

CHAPTER 8 ENERGY AND ELECTRICITY

OVERVIEW

Relevant authorities: Office of Government (OOG), Ministry of Industry and Trade (MOIT), Ministry of Natural Resources and the Environment (MONRE), Ministry of Planning and Investment (MPI), Ministry of Finance (MOF), Ministry of Agriculture and Rural Development (MARD), Ministry of Science and Technology (MOST)

The EuroCham Green Growth Sector Committee (GGSC) welcomes and supports the priorities of the Government in managing and developing the energy market in Vietnam. In particular, we applaud the additional emphasis on clean energy in Resolution 55¹ and the visionary stance described therein. EuroCham also recognises the commitments that Vietnam made at COP 21 and COP 26, reiterated at COP 28, and wishes to contribute to their fulfilment, through the support and collaboration of the private sector.

Energy impacts all aspects of Vietnam's environment. As such, the approach to developing and transmitting it effectively and efficiently may compound or reduce climate and environmental impacts.

EuroCham notes the growth in demand from power-consuming companies, particularly large-scale international companies that have established or are seeking to establish a base in Vietnam, who seek clean energy for their businesses. Often, this is part of a corporate commitment to 100 per cent clean energy use, in many cases, companies have a green energy target well in advance of Vietnam's net zero 2050 commitment that was established in COP 26. This, in turn, is part of a global movement driven by consumers' expectations. In many Asian countries, a 100 per cent clean energy supply is achievable without financial penalties to the consumer.

Vietnam has shown an impressive and rapid growth of solar and wind power, with the expansion of indigenous solar energy reaching 27 per cent of national power production capacity by the end of 2020, with 16,500MW of solar installed by this date.

The cost of producing clean energy has decreased as markets have incorporated larger-scale projects and technologies have improved. With increased scale comes increased efficiency and cost reduction on a unit level can drop. In parallel, technological advances based on tried and tested solutions can deliver renewable energy effectively at a low risk, allowing more competitive energy production. Where markets can control and reduce risks for developers and consumers in delivering large-scale renewable investments, renewable energy is able to become the cheapest power options in global markets. Observations from several markets across the world that have embraced renewable energy and have provided a stable platform for it to establish and grow show that prices in comparison to fossil fuel generation are amongst the lowest in the energy mix, particularly for hydro and offshore wind².

The economic benefits of the trend in renewable energy introduction are visible in Vietnam in areas where rooftop solar companies can supply manufacturing consumers with electricity cheaper than the Vietnam Electricity's (EVN's) tariff. This reduction of operating costs is a major benefit to manufacturers, and we strongly support the continued development of low-cost clean energy in Vietnam. Expanding new direct renewable energy offtake can also reduce pressures on the need for upgrades for EVN's transmission system. The ability for energy users to source green energy directly from renewable energy sources through Direct Power Purchase Agreements (DPPAs, discussed in more detail later in this chapter), are fundamental to supporting the energy transition and avoiding impacts and reliance on regional and national transmission systems.

- 1 Politburo's Resolution 55-NQ/TW on 11 February 2020 regarding the Orientation of the Viet Nam's National Energy Development Strategy to 2030 and outlook to 2045.
- 2 Since the establishment of the offshore wind tariffs for Taiwan, costs per MW (megawatt) have reduced by approximately 60%. In the UK costs have increased even further by over 70% and support for the offshore wind industry has enabled this to be the cheapest form of energy generation (when comparing thermal, nuclear and renewable technologies).

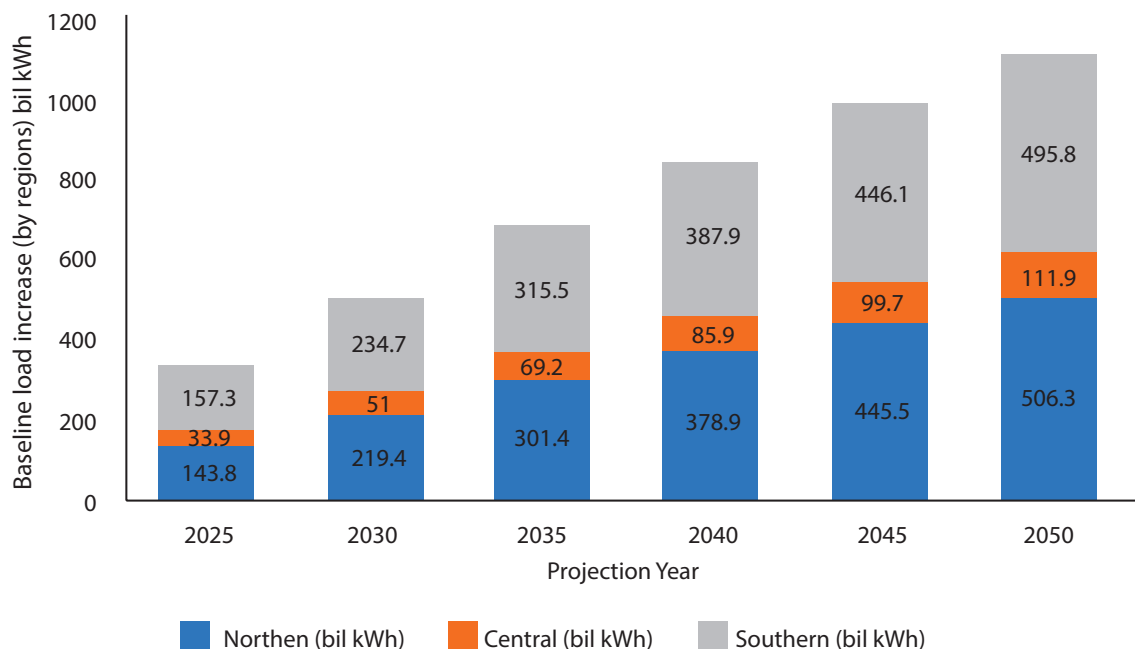
Electricity produced by coal-fired thermal plants impacts air, water, and land pollution more than energy produced from any other source, and is highly subject to the volatility of global coal prices. In the short term, installing more filters in coal-fired plants will reduce emissions, which in turn these need to be disposed of carefully. However, in the medium-term, it is likely to be more economical, safe, and strategically resilient to switch to indigenous renewable sources and to seriously engage in energy efficiency.

Energy demand

When focussing more recently on just the last decade, energy demand in Vietnam has increased tremendously (an average of 9.7%/year) partly due to the enlargement of the industrial sector and foreign investment in industry, the total electricity generated in 2020 was at 216.8 billion kWh. The electricity demand of northern provinces has seen the highest increase (at 11.6%) compared to that of the Central and Southern provinces (at 6.9% and 8.7%)³. The load forecast for Vietnam until 2050 shows that the current trend will continue with Northern and Southern regions acting as the largest demand centers. However, current installed capacity mix for these regions differs widely. While the Northern region has approximately 50% coal-fired power, the South has approximately 30% coal-fired power and approximately 30% solar.

Figure 1, referenced from an Institute of Energy Report in May 2023, provides a reference to the forecasted energy demand of the Northern, Central and Southern regions.

Figure 5: Load prediction (by regions) towards 2050 (Source: PDP8 report - Institute of Energy May 2023)



³ Demand Response (DR) Potential Assessment in Viet Nam. Final Consultant Report Submitted to Asian Development Bank. 31 December 2022.

I. OPPORTUNITIES FROM THE EXPANSION OF THE RENEWABLE ENERGY

The expansion of the renewable energy industry, and the introduction of new technologies, storage, and a more extensive and efficient transmission system, will bring many advantages to Viet Nam. These include, however, are not limited to:

1. Provision of additional power generation options and transmission technologies to satisfy current and predicted energy demands.
2. Increased energy security in Vietnam to buffer the reliance on international fuels and uncertainties related to supply (availability) and changes in pricing.
3. Job creation/adaptation:
 - a. A large number of jobs will be created, with both blue-collar and white-collar workers at all stages of renewable energy projects (development, construction, operation & maintenance, and decommissioning).
 - b. Transitional nature of existing workforce, particularly from similar industries such as oil and gas, construction, ports and harbour, civil and electrical engineering, project management etc.
 - c. Upskilling of the existing labour force with training and knowledge sharing to enable organic growth of Vietnamese-skilled workforce.
4. Investment and maturation/expansion of the regional and national supply chain:
 - a. Supply chain opportunities to utilize, grow and evolve existing company capabilities.
 - b. Further foreign investment in Viet Nam's supply chain to increase capabilities and capacity to deliver for its home market needs.
 - c. Creation of one or more land-based offshore wind hub to serve multiple projects in Vietnam and attract numerous supporting businesses.
 - d. Utilize the strong existing supply chain, large labor force, good port infrastructure, and land availability to evolve into southeast Asia's supply chain hub to serve multiple other markets.

Employment and supply chain aspects will lead to both direct and indirect economic injection into the country, region and province. It must also be noted, that whilst there is immediate direct employment in renewable energy projects by the developers themselves or contractors/subcontractors, and the supply chain aspects utilized, there are numerous 'Tier 3' impacts that are also boosted from this foreign injection. Multiple existing sectors will get secondary economic injection and lead to expansion in terms of permanent/temporary accommodation, transport (land/sea/air), entertainment, catering, logistics etc.

Opportunities from Offshore Wind

Offshore wind power should be considered the lowest cost, least risky source of base-load large electricity capacity by 2050. Power Development Plan VIII (PDP8) has set a development target of 6GW for Offshore Wind (OFW) power by 2030. This is an ambitious goal, given that Vietnam's OFW industry is still in its infancy, and associated legislative mechanisms needed to support offshore wind progression (such as the revised Decree 11⁴, falling under the remit of MONRE to allow for offshore surveys) have yet to be finalised. MOIT should consider facilitating the development of OFW power by creating an internationally functional Power Purchase Agreement (PPA) and combining Permits, Licensing, and Master Planning into a single one-stop-shop, ideally with transparent processes and statutory timelines to allow developers to invest on a large-scale in an environment where risks are manageable.

⁴ Decree 11/2011/ND-CP dated 10 February 2021 of the Government on assignment of certain sea areas to organisations and individuals for exploitation and use of marine resources (Decree 11).

II. ENERGY REGULATORY FRAMEWORK

EuroCham congratulates the Government on finalising PDP8, which was approved on 15 May 2023. PDP8 provides the short-term targets and long-term goals for the energy mix.

Table 1 provides the predicted/planned power generation capacity for Vietnam by 2030 and the contribution that these energy projects as a percentage of the overall supply.

Table 1: Power generation installed capacity in 2030 according to PDP8

Power source	Installed capacity (MW) 2022	Installed capacity (MW) 2030	Share (%) 2030
Wind power onshore	3,980	21,880	14.5
Wind power offshore (not nearshore)		6,000	4.0
Solar PV plant	8,840	12,836	8.5
Rooftop solar PV	7,755		
Biomass and waste to energy	382	2,270	1.5
Hydropower	22,022	29,346	19.5
Pumped-storage Hydropower		2,400	1.6
Battery Energy Storage Systems (BESS)		300	0.2
Combined heat and power (CHP)		2,700	1.8
Coal-fired thermal power	24,100	30,127	20.0
Gas thermal power domestic	7,185	14,930	9.9
imported LNG		22,400	14.9
Flexible (fast ramp up; ancillary services)		300	0.2
Oil fired power	1,500		
Import	572	5,000	3.3
Total	76,336	150,489	100

To allow Vietnam to deliver on these targets, it is necessary to develop a long-term legal framework to achieve net zero emissions and ensure the transition from fossil energy to low-emission energy. The PDP8 Implementation Plan is expected to go some way to delivering this, however, will also need to be in synergy with other existing policies and regulations requiring updates, and potentially new regulation e.g., Renewable Energy Law, that would support progress in these areas.

Transition of coal power generation

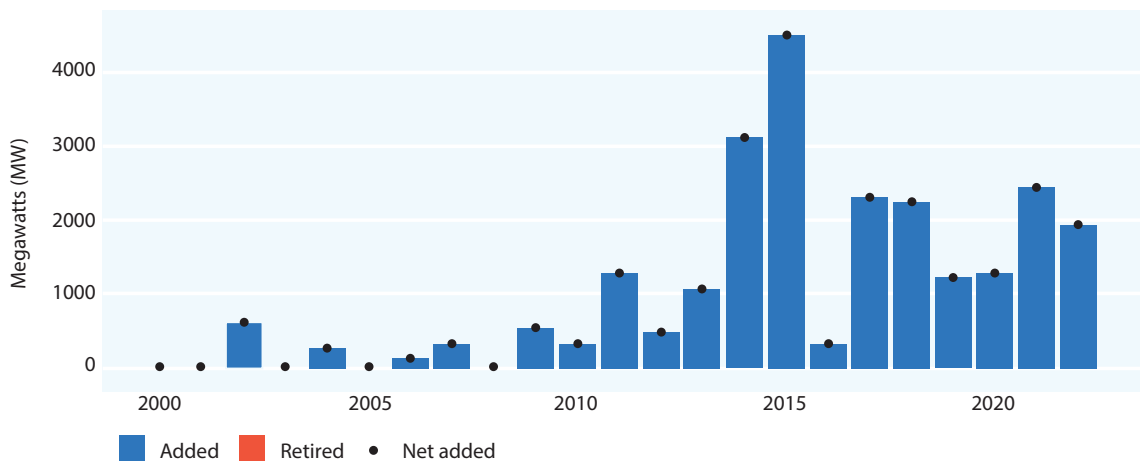
EuroCham is encouraged to see that no new coal power station investments will occur after 2030, as stated under PDP8, and fully support the suspension of coal-fired power plants that are delayed, e.g., failing to raise capital in time.

To support the coal power reduction goals, and to ensure further generation and transmission infrastructure can be effectively planned to fill the void left as coal power is removed from the system, an effective roadmap for

coal-fired power plant transition should be developed at a national level. This roadmap should consider the need to retain and ensure national energy security, whilst also linking to the development of the national Emissions Trade System (ETS).

Looking at the role of Vietnam's coal power fleet in the next 10-20 years is particularly important (as the fleet is very young - where the majority of the coal power station capacity has been added in the past 15 years), there are still many years of technical and economic lifetime ahead, which needs to be managed carefully. Figure 2 shows the comparison of added versus removed coal power capacity in Viet Nam since 2000, which reflects this. Partial reductions of coal power generation, and therefore fossil fuel usage, can be encouraged when considering the role of hydrogen (using ammonia as a solid fuel) to burn in conjunction with coal in a process known as co-firing. If this ammonia can be generated via renewable energy sources such as wind, then a form of green transition can commence at a thermal power level in parallel to new renewable energy.

Figure 6: Added (or retired) coal power capacity in Vietnam since 2000⁵



2. Renewable Energy industry development

PDP8 has been designed in a manner to consider multiple forms of renewable energy generation in-country, and also enable further opportunities for renewable energy import and export with neighbouring energy markets.

Wind Power (Offshore Wind is Scheme Priority)

Wind energy has been a source of recent development in the last 5-6 years in Vietnam, and once adequate regulatory framework and tariffs were established, a rapid increase in wind power plants has occurred throughout Vietnam. At the time of writing, Vietnam has limited the extent of its wind power plants to onshore locations, or those classed as nearshore (shallow-water). Nearshore has been considered as within 6 nautical miles of the coastline, and typically these power plants/wind turbines are connected to the shore by a series of bridges, though some are accessed via boat.

Wind power is still a relatively untapped industry in Vietnam. There is a relatively high potential for further onshore and nearshore project sites, however, when you look at wind speeds and the efficiency of wind power in terms of the load capacity that they can deliver in the form of energy generated, the true offshore wind opportunities have yet to be explored. PDP8 shows insight into understanding the role offshore wind can play in the energy mix for Vietnam, assigning a target of 6GW by 2030 and a vision of 70-91.5GW by 2050. Whilst targets are high, there is a relatively high availability of offshore wind areas to cultivate, however at this time the regulatory processes and ability to deliver these projects is unclear.

⁵ Global Energy Monitor. Available at < <https://globalenergymonitor.org/projects/global-coal-plant-tracker/dashboard/>>. Last accessed on 13 October 2023

Solar Photovoltaics (PV)

Early solar development, once tariffs were provided at a suitable level, led to a swift progression of commercial-scale solar and Roof Top Solar (RTS) being delivered. This massive expansion of the sector, delivering capacities far beyond the initial expectations has created issues for the grid and unexpected commercial demand for tariffs.

The solar industry still has a great deal of potential to deliver for Vietnam, and recognizing the concerns from the government, this can be structured in a way that ensures more effective management and control is established. Regulations need to be established to be able to deliver energy from solar projects direct to the end-user (rather than via EVN and the grid), with a direct offtake in the form of Direct Power Purchase Agreements (DPPAs), where a consideration on the benefit and availability of green energy can be discussed and delivered between solely the developer and consumer, on the understanding that this adheres to necessary legal and technical requirements. RTS has more of a role to play in Vietnam's energy progression, and a DPPA mechanism can provide further certainty. The ability to deploy solar PV roof top systems (which can be either grid connected and "behind-the-meter"), allows more flexibility depending on the energy needs of the province/region, or indeed the consumer e.g., on an industrial level.

Solar power can also be deployed in dual land-use settings, as has been shown globally when it has been associated with hydro power reservoirs in the form of floating solar (in turn this can be associated with aquaculture), symbiotic with certain forms of farming such as agriculture and grazing livestock etc.

3. Existing aspects restricting renewable energy growth and progress

Lack of Implementation Plan for PDP8

- **Unclear investor selection process** – Currently there is little visibility as to how investors will be selected for future energy projects. Particularly with new renewable energy technologies, if pilot mechanisms will be instigated and the criteria for these mechanisms, or the potential for an auction scenario.
 - + Offshore wind surveys and investor selection linkage – Lack of linkage and pathway for being approved to undertake offshore surveys (under Decree 11 – pending, under the management of MONRE), and then the benefits of securing and undertaking these with requirements from the Implementation Plan and Investor Selection process (under MOIT with support from provinces) as to how projects will be selected and to who.
- **Focus on immediate auctions will lead to delays and risk of non-delivery** – Concern that in the goal to implement a fully competitive process to drive down cost, the government will be tempted to instigate auction processes for new developments. Several markets, particularly for offshore wind, have shown that immediately triggering auctions at the start of a new renewable energy industry has led to delays, and the need to renegotiate tariffs as initial projects cannot be delivered for the pre-established price (examples include France and more recently the initial stages of the Japanese Round 1 offshore wind farms).
- **Retail market and power pricing reform** – A complete review and potential overhaul of the retail market and power pricing reform is required to provide further transparency and also allow more certainty (reduced risks) to encourage further investment from the private sector (developers) and their respective required supply chain industries.

A one-stop shop approach should also consider including the EVN National Power Transmission Corporation (EVNNPT) and all stakeholders in the development of a Strategic Grid Transmission Plan and allow private financing of the transmission assets to be managed and coordinated by the public energy company. Furthermore, MOIT should expedite the finalisation of the revised Electricity Law so this can be put into practice to consider allowing developers to build their own 220kV and 500kV transmission lines connecting to the national grid in accordance with stipulated grid code. To expedite the development of offshore wind, MOIT should consider initiating several pilot projects to be delivered by both state-owned enterprises and private developers, to then allow time for a well-defined power pricing roadmap for a transparent and efficient auction system that will be in force after these pilot projects until at least 2030. A transition mechanism could be initiated to focus the approach of such pilot projects. In this regard, as Vietnam adapts a robust auction process, it should ensure that only those companies/consortia with the financial and technical skills to deliver safe, stable, and cheap energy on time, should be allowed

to participate in the auction process. Likewise, it should offer fully defined packages of conditions and permissions that can be implemented immediately after the adjudication of the auction.

Clean energy, together with battery storage, has been shown to provide reliable and cheap electricity in other markets. We have raised this issue of battery storage before, and we welcome MOIT's inclusion of a Battery Storage System (BESS) in the energy mix with expected capacity of 300 MW in 2030. However, there is no existing regulatory framework on BESS. We suggest that MOIT should implement EuroCham's recommendations to allow storage on-site with solar power plants, with the relevant documents amended accordingly. In addition, EVN should also investigate the benefits of widespread storage capacity at clean energy plants of all types, including RTS power plants.

Grid Availability - Timely Upgrade and Certainty

One of the key aspects requiring certainty from renewable energy developers is the ability to rely on the offtake of the energy they generate/transmit, and therefore clarity and reassurance in the grid through EVN and/or EVNNT is critical to allow these projects to occur. Key aspects include the need to consider and resolve:

- **Missing grid infrastructure detail and commitments** – Initial PDP8 (May 2023) did not contain recently detailed grid updates within the Annexes. A clear plan for how and when the necessary grid infrastructure and associated transmission systems will be updated to support the planned renewable energy build out on a provincial/regional level. Additionally, a more-defined commercial agreement with necessary compensation mechanisms is needed to be designed to ensure grid and transmission infrastructure is in place as agreed with the developer to avoid lost revenue and energy generation that cannot be utilized.
- **Constrained cross-country transmission and balancing systems** – Scalability for renewable energy generation is often able to reduce costs, however this must be balanced against the risks involved with new technologies in virgin markets. The ambitious energy plans established in PDP8 need a strategic and holistic approach to ensure that energy can be collected and delivered throughout the country (and even internationally) effectively. Appropriate balancing and delivery/storage/switching mechanisms and infrastructure are needed to avoid losses and maximize the opportunities that green energy brings to Vietnam.

Amended Electricity Law and Implementation

- Clarity on who is responsible for establishing and maintaining the onshore transmission system and then certainty on how the respected party will deliver this transparently
- Without private investment grid upgrades and new transmission infrastructure will likely be delayed, a clear format to allow developers to directly invest in the transmission network will alleviate financial pressures on EVN and provide the certainty developers need to deliver projects. It is critical that EVN are involved here to ensure suitable grid code is integrated and the wider energy system is delivered at the required quality and in a format that EVN can manage effectively and reliably.
- Without the enforcement and detail needed upon the recently approved Electricity Law, there is a restriction for connecting to more supportive grid infrastructure. Private involvement and investment can seek to resolve/support the resolution of this.
- Without a wider more strategic plan, which could require a significant amount of capital that may be accessed from the private sector, further renewable energy connections are likely to be prevented/delayed.

By allowing investors who meet the requirements to build 220kV and 500kV transmission lines enables promotion of the benefits to the power transmission and distribution system by continuing to support the growth of large-scale renewable power plants such as offshore wind.

Power Purchase Agreement (PPA) Functionality

At the time of writing, PPAs in their current format, create a great deal of uncertainty for developers and operators, with regards to how the owner is not in full control in relation to then being able to ensure a business case is profitable and predictable in the long-term. The independent nature of PPA negotiations between renewable

energy developers and EVN also allows for a wide variety of differing terms and tariffs between projects, which then can create bias and a more isolated approach to managing separate projects.

It is understood that throughout such a large country, the energy demand, generation and transmission capability levels have the potential to differ dramatically from province to province, and even district to district. However, a more aligned approach would benefit both EVN and developers/operators in the future. Uncertainties are greatest in the following areas:

- Curtailment – where the acceptance of local energy generation into the grid at the pre-defined tariff is subject to will Curtailment allowed and not capped
- Termination clause with lack of adequate compensation mechanism
- Need for an internationally recognized governing law if disputes arise
- Currency-indexed for offtake price stability

To place financial reassurance, a new Power Purchase Agreement specific for offshore wind should be considered that can address and resolve the following main issues of concern for international lenders:

- Curtailment should be kept at sustainable level with EVN to provide burden of proof in case of technical curtailment, and with specific definitions and list of force majeure events which should include unplanned grid outages
- Termination clause and lack of adequate compensation
- International arbitration process (utilising a recognized international court of law for such large-scale investments)
- Tarriff in USD or at least currency indexation and stability
- Regional tariff approach, which may need to differ like solar, where wind speeds differ significantly between regions in Vietnam, should also be considered when assigning PPA offtake price

We also believe that the PPA between EVN and clean energy producers should be amended so that it is in line with international standards to harvest the full cost-reduction benefits of the planned auction processes. The industrial and commercial power tariffs were not completely included under PDP8, and there should be a further defined clear Roadmap to Power Tariffs to 2025 – the PDP8 Implementation Plan should seek to deliver this. Furthermore, power consumers should be allowed access to clean energy by implementing DPPAs in pilot schemes and reducing the front-end regulatory barriers to behind-the-meter clean energy plants as intended in the Government’s Resolution 68,⁶ tackling the red-tape challenge in Vietnam.

Direct Power Purchase Agreements (DPPA)

Developments in global and regional energy markets have increased the probability of a 2030 energy market being focused more on lower-cost renewable energy and less dependent on fossil fuels. This will lead to more diverse, secure, reliable, and affordable energy systems; even more so in markets that have open competition and access to international capital.

A growing number of global corporations are directly purchasing renewable energy from independent power producers in Vietnam. They have also signaled their interest in procuring renewable energy via the proposed Direct Power Purchase Agreement (DPPA) and in producing their own clean energy in larger scale “behind-the-meter” power plants. A certainty in securing ‘green energy’ addresses the need to deliver upon the corporate goals and investors demands.

The objective of “100% clean energy” is a challenging target. However, it is one that has become commonplace

⁶ Resolution 68/NQ-CP dated 12 May 2020 of the Government promulgating the Program on the abolishment or simplification of business regulations in the 2020-2025 period.

for global companies, including those within the “RE100 Group”⁷. To support these initiatives, we would welcome the immediate implementation of the DPPA Pilot Scheme, not necessarily limited to a single project, with suitable criteria and effective procedure to select pilot projects and an easing of the regulatory burden on companies wishing to implement clean energy plants on-site “behind the meter”. Both these measures would help individual companies to achieve their own 100% clean energy supply targets.

Lack of Alignment Between Vietnamese and International Standards

One aspect that needs to be delivered with foreign investment and new large-scale high capital renewable investment, is to ensure that quality is adhered to for financing and insurance purposes. There is a need to incorporate international standards for Certification, Quality, Health and Safety, and Environmental considerations to meet the requirements of international financing and development companies, and the necessary insurance for these large projects. There will inevitably be some gaps and misalignments between the needs of Vietnam and the needs of foreign investments, therefore there will be the need to identify and address these.

III. POWER TRANSMISSION

Vietnam has established a promising pathway for energy transition through the national power development planning for 2030 with an outlook to 2050 (per the PDP8). The PDP8’s vision will contribute to achieving climate targets, enhancing energy security, and ensuring future supply competitiveness. PDP8 sets forth several targets, including developing 500 kV and 220 kV transmission grids to ensure efficient and reliable power supply. In line with these objectives, the investment scope for the transmission grid from 2021 to 2050 is as follows:

- Period 2021-2030: 49,350 MVA of new constructions and 38,168 MVA in renovations of 500 kV substations; 12,300 km of new constructions and 1,324 km in renovations of 500 kV transmission lines; 78,525 MVA of new constructions and 34,997 MVA in renovations of 220 kV substations; 16,285 km of new constructions and 6,484 km in renovations of 220 kV transmission lines.
- Period 2031-2050: 40,000-60,000 MW capacity of new construction of high voltage direct current (HVDC) stations and 5,200-8,300 km of HVDC transmission lines; 90,900-105,400 MVA of new construction and 117,900-120,150 MVA in renovations of 500 kV substations; 9,400-11,152 km of new constructions and 801 km in renovations of 500 kV transmission lines; 124,875-134,125 MVA new constructions and renovating in 105,375-106,750 MVA 220 kV substations; 11,395-11,703 km of new constructions and 504- 654 km in renovations of 220 kV transmission lines .

Vietnam Electricity National Power Transmission Corporation (EVNNPT) is responsible for investment, operation management, and maintenance of the national power transmission system. As of 2022, EVNNPT oversees the management of 74,370 kilometers km of 500 kV and 220 kV transmission lines, along with 184 substations with a capacity of 114,645 MVA. In 2022, EVNNPT achieved VND16,868 billion (US\$711 million) investment, 83.1% of the originally planned amount. Fitch Ratings upgraded EVNNPT’s credit rating from BB to BB+ in April 2023, whereas EVN’s credit rating has remained at BB since 2019.

During the period from 2016 to 2020, EVNNPT’s annual investment stood at approximately US\$0.8 billion, but during the pandemic, it declined to US\$0.5-0.6 billion per year. However, as per the approved PDP8, significant investments are required for the transmission grid development in the coming three decades. For the coming periods of 2021-2030 and 2031-2050, these sums respectively amount to US\$14.9 billion (annual investment of US\$1.5 billion) and US\$34.8-38.6 billion (annual investment of US\$1.7-1.9 billion). This means the transmission investment needs for 2021-2030 would require an almost threefold increase, necessitating new and attractive approaches to incentivizing capital injections in the country’s transmission segment. In addition to the investment needs, a transformation in terms of organization, processes and talent will be required, so that EVNNPT will be able to operate the existing assets and system while scaling and building the new infrastructure.

⁷ RE100 is the global corporate renewable energy initiative bringing together hundreds of large and ambitious businesses committed to 100% renewable electricity.

Barriers in expanding transmission and increasing efficiency of the network

Vietnam has experienced delays in transmission investment, exacerbating the reliability of the electricity supply in the country. The limited transmission development in Vietnam can be attributed to several barriers:

- i. Low transmission tariffs: Transmission tariff components in Vietnam have been relatively low compared to other countries, decreasing gradually in recent years. In 2022, the “uniform post stamp” transmission tariffs were 75.85 VND/kWh and even though it has just been slightly raised to VND79.08/kWh (excluding VAT) (~0.33 US cents (0.32 cents /kWh), which is equivalent to 25-30% of the tariffs in other countries. This has resulted in low profitability for the EVNNPT (owner of the assets), with a meager profit of VND43.4 billion (US\$1.83 billion) in 2022 despite high total assets of VND83,519 billion (US\$3.52 billion). The unattractive investment returns associated with these projects discourage the participation of the private sector. EVN’s calculations indicate that a transmission tariff of at least VND170.61/kWh (0.72 cents/kWh) by 2025 is necessary for investment efficiency.
- ii. Limited financing mobilization: EVNNPT has sought external financing from national and international banks and institutions to meet the demand for transmission investment. Traditionally, EVNNPT had also relied on Official Development Assistance (ODA) loans for financial support, but these opportunities have been unavailable in the past few years due to the changes in the government ODA policies. However, EVNNPT’s equity, cash, and total capital are insufficient to fully meet commercial financing investment requirements. National banks are also reaching the credit ceiling for EVNNPT, limiting their ability to meet financing demand.
- iii. Difficult land acquisition: Land acquisition has become challenging due to significant increases in market land prices – which surpass government prices. EVNNPT must adhere to the government’s land prices, further complicating the land acquisition process. Moreover, acquiring forest land also involves a significant amount of time and effort due to extensive procedural hoops. By contrast, the private sector enjoys more flexibility as it can negotiate and determine compensation directly with affected individuals during land acquisition.
- iv. Unexpected demand for transmission expansion due to renewable energy development: The rapid addition of solar and onshore wind projects to the national power grid, primarily in the Central Region with low local demand, has led to unforeseen transmission constraints to integrate intermittent renewable energy generation. Although the heavy curtailment of renewable energy production in 2021 and 2022 might question the ambiguity between the cause of the transmission network limitation and the economic problem of minimizing the cost of purchasing electricity from high-priced power sources in the context of EVN’s loss crisis, to some extent it has also pressured EVNNPT to invest in more transmission projects to accommodate this excess renewable energy capacity. Enhancements to the limited transmission interconnection capacity between the North and the Central regions are becoming increasingly critical. It is necessary to upgrade and develop the transmission system infrastructure to ensure the security and continuity of the power supply in these regions.
- v. Lack of private investment regulations: The 2022 amendment to the Electricity Law allows for the participation of all economic sectors, including private investment and public-private partnerships (PPPs), in transmission power grid projects. However, private investment and PPPs in the transmission segment are subject to limitations related to state monopoly, with no instructions for EVNNPT to operate and maintain the private transmission projects under Build and Transfer model. The specific scope of the transmission grid for the private sector and EVNNPT will be determined in a draft PDP8 Implementation Plan currently under preparation by the Ministry of Industry and Trade (MOIT) to be released within 2023.
- vi. Absence of regional power market: Vietnam and its neighbouring countries have a diversified installed capacity of different generation resources. The opportunity to optimize the resources on a regional level instead of a national level will provide additional flexibility and economic optimization. Interconnectors create a “pooling” effect to smooth out domestic fluctuations. Each renewable energy source has its own unique characteristics, but, fundamentally, it is essential to diversify these resources within a region, not within a country. A meshed grid will mitigate variability and increase the overall capacity factor; thereby ensuring a more stable and reliable energy supply for the region as a whole. As such, a regional power market is essential rather than an option for energy security, without which energy transition solely on a country-by-country basis would be either unattainable or too expensive making electricity unaffordable for the most vulnerable populations.

EuroCham encourages and supports the implementation of the smart grid development roadmap to enhance the ability to integrate renewable energy into the power system, reduce power losses, with deployment of high-quality transmission infrastructure (cables, sub-stations, disconnectors etc) and Supervisory Control and Data Acquisition (SCADA) systems.

It is noted that Vietnam is seeking to promote grid connections with countries in the region to enhance power exchange and take advantage of countries' resource strengths. This will be highly beneficial if executed in a coordinated manner, as it should serve to balance and support energy transmission of a broader spectrum, and be particularly useful for managing intermittencies that occur as a result of some forms of renewable energy generation.

IV. JUST ENERGY TRANSITION PARTNERSHIP (JETP)

Following the launch of the JETP agreement (announced 14 December 2022), MONRE has been nominated to lead the JETP Secretariat and has held several meetings. The IPG (International Partners Group) bodies have supported MONRE in establishing the draft Resource Mobilisation Plan (RMP); the final JETP RMP has been approved and was launched by the Vietnamese Prime Minister at COP 28 in Dubai, UAE on 01 December 2023. This RMP includes within it an Annex showing lists of many projects/workstreams seeking financial and technical support.

EuroCham is very happy to see JETP being established in an agreement between EU, UK, G7 and many other countries to support Vietnam's green transition. Funding has been proposed within the RMP to focus investment on both financial and technical support areas. At this time, it is very noticeable that JETP is largely driven by and supported under by one ministry (MONRE), and EuroCham would encourage further engagement from the likes of MOIT, MOF, MPI and others. It may also be beneficial to create more of a role for the State Bank of Vietnam here. Additional cross-ministerial dialogue and collaboration is needed if JETP is to be effective.

Whilst EuroCham can understand that Vietnam as a country has a concern related to the large amount of funding that is in the form of loans rather than grants (and therefore the concern about what this would do to the countries debt), and therefore concerns arise about increasing Vietnam's debt-to-GDP ratio. However, as a country, Vietnam's debt-to-GDP ratio is extremely low when compared globally (approx. 40%); for reference in mid-2023 Japan had 266%, Greece 166%, US 128%, France 111%, Denmark & Sweden 30%. One area EuroCham would advocate for Vietnam to explore further in relation to JETP-funding is to consider raising debt-to-GDP ratio to support additional debt from JETP loans.

Finally, as one of the largest chambers in Vietnam, with over 1400 members, EuroCham Vietnam would propose to support the JETP secretariat (via MONRE) and the IPG to provide input from the private sector in relation to the many green services that our members represent. This can serve as a 'knowledge bank' for the secretariat and IPG to draw upon, and seek to allow open dialogue to provide access to information, and understand what the private sector can provide/support with, to identify any barriers that exist which JETP funding may be able to remove to allow further foreign direct investment (FDI).

V. CONCLUSIONS

Key take-aways in terms of what EuroCham would seek to propose to the Vietnamese government and its ministries, to meet green energy targets and to capitalize on the benefits that Vietnam as a market has, are as follows:

- Prioritise transparent and effective mechanisms to stimulate investment by all power consumers in energy efficiency measures to achieve the national energy efficiency strategy goals. This includes reducing subsidies to electricity prices.
- Maximise the contribution of solar, biomass, small hydropower, wind, and offshore wind power within the energy system, by clarifying a timely and coordinated approach to allocating projects (e.g., creation of a one-stop shop approach where one assigned authority/agency has the authority and capability to manage the consent and permitting for renewable energies) and ensuring grid availability.

- Revise the PPA between EVN and clean energy producers to meet international standards to harvest the full cost-reduction benefits of the planned auction processes in exchange for full take-or-pay and key provisions which address concerns of international lenders:
 - PPAs need to remove the risks of unjustified curtailment and termination clauses with specific definitions and list of force majeure events and focus on establishment of international arbitration and stable currency indexation.
 - Enhance energy security with the inclusion of natural gas as a transition fuel to temporarily replace coal in the short term.
 - Focus on the short-term ability to deliver projects included within PDP7 and PDP7-revised.
 - Implement the intention to halt any new coal-powered plants in PDP8, with a clear roadmap on how and where the injection of new renewable capacity will be incorporated into the grid, to replace areas previously but no longer considered for coal power. The timing and process for necessary grid upgrade plans should accompany this.
- Allow power consumers access to clean energy by implementing DPPAs in pilot schemes and by reducing the front-end regulatory barriers to behind-the-meter clean energy plants.
 - Establish a clear tariff or funding mechanism in a transparent risk-free format where initial agreed prices can be relied upon for the lifetime of the project.
 - Suitable criteria and effective procedure to select pilot projects
 - Remove barriers for on-site renewable generation and consumption from roof-top solar or small-scale onshore wind/onshore solar.
 - Provide official criteria and recognition of renewable electricity certificates (RECs – both international and domestic certificates) as recognized transitional solutions in efforts to achieve 100% clean energy as well as greenhouse gas (GHG) emissions reduction of businesses.
- Expand the pilot project scheme (especially for offshore wind to kick start this industry), encourage private investment in the important power transmission network, and allow investors who meet the requirements to build 220kV and 500kV transmission lines to do so on their own.
- Define the industrial and commercial power tariffs required under PDP8, in a clear Roadmap to Power Tariffs to 2025.
- Increase the ambition of the Nationally Determined Contributions (NDCs) on greenhouse gas emission reductions reflecting increased targets for clean energy and better energy efficiency measures.
- Promote the benefits of decreased pressure on the power transmission and distribution system by continuing to support the growth of rooftop solar power plants for self-consumption/local sale.
- Give priority to the development of offshore wind power and seek to enhance the ability to deliver initial projects with some form of fast-track mechanism or pilot projects.
- Expand the initial MARD C-PFES pilot scheme to the national level and continue to use the financial benefits entirely for increased forest habitat and wildlife protection.⁸
- Allow storage on-site with solar power and other forms of renewable energy generation.
- Encourage EVN to investigate the benefits of widespread storage capacity at clean energy plants of all types, including rooftop solar power plants.

ACKNOWLEDGEMENTS

EuroCham Green Growth Sector Committee

⁸ “Carbon payment for forest environmental services – C-PFES- A Feasibility Study Identifying Opportunities, Challenges, and Proposed Next Steps for Application of C-PFES in Vietnam”, USAID, March 2018. Available at: <https://pdf.usaid.gov/pdf_docs/PA00TQPJ.pdf>, last accessed 29 April 2021.