

Vietnam's PDP8 Pause Is an Opportunity to Improve Market Structures

Cost-Effective Renewables Deployment Can Unlock Better Pricing for EVN

Executive Summary

The past 12 months have been a period of intense activity for Vietnam's power sector. The planning process surrounding the Power Development Master Plan for 2021-2030 with a vision to 2045 (PDP8) has dominated headlines as project sponsors have scoured the country to confirm business partners, project sites, and potential allies in advance of a sign off from top government officials that was expected at the end of March, the last days of Prime Minister Nguyen Xuan Phuc's administration. This has resulted in a highly public lobbying process as project sponsors and relevant officials jockeyed for attention to raise the profile of potential projects. The process hit an unexpected delay in late March, however, as the approval process for finalizing PDP8 was extended through June, raising important questions about how policymakers will contend with the rapidly shifting energy sector landscape.

The intensity of the lobbying process is a fair reflection of the scale of the business opportunities and the expectation that PDP8 will set Vietnam's power development program for the next 20 years. Vietnam remains South East Asia's most attractive energy growth market, with 68GW of new capacity expected to be added to the system between now and 2030 under a base case scenario.

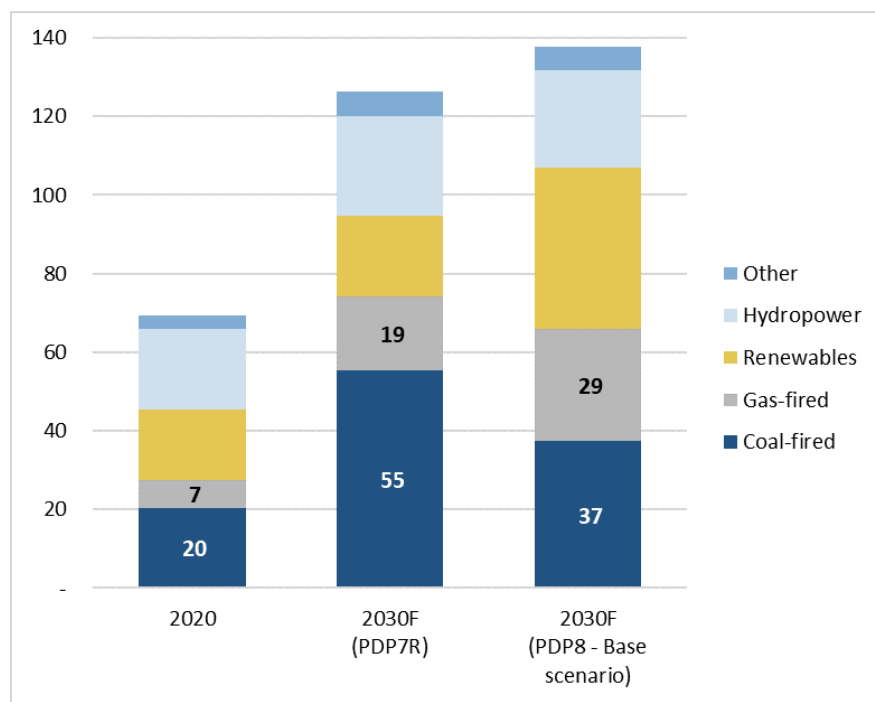
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So far, there have been three key drivers of this process: a pivot from coal to gas, the growing importance of renewables, and a sea change in funding patterns.

Pivot to Gas

As part of the PDP8 planning process, the country's top leadership has signaled a pivot away from coal to LNG for large-scale baseload power. According to the February draft, the 2030 installed capacity target for the coal power fleet was slashed by 18GW compared to the previous power development plan (PDP7R). Half of that capacity gap is expected to be filled by additional gas-fired power plants.

Figure 1: Vietnam to Double Down on Gas-Fired Capacity for Baseload Supply. Installed Capacity Targets by Different Technology (in GW)



Source: Ministry of Industry and Trade (Draft PDP8, February 2021).

There are numerous reasons for this shift, including ongoing setbacks for pipeline coal power projects and rising controversy related to environmental impacts, both at home and abroad. The challenge for power sector planners at the Ministry of Industry and Trade (MOIT) is that the pivot to gas is more closely aligned with the interests of high-profile gas sellers than the very real challenges that Vietnam's power sector will face if generation mix choices are linked to fixed imported gas offtake obligations.

The Rise of Renewables

The high stakes debate about gas is playing out just as MOIT has begun to reap the benefits of a rapid build-out of renewable power projects over the past two years. The sector was kick-started by successful feed-in-tariff (FiT) programs that enhance Vietnam's energy self-sufficiency by tapping into the country's attractive solar and wind resources.

It's hard to overstate how much Vietnam's strategic power options have changed as a result. The rapid build-out of rooftop solar capacity in late 2020 has lifted non-hydro renewables penetration to a quarter of Vietnam's 70GW power system. In the first three months of 2021, despite curtailment, renewable power still contributed to 13.1% of total system output, up from just 5% in 2020.¹ With renewables filling critical supply gaps, new system management challenges should be seen as

¹ EVN. Operational report on the first quarter 2021 and targets for April 2021. April 07, 2021.

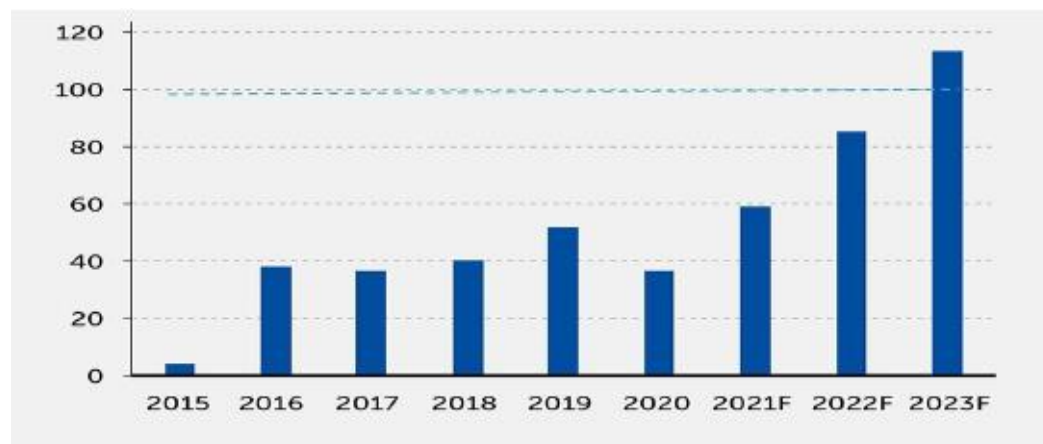
inevitable in the first stages of the clean energy transition pathway, not as a reason to halt progress. If enabled, renewables will continue to deliver on the upside with a new focus on rooftop solar and offshore wind.

New Financial Realities

Over the past year, global funding flows have shifted as the pool of low-cost capital requiring guarantees for fossil fuel projects began to shrink as governments and investors shun carbon risk. This has been evident in the controversy surrounding Vung Ang 2 coal power plant project in northern Vietnam,² and recent new policy announcements by Japan and South Korea³ that signal the beginning of a serious move away from coal financing.

In the past decades, the power infrastructure funding challenge was met by lender-centric project finance strategies that were designed to put all the risk on governments that were compelled to offer guaranteed offtake with ratepayers taking all the market risk. Now, new sustainable finance strategies, such as green bond issuances, are beginning to fill the funding gap for renewables players that have been willing to take more market risk in exchange for long-term growth opportunities.

Figure 2: Projections for Emerging Markets Green Bond Issuance (in USD Billion)



Source: Amundi.

Current PDP8 Is a Risk

It is hard to over-state the power of these trends and the pressure they are now imposing on the PDP8 planning process. MOIT is in the unenviable position of trying to chart a credible path through an exceptionally dynamic market as new technologies redefine the economics of the energy sector. The risk for policymakers

² Financial Times. [Funds worth \\$3tn attack South Korea and Japan groups over coal project.](#) October 21, 2020.

³ Reuters. [South Korea's Moon vows to end new funding for overseas coal projects.](#) April 23, 2021.

in energy growth markets like Vietnam cannot be over-stated. PDP8 is expected to lock-in a list of high-profile fossil fuel power projects that will require billions of dollars of international funding and could impose obligations on Vietnamese ratepayers for the next 20 years. At the same time, it will implicitly formalize a new set of relationships with Vietnam’s key trading partners and global investors.

As a result, it comes as no surprise that PDP8’s seemingly smooth progress through the system encountered turbulence in late March as the previous government failed to sign off on an all-but-final version of the plan. Outgoing Prime Minister Nguyen Xuan Phuc’s reluctance to sign off on the passage of PDP8 in his last days in office, despite the unanimous seal of approval by the appraisal committee, could be read as an indication of multiple unresolved considerations still at play.

The question for analysts is how to read this delay. Power sector insiders have been keen observers of the many high-cost and high-profile projects that appear to be competing for priority positioning in PDP8. The real challenge may rest elsewhere, however. Macro-driven planning models of the sort used to frame PDP8 system design options perform poorly when technology innovations are disrupting markets and repricing assets. Even the best planners, with input from an array of consultants, may not be able get their cost assumptions or technology synergies right.

Table 1: PDP8 Planners Assume Mild Cost Improvements for Renewables

	Base Year Price (USD/MW)	Improvement vs Base Year Price		
		2025-2029	2030-2039	2040-2045
Onshore wind (>= to 6 m/s)	1.7	-10.7%	-18.3%	-24.5%
Onshore wind (5.5-6m/s)	2.0	-10.7%	-21.4%	-29.2%
Onshore wind (4.5-5.5m/s)	2.0	-10.7%	-21.4%	-26.7%
Onshore Wind Average	1.9	-10.7%	-20.4%	-26.8%
Offshore wind (fixed foundation)	3.1	-5.5%	-19.5%	-30.9%
Offshore wind (floating)	4.3	-9.3%	-27.7%	-40.2%
Offshore Wind Average	3.7	-7.4%	-23.6%	-35.5%
Large-scale solar	1.1	-9.7%	-20.1%	-31.0%
Rooftop solar	1.1	-9.7%	-20.1%	-31.0%
Solar Average	1.1	-9.4%	-21.4%	-30.7%

Source: IEEFA estimates based on MOIT’s Draft PDP8 as of February 2021.

The Challenge

The net effect of these crosscurrents is that Vietnam’s status as the South East Asian country on the most positive clean energy trajectory now hangs in the balance as the old economics of LNG are tested against the new economics of renewables. Economists would define this as a price discovery problem. Simply stated, MOIT’s challenge is that it’s virtually impossible for them to know what the cost of PDP8 will actually be or how PDP8’s policy choices will affect the willingness of funders to

back the developers who are able to win approvals.

In a worst-case scenario, this means that any decisions made now could be derailed over the next three years, resulting in high-profile project delays and sub-optimal decisions on critical system development plans. For a simple demonstration of how fast the scale of technology change can re-order system design priorities, it’s instructive to compare the installed capacity targets for 2030 that were set in 2016 under PDP7R versus the scenario envisioned today in PDP8.

Table 2: Planning Changes in 2030 Installed Capacity Targets (in MW)

	Installed Capacity Target (MW)		% of Total Installed Capacity	
	PDP7R	PDP8 Base Scenario	PDP7R	PDP8 Base Scenario
Coal-fired	55,300	37,323	42.7%	27.1%
Gas-fired (domestic gas + LNG)	19,000	28,733	14.7%	20.9%
Hydropower	25,400	24,792	19.6%	18.0%
Renewables + Storage	20,400	41,000	15.8%	29.8%

Source: PDP7R, MOIT’s Draft PDP8 as of February 2021.

With implementation risk rising, the government’s decision to delay PDP8 should be applauded. This pause gives senior policymakers a valuable opportunity to stress-test the key assumptions that have shaped PDP8 to minimize planning errors. The new power development plan should not lock in imperfect choices when there is an opportunity to design it to expand Vietnam’s options and reject pathways that will lock the country into open-ended price risks.

The key to repositioning PDP8 is to recognize where price discovery risk is the highest and to design market-based mechanisms that will reveal realistic technology cost curves. The planners should also prioritize the market features that matter the most to those developers who have the funding capacity to take market risk. This is critical because the state utility Electricity of Vietnam (EVN) faces very real funding constraints.

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The lack of candid debate about the tariff assumptions emerging from PDP8 could prove particularly risky. While it’s probably safe to assume that there will be scope for tariff increases in a post-COVID recovery, it’s crucial to clarify the full life-cycle economics of different technologies and the way that the terms associated with any funding could be a barrier to more competitive market structures. For example, MOIT has often pointed to plans for greater reliance on a wholesale power market, but LNG-to-power plants can be a bad fit for a wholesale market if they require guaranteed fuel offtake and fixed capacity payments.

Much of this work on potential market structures has already been tested in other markets, but any work done now should focus on the unique trade-offs that Vietnam may face between LNG and renewables over the next decade. For example, planners would be smart to study the question of whether bundling renewables and storage can cut curtailment risk in ways that will encourage more price competition and unlock cheaper financing by reducing curtailment risk. A second thorny question that has not been discussed is whether LNG – both the fuel and associated assets – will be repriced if green hydrogen becomes a competitive threat to conventional LNG, changing how LNG is seen in the energy mix. This could also change assumptions about how Vietnam might approach the development offshore wind due to its potential to produce extremely low marginal cost power to produce green hydrogen.

The Opportunity

With so many market fundamentals evolving rapidly, Vietnam has a unique opportunity to use this pause to maximum advantage. In addition to focusing on price discovery, a second priority should be placed on investment choices that will expand, rather than restrict, options to integrate new technologies as they are proven in the marketplace. Resilience and “future-proofing” can seem like strategy consultant buzzwords, but in Vietnam’s case these issues will be more important than fine-tuning generation mix assumptions for the post-2030 period. As many market commentators are now acknowledging, the decisions that emerging markets make about power now will position them for success or failure over the next nine years. That’s why regional energy growth markets with high climate risk exposures like Bangladesh and the Philippines are embracing this lens to avoid lock-in and to prioritize grid investment.⁴

If MOIT wants to get maximum benefit from this pause, it’s time to go back to project fundamentals and market incentives. Many fossil fuel project developers’ aggressive lobbying efforts over the past year have created a chaotic picture. Some of the projects that are claiming priority positioning in PDP8 suffer from project fundamentals that seem to be at odds with the careful work that has been done by policymakers to develop a disciplined public private partnership (PPP) legislation and project qualification standards.

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How can this high-stakes process be re-based?

There are three basic steps that MOIT can take that would put the PDP8 process on safer footing and improve the government’s ability to win the right terms from

⁴ Climate Vulnerable Forum. [Renewables and Fossil Fuel Phase-out – Opportunities, Shortcomings, Regulatory and Legislative Next Steps](#). Accessed on May 04, 2021.

developers. The key is to foster, rather than eliminate, competition between renewable and fossil fuel players by taking the following steps:

1. **Increase the efficiency of existing generation assets with targeted grid investments.** Near-term, to reduce to the pressure to lock-in potentially uncompetitive projects, prioritize critical investments in the grid that will increase the efficiency of the existing generation fleet and increase the output from strategically positioned new renewable assets. This effort would help stabilize the grid and support the push for more favorable contract terms in the future, if MOIT can point to more supportive funding strategies from the multilateral development banks or innovative credit enhancement strategies that will accommodate diverse sources of power and storage.
2. **Commit to an early round of auctions for renewables bundled with storage to encourage competition and reduce curtailment risk.** The rapid build out of renewable capacity over the past two years has positioned Vietnam to now benefit from significantly improved pricing from experienced incumbent players, provided that curtailment risk can be controlled. EVN has sent out an early warning of renewables power curtailment ranging from 180 million kWh to 400 million kWh per month in the latter half of this year. The cause is a combination of 500kV grid upgrading and system overcapacity amid the rainy season. This disruption will come at a cost for existing renewables developers that have PPA terms, leaving them exposed to market risk unlike their fossil fuel counterparts with guaranteed contract payments.

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Moving forward, MOIT has an excellent opportunity to get better pricing that reflects positive cost curve dynamics by creating incentives for renewables developers to make investments that will reduce curtailment risk while also benefitting the system. Auctions for bundled new renewables plus storage projects will do just this. If this were paired with the development of storage and an ancillary services market, Vietnam would be well positioned to motivate long-term players who can grow with the market and source competitive offshore green financing.

3. **All players should take market risk.** Vietnam's power market offers developers an attractive mix of risk-adjusted returns. The project development process is complex but MOIT has steadily improved the market structure and growth-oriented developers see opportunities in Vietnam that are hard to

replicate elsewhere, particularly in the LNG and renewables sectors. It's now time for MOIT to feel confident that investment in the Vietnamese power market does not require generous guarantees that rob the market of dispatch flexibility. The positive experience with renewables makes it clear that the demand for guaranteed take-or-pay fuel contracts and power offtake agreements from some LNG developers is nothing more than a negotiating gambit. The global energy majors seeking to enter Vietnam's LNG market are experts at managing fuel risks—as evidenced by their trading profits. Given that the leading renewables developers regularly take market risk in Vietnam, it's time for a level playing field that ensures that all developers and their key suppliers are focused on affordability for Vietnamese consumers.

If MOIT were to use this pause to establish expectations based on these principles, the market would have more confidence about the rules that will govern PDP8 implementation. This would significantly improve the prospects for effective price discovery and support better alignment with bankable developers. The building blocks above would set in motion a constructive dynamic based on market incentives:

- Accelerated grid investment can be used to unlock better pricing for renewable power.
- Deflationary pricing from increasingly cost competitive renewables and storage projects can be used to unlock better terms on LNG-to-power projects capable of supplying a more dynamic and flexible power market.
- Then, enhanced market design strategies can be used to improve price discovery from project developers and funders.

In the meantime, Vietnam's macro-planners and MOIT should embrace the economic potential of scalable low carbon assets, and recognize that it is renewables, not LNG, that sets the standard for the most sought-after global companies. When global electronics leaders like Samsung and fashion brands like Nike are advocating for direct renewable PPAs, it's clear that corporate investors are looking for a commitment that Vietnam will prioritize cost-effective renewables.⁵⁶ This is key to Vietnam's ability to realize its growth potential as a low carbon supply chain investment destination.

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⁵ VnExpress. [Samsung Vietnam proposed direct purchase of renewable energy](#). May 04, 2021.

⁶ Nikkei Asia. [Nike and H&M to Vietnam: More renewables, please](#). December 29, 2020.

Taking steps to create the right market incentives will be crucial for successful implementation of PDP8. Despite the pressure to commit to a fixed list of projects, MOIT planners should recognize that no one technology—as defined by today's planning methodologies—exists in isolation. The value that they will deliver to Vietnam will be a direct reflection of how Vietnam's top power sector planners manage growth in the context of an increasingly dynamic global power market.

Timing is everything when making the right decisions concerning long-lived infrastructure assets. MOIT needs to be alert to the possibility that in two years' time, LNG may be expected to play a completely different role in the energy mix than currently expected. As a result, it's critical for MOIT to make sure that the motivations of the many developers, lawyers, and consultants are put in the proper context. The delay of PDP8 gives MOIT a valuable opportunity to refine new strategies to improve market structures so that the players who can go the distance will stand out from the crowd.

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