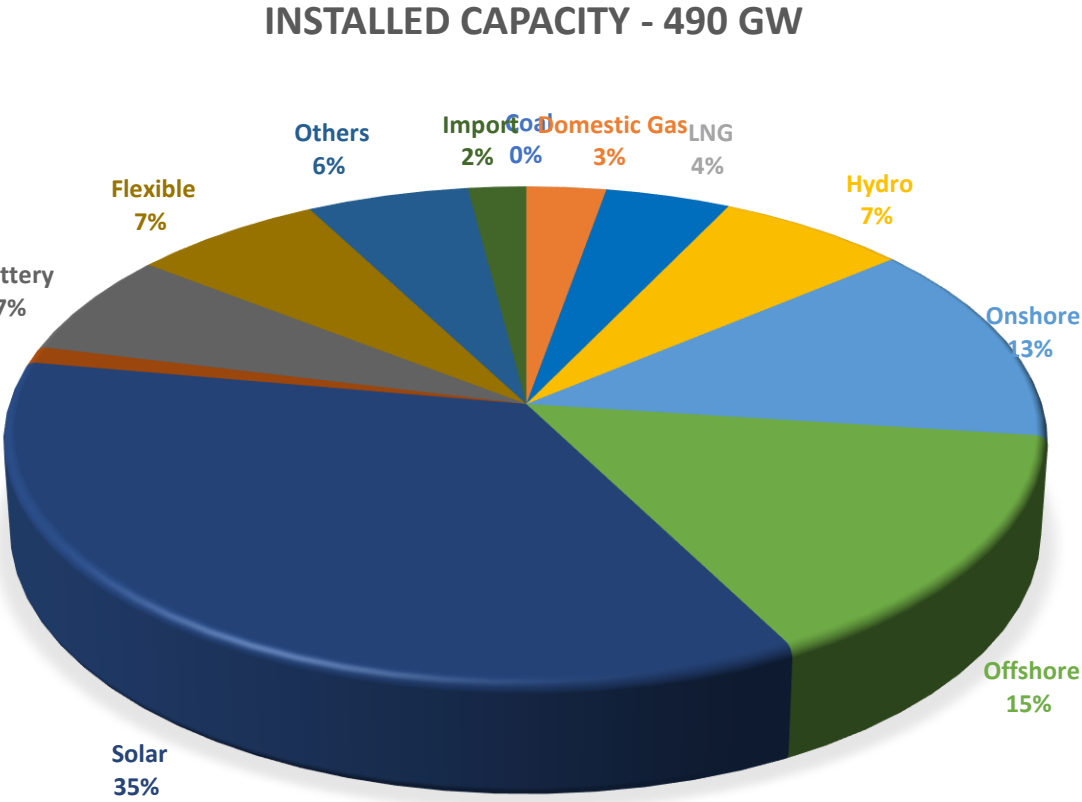
+ To strongly develop renewable energy sources for electricity production, reaching the rate of about 30.9-39.2% by 2030, towards the target of 47% renewable energy rate, provided that commitments are made. According to the Political Declaration on the establishment of the Fair Energy Transition Partnership with Vietnam (JETP) fully and substantively implemented by international partners . Orientation to 2050 renewable energy rate up to 67.5-71.5%.

- Gas thermal power: Prioritize the maximum use of domestic gas for power generation. In case the domestic gas production decreases, the import will be supplemented with natural gas or LNG. Develop projects using LNG and synchronous LNG import infrastructure with appropriate scale, using modern technology. Implement a fuel-to-hydrogen conversion roadmap when the technology is commercialized and the cost is affordable.

Power source development program in 2030 and in 2050



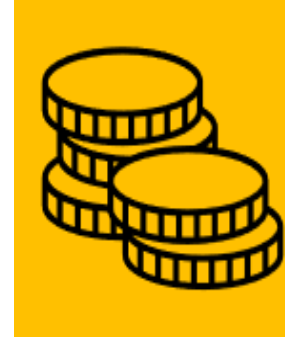
22 400 MW LNG thermal power by 2030



Investment capital demand

2021-2030: 134.7 billion USD

- Power sources: 119.8 billion USD (12 billion/year)
- Transmission grids 15.0 billion USD (15 billion/year)



2031-2050: 399.2-523.1 billion USD

- Power sources: 364.4-511.2 billion USD (18.2-24.2 billion/year)
- Transmission grid: 34.8-38.6 billion USD (1.7-1.9 billion/year)



List of LNG thermal power plants



No	Name	Capacity (MW)	Stage	Investor
1	LNG Quang Ninh	1 500	2021-2030	PVPower, Tokyogas, Marubeni, Colavi (approved)
2	LNG Thai Binh	1 500	2021-2030	Truongthanh (TTVNgroup), Tokyogas, Kiosin (not approved yet)
3	LNG Nghi Son	1 500	2021-2030	Sovico (onshore and not approved yet)
4	LNG Quang Trinh II	1 500	2021-2030	EVN (converted from Coal Power Project)
5	LNG Quynh Lap/Nghi Son	1 500	2021-2030	
6	LNG Hai Lang phase 1	1 500	2021-2030	T&T, Korean consortium
7	LNG Ca Na	1 500	2021-2030	Bidding 2 times and looking for the investors

List of LNG thermal power plants



No	Name	Capacity (MW)	Stage	Investors
8	Son My II thermal power plant	22 550	2021-2030	PVGas, AES (approved)
9	Son My I BOT thermal power plant	22 550	2021-2030	EDF, Kyushu, Sojitz, Thai Binh Duong (?)
10	LNG Long Son	1 500	2031-2035	Genco3, PECC2 (not approved)
11	Nhon Trach 3 & 4 power plants	1 624	2021-2030	PVPowers, PVGas (construction)
12	LNG Hiep Phuoc, Phase 1	1 200	2021-2030	Hai Linh (construction)
13	LNG Long An I	1 500	2021-2030	Vinacapital, GS Energy/PVGas (approved)
14	LNG Long An II	1 500	2031-2035	Vinacapital, GS Energy/PVGas (approved)
15	LNG Bac Lieu	3 200	2021-2030	DOE

Source: Decision 500 dated 15 May 2023 approved PDPVIII

CHALLENGES

- ❑ Land demand:
 - ✓ 89.9 -93.36 thousand ha (period 2021-2030)
 - ✓ 169.8-195.15 thousand ha (period 2031-2050)

- ❑ Lack of legal framework and technical norm to implement the project, lengthy approval process.
 - PPA
 - Connect to national grid
 - Fire fighting onshore only not for offshore

- ❑ Sea depth in the North may not be sufficient for large carriers and the terminal locations have not been well studied.

