

# Renewable energy projects in Vietnam

## 2019 in review and the horizon for 2020

March 2020

### Introduction

Vietnam has great potential for developing wind energy projects, having a coastline of over 3,400 kilometers (km) with average wind speeds ranging from 4.5 meters per second (m/s) onshore to 10 m/s in certain offshore areas, as well as a high degree of solar irradiation which in some areas can exceed 4 kilowatt hours (kWh) per square meter (m<sup>2</sup>) per day on average. The technical potential for the development of wind and solar power in Vietnam has been estimated to be over 600 gigawatts (GW in) aggregate.<sup>1</sup>

Given environmental concerns over the continuing development of coal-fired and large-scale hydropower plants (and constraints in available financing sources), the relatively slow development of the natural gas industry and the government's decision to suspend nuclear power development, solar and wind power is generally viewed as a viable alternative to meet Vietnam's future electricity generation needs. The sector has also been attracting direct investment from overseas as there are no foreign ownership restrictions that apply to the development of renewable energy projects in Vietnam.

This view has been supported by the exponential growth in the number of solar photovoltaic (PV) projects that have connected to the grid over the past two years, supported by relatively attractive feed-in-tariffs. Total installed solar capacity has reached 4,460 megawatts (MW) and is expected to hit 5,500 MW by the end of this year<sup>2</sup>, representing around 9-11 percent of Vietnam's total current installed generation capacity<sup>3</sup> and exceeding the seven percent target for renewable energy set out in the government's revised Power Development Master Plan VII.

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<sup>1</sup> *Vietnam Energy Outlook Report 2019*, prepared by the Electricity and Renewable Energy Authority in Vietnam under the Ministry of Industry and Trade (MOIT) together with the Danish Energy Agency in collaboration with the Danish Embassy in Hanoi; Global Solar Atlas – Vietnam, published by The World Bank, ESMAP and Solargis, available [here](#) (last accessed 28 February 2020).

<sup>2</sup> The attraction of solar power to investors, published in the E-Newspaper of the Government of the Socialist Republic of Vietnam, available [here](#) (last accessed 28 February 2020); Vietnam becomes Southeast Asia's hottest solar PV market, by Wood Mackenzie, available [here](#) (last accessed 28 February 2020).

<sup>3</sup> Estimated based on range between recently reported value of 49GW for Vietnam's total installed power generation capacity at the end of 2018 (Vietnam Energy Outlook Report 2019, op. cit. 1) and target of 60MW for 2020 set out in the revised Power Development Master Plan.

In contrast, there are still only a handful of operational wind farms (including one offshore) representing around 300 MW of installed capacity, although momentum is quickly growing.<sup>4</sup>

### **The evolution of power purchase agreements (PPA)**

The power market in Vietnam remains heavily state-dominated, despite the government's stated intention to establish a competitive market-driven environment.<sup>5</sup> To date, state-owned Vietnam Electricity (EVN) remains the sole electricity off-taker and distributor in Vietnam.<sup>6</sup>

Large-scale thermal projects have historically been developed in Vietnam pursuant to build-operate-transfer (BOT) regulations and benefit from developed international market standard and foreign law governed concession agreements, power purchase agreements with EVN and government guarantees. Vietnamese renewables projects are, however, developed according to the generally applicable Law on Investment<sup>7</sup> and sector specific regulations,<sup>8</sup> which provide for tariffs, incentives, and a standard form PPA to apply to EVN's offtake obligations over a period of 20 years.

The risk allocation in the standard PPAs has fallen short of international expectations however,<sup>9</sup> including with respect to transmission and distribution interruptions being a seller risk, the uncertainty over change in law protection, lack of a clear mechanism to calculate termination payments, and the dispute resolution mechanism.

This has not, however, slowed the progress of the development of renewables projects, in particular in the solar sector, which has been supported to a great extent by local bank and vendor financing - although it could help explain the slower momentum of wind power projects given the higher initial investment costs.

In response to market concerns, the standard wind PPA was replaced in January 2019 and now incorporates some changes which were welcomed by investors. These include removing limitations on EVN's liability where the PPA is terminated due to EVN default,<sup>10</sup> and provisions to allow scheduled commercial operation date to be extended by the seller in certain circumstances to which EVN may not unreasonably object (beyond the previously existing force majeure

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<sup>4</sup> *Potential and Challenges for renewable energy development in Vietnam*, published by Ministry of Industry and Trade of Tuyen Quang Province, available [here](#) (last accessed 28 February 2020).

<sup>5</sup> In particular Decision No. 63/2013/QĐ-TTg by the Prime Minister regarding electricity market formation roadmap, dated 8 November 2013.

<sup>6</sup> At the early stage of the competitive wholesale market five subsidiaries of EVN (Northern Power Corporation, Southern Power Corporation, Central Power Corporation, Power Corporation Hanoi and Power Corporation Ho Chi Minh City) are also permitted to purchase electricity in addition to EVN – see Circular No. 45/2018/TT-BCT by the MOIT on the operation of the competitive electricity wholesale market, dated 15 November 2018.

<sup>7</sup> Law No. 67-2014-QH13 on Investment dated 26 November 2014.

<sup>8</sup> Including, for wind: Circular No. 02/2019/TT-BCT of the MOIT on the development of wind power projects and the model PPA for wind projects, dated 15 January 2019; effectively replacing the previously applicable Circular 32/2012/TT-BCT dated 12 November 2012; and, for solar: Circular No. 16/2017/TT-BCT of the MOIT for the implementation of the Solar Decision on solar power projects in Vietnam, dated 12 September 2017, and Circular No. 05/2019/TT-BCT of the MOIT on the amendment of Circular No. 16/2017/TT-BCT, dated 11 March 2019.

<sup>9</sup> For further detail see our briefing "Renewable energy in Vietnam", dated March 2019.

<sup>10</sup> Under the previous iteration of the PPA, EVN's liability in these circumstances was limited to the value of the actual power output generated by the seller in the 12 month-period prior to the termination.

relief).<sup>11</sup> Looking to 2020, the hope is that further amendments will be made to both the wind and solar PPAs to help mobilise a far greater level of large scale foreign investment and credit.

### **And the tariff?**

The regulations set feed-in-tariffs in the wind and solar sectors, which are linked to the U.S. dollar (although payable in Vietnam dong).

For the first half of 2019, the solar tariff was fixed at 9.35 U.S. cents/kWh. In the wind sector the tariff is set at 8.5 U.S. cents/kWh and 9.8 U.S. cents/kWh for onshore and offshore, respectively. This represents an increase – including an uplift for offshore wind projects – on the flat tariff of 7.8 U.S. cents/kWh that had been in effect until November of the prior year.

### **Solar – determined by auction?**

The solar tariff expired on 30 June 2019 with the exception that it will continue to apply to projects that achieve commercial operation in Ninh Thuan province only by the end of 2020, up to an aggregate cap of 2,000 MW installed capacity in that province, with eligible projects to be approved by the prime minister.<sup>12</sup>

In light of the single nationwide tariff, most solar power development occurred in the parts of Vietnam with highest levels of irradiation - particularly Binh Thuan and Ninh Thuan provinces in southern Vietnam, and the rash of projects connected to grid in these provinces to meet the 30 June deadline led to grid overload and curtailment of power output.<sup>13</sup>

The government is currently considering legislation to replace the expired solar tariff regime. While early drafts suggested that the tariff regime would be extended in some form (albeit with lower rates) until the end of 2021, the government office issued a notice on 22 November 2019 containing instructions to the Ministry of Industry and Trade (MOIT) that replacement solar tariffs should apply only to projects for which PPAs were signed at that time and which achieve commercial operation in 2020, with a view to moving to a competitive bidding model thereafter.<sup>14</sup> While details of how this would be implemented remain unclear, the first step is likely to be by way of reverse auction, given EVN's continued status as sole off-taker. A reference to this effect is included in the government's notice, which asked the MOIT to consider how to implement the transition.

The ongoing uncertainties caused by the lack of timely replacement legislation risks subduing investment in solar projects.

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<sup>11</sup> Circular No. 02/2019/TT-BCT of the MOIT on the development of wind power projects and the model PPA for wind projects, dated 15 January 2019.

<sup>12</sup> Resolution No. 115/NQ-CP of the Government dated 31 August 2018.

<sup>13</sup> Controversies over the reduction in solar power production, published by the National Load Dispatch Centre, available [here](#) (last accessed 28 February 2020), which shows that several transmission lines are now full or overloaded, in particular in regions with high solar irradiation.

<sup>14</sup> Notice No.402/TB-VPCP of the Government Office on the development of solar power projects in Vietnam, dated 22 November 2019.

## Wind

Similarly, the current tariffs for wind power will not be available for projects completed after 1 November 2021. There is currently no indication of what tariff will apply to wind power projects coming into operation after that date. This is already causing uncertainty and concern among the investor community and may impact development in 2020 if there are delays in licensing or accessing finance for individual projects.

### 2020 Vision: what to expect over the coming year

Vietnam's electricity law<sup>15</sup> requires national power development master plans to be established for 10 year periods. The existing power development master plan VII issued in 2011 covers the period to 2020 and was revised in March 2016 to emphasize, among other considerations, the development of renewable energy sources.

The headline macro-development this year will be the release of the power development master plan VIII, which will cover the period to 2030 "with vision to 2045", and will set Vietnam's direction as to energy policy over the coming decade. As well as an increased focus on renewables, the plan is likely to place renewed emphasis on the continuing liberalization of the energy generation and wholesale markets, including a move away from tariffs and towards competitive bidding.

Legislation setting out a pricing regime for solar power is also long overdue - until new regulations are issued, investors will be left in the dark. Muted solar power development could also have knock-on effects as to the country's near-term energy security. Moreover, ongoing curtailment issues caused by lack of grid capacity in over-subscribed areas - which under the model PPAs is a seller risk - could lead to highly leveraged projects going into distress.

In order to prevent future overloading, EVN has proposed that there needs to be consistency between the development of power sources and the electrical grid. In the absence of market-based solutions, we may see curtailment risk being addressed by the Vietnamese authorities in investment policy approvals which could be used as a gating issue - in particular as renewable energy projects need to feature in the master plan or be added to it by decision of the MOIT - in order to be developed. There has also reportedly been some consideration by EVN of how to deploy battery storage solutions to strengthen the grid.<sup>16</sup> However to date no specific regulations exist to facilitate investment in this area, and this is something prospective market participants eagerly anticipate.

Over the longer term, relief to the grid may also come in the form of "behind-the-meter" direct PPAs between gencos and private buyers, and it is understood that a pilot scheme for direct PPAs between gencos and corporates is currently being mooted.

Investors may also hope for further (albeit slow) liberalization of the wholesale energy market beyond 2020.

## Contacts

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<sup>15</sup> Law No. 28/2004/QH11 on Electricity dated 3 December 2004, as amended by Law No. 24/2012/QH13 dated 20 November 2012.

<sup>16</sup> *Vietnam Electricity awards GE battery energy storage feasibility study* funded by U.S. Trade and Development Agency, published by General Electric, available [here](#) (last accessed 28 February 2019).



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