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**GWEC** | CREATING A  
SUSTAINABLE OFFSHORE  
WIND INDUSTRY IN  
VIETNAM WHITE PAPER ON  
OFFSHORE WIND  
INDUSTRY NEEDS IN  
VIETNAM



**GWEC**  
GLOBAL WIND ENERGY COUNCIL

## Creating A Sustainable Offshore Wind Industry in Vietnam White Paper on Offshore Wind Industry Needs in Vietnam *July 2019*

Offshore wind is distinguished from conventional renewable energy sources in many ways, and will be an important driver of the global energy transition in the coming decades. First, offshore wind is a highly scalable renewable energy technology, capable of generating large-scale volumes of low-carbon electricity at competitive cost. Second, with average load factors in excess of 40 per cent, offshore wind is far more predictable than other renewable energy sources. Third, the application of offshore wind in near-shore and deep-water sites offers flexibility in location and potential cost reductions.

The scalability, predictability and flexibility offered by offshore wind make it an optimal source of operating reserve, which will be needed to stabilize and decarbonize Vietnam's electricity system.

Global Wind Energy Council (GWEC), together with government and non-government representatives, are presenting this white paper to urge the Government of Vietnam to take the vital steps needed to upscale offshore wind power development in Vietnam.

### **Offshore wind: A global growth story**

Over the past 17 years, offshore wind has achieved considerable worldwide growth, with global installed capacity rising from just 83 MW in 2000 to 23.1 GW at the end of 2018. The vast majority of installations to date are concentrated in the European region, namely the UK, Germany, Denmark and other jurisdictions. However, countries in East Asia and North America are demonstrating greater interest and ambition in significantly ramping up their deployment of offshore wind in the near future.

Significant cost reductions for this technology have been a success story in Europe, attracting media attention over the past two years. In European markets like the UK, levelized cost of electricity (LCOE) of offshore wind has already fallen by 50-70 per cent from 2010 levels, surpassing industry cost targets for 2025 eight years ahead of schedule.

The European experience has also yielded valuable insights on the sizable industrial ecosystem and supply chain required for a successful offshore wind sector. The scale and size of the offshore wind value chain bears more similarities to that of offshore oil and gas, rather than the onshore wind or solar sectors, due to the complexities of project planning, higher capital investments, required labor and skills, equipment design and engineering and technical challenges of operation and maintenance (O&M) in a marine environment.

### **Capturing the potential of offshore wind in Vietnam**

Since the 99 MW Bac Lieu wind power project – the first offshore wind farm in the Mekong Delta region – came online in 2013, new developments have sparked interest in Vietnam's offshore wind sector. In September 2018, the Government of Vietnam issued Decision No. 39/2018/QĐ-TTg ("Decision 39"), which introduced an offshore wind tariff of VND 2,223/kWh (USD 0.098/ kWh) and increased the onshore wind tariff. The feed-in tariffs (FiTs) for offshore wind have been in effect since 1 November 2018 and will be valid for projects beginning commercial operation by 1 November 2021.

There is growing industry appetite to develop offshore wind power in Vietnam from its current 99 MW of capacity, given the monumental technical potential for fixed and floating offshore wind is estimated at 309 GW of capacity.

However, key challenges in government policy need to be urgently resolved in order to develop a supportive system for offshore wind. Recognizing and clearing these obstacles will allow Vietnam to capture the enthusiasm and investment from industry, create local and sustainable economic value, lower its carbon emissions and assume a leading role in the energy transition in South East Asia.

### Key challenges and calls to action

1. **Ensure policy stability in the long-term energy plan.** Government targets for the offshore sector should be included in the national Power Development Plan VIII (currently pending) for 2025, 2030 and 2050, in order to establish investor confidence in the offshore sector in Vietnam. Among various policy signals, the offshore FiT in Vietnam should be extended to at least 2025, providing the industry with sufficient time to establish project pipelines and invest and engage in manufacturing and service supply chains in Vietnam.

**Background:** The installation scale and cost reductions achieved in Europe are due to the investments made in local supply chains, the clustering effects spurred by manufacturers and service-providers in the UK and North Sea region and the strong political support across these markets. These achievements cannot be transferred directly to Asian markets without the establishment of a similar collaborative structure between government and industry. Such collaboration is essential to create understanding of and confidence in the offshore sector among the finance community. Emerging offshore wind markets in Asia still need to focus heavily on the initial phase of government support to bring the cost of future projects down to cost-competitive levels; this is exactly the case happening in Taiwan, an Asian market presently taking a regional lead in offshore wind.

However, engaging with the supply chain, as well as other parts of the services and offerings needed for an active offshore market, requires time and investment. The majority of investments in the offshore market will originate from the private sector. Indeed, the global wind industry is keen to invest into Asia – and Vietnam is one of the most attractive markets in South East Asia. But the industry requires strong political steering and positive signals from Government to translate this interest into concrete investment decisions.

Compared to onshore projects, offshore wind projects require longer timelines for planning, development and construction, due to the financial risks, engineering challenges and the sheer size and scale of projects. A typical offshore wind project needs 3-5 years for project development and another 2 years for installation, which is much longer than a typical onshore wind project of 2-3 years from development to operation. Given the current cut-off date of the offshore wind FiT in November 2021, the window left to grow the offshore wind industry is now less than two years. Under this deadline, there is insufficient time to generate enough projects in the pipeline to spur the large-scale engagement and investment in the supply chain, service and industrial clustering and financial commitment needed to advance the offshore sector.

**Call to action:** We call on the Government of Vietnam to initiate substantial and ambitious near- and long-term offshore wind targets, which will provide the industry and investors a clear vision and confidence for this market. We also urge the Government to extend the current cut-off date of the FiT of November 2021 to at least 2025, which will kickstart the industry with a solid project pipeline, generating cost reduction benefits in the long run.

2. **Improve the bankability of the current PPA.** Due to the size and scale of offshore wind projects, their capital requirements are far larger than onshore wind projects. The investment in offshore wind technology, infrastructure and operation is a considerable long-term commitment for any investor.

**Background:** The bankability of a PPA is a critical issue for offshore projects in Vietnam. Current onshore and offshore PPAs face the same bankability challenges, particularly in terms of risk factors around termination, arbitration and curtailment, and are thus unable to attract international investors. So far,

most onshore wind projects in Vietnam have been financed by local banks, which are already short on credit; as a result, local banks will not be a sufficient source of financing for offshore projects – simply due to the project size.

In order to achieve large-scale deployment of offshore wind, the bankability challenges of the current standard PPA need to be addressed, with the aforementioned areas benchmarked to international standards. This will be necessary to attract non-domestic sources of project financing, including from international commercial banks, export credit agencies, international/regional development banks and other multilateral institutions.

**Call to action:** We call on the Government to scrutinize the bankability of offshore wind with a view to lowering the risk factors. This attention should particularly center on the termination, arbitration and curtailment clauses of the current PPA, in order to raise its bankability to international standards and thereby attract more international investors.

3. **Shape industrial policy to grow and build capacity for an offshore wind supply chain.** A well-developed supply chain helps to secure local investment decisions for offshore projects, as well as build a sustainable local economy by generating large-scale returns and job creation. But supportive industrial policy requires a deep understanding of the complexity and specialized requirements of the offshore wind value chain, which differ fundamentally from those of the onshore wind sector.

**Background:** The offshore wind supply chain consists of four segments: turbine, electrical infrastructure, substructures and O&M. Each segment is more complex than its onshore counterpart, due to the scale of projects and their setting in a marine environment with attendant hydrologic and climatic challenges.

The offshore supply chain is sophisticated and specialized. From bearings and lifting gear to electrical control equipment, from jack-up vessels and cranes for installation to service vessels in the O&M phase, from subsea cable deployment and protection to the offshore substation and interconnectors, from offshore foundation fabrication to anti-erosion strategies for turbines, the technologies and services required for offshore projects are more complicated than those of onshore projects.

Industrial policy which meets and supports these requirements is needed to secure local investment decisions and accelerate growth of a domestic offshore sector. If developed well, a robust supply chain can generate billions of dollars of returns and tens of thousands of jobs, creating economic value that lasts over the 25-year lifespan of an offshore wind project. The first mover on offshore wind in Asia/South East Asia has a greater opportunity to convince international investors to establish a regional supply/service hub in-country, and to thus become a center of excellence and export of both expertise and equipment for the region.

To realize these achievements, public officials in charge of steering industrial policies need a strong and detailed understanding of offshore supply chain requirements and how to harness investor enthusiasm.

**Call to action:** We urge the Government of Vietnam, industry and development partners to step up activities and funding for capacity- and capability-building in the offshore sector. Government officials in charge of industrial development plans, grid planning and investment roadmaps need to understand the vast investment opportunities and requirements for the offshore sector.

4. There are other important lessons from Europe, as well as Asian markets such as Taiwan, which bear consideration. Many of these lessons should be translated into informed decisions by policymakers now. Some of the concrete suggestions for government policies in Vietnam are listed as follows:

- a) **Coordination between different federal** (especially Ministry of Industry and Trade, Ministry of Natural Resources and Environment and Ministry of Planning and Investment) **and municipal/local decision-making bodies:** Outline a clear process to align federal and municipal/local government interests, and establish a transparent and simplified permitting process. Due to the dissemination of responsibilities across Vietnam's federal ministries, a national offshore wind strategy should be developed and coordinated on the Prime Minister or Deputy Prime Minister level.
- b) **Site identification and leasing:** Site development is a fundamental stage of offshore wind farm development. Extensive in its scope, site development comprises several stages, including site identification, site surveying, leasing, consenting, grid permitting, and eventually the construction of transmission infrastructure. The Government of Vietnam needs to establish clear rules and frameworks on the site identification and leasing process.
- c) **Long-term grid policy:** There is an urgent need to step up national grid planning and develop an installation roadmap in parallel with the development of offshore wind projects. Clear grid connection policies and a timeline of grid reinforcements are needed to ensure sufficient access and facilitate offshore wind installation.
- d) **Support for ports and infrastructure development:** Ports and related infrastructure are crucial for offshore wind development. There are significant lessons from Europe on port planning and management which can be transferred to Vietnam; this will also require a scaling up of investment in port infrastructure.
- e) **Encourage developers and supply chain stakeholders to invest in innovation:** There are many initiatives that can be undertaken to activate and fast-track local industrial development, including R&D funding from Government, stronger protection of intellectual property, encouragement of new market entrants, sector-wide standards and re-skilling programs for existing workforces. In the latter case, there are synergies in skills and occupations which can be achieved when leveraging the existing domestic supply chain of the offshore oil and gas sector, such as in surveying, component design and manufacturing and installation work.
- f) **Development of training and skills:** Industry should outline a plan to develop a skilled and qualified workforce, including a pipeline of local talent which can sustain an offshore sector. This requires collective engagement and thinking from Government, industry, academia and relevant training bodies to develop a suitable and ambitious people and skills program for Vietnam.