
ROUTE TO MARKET FOR OFFSHORE WIND
DEVELOPMENT IN VIETNAM

GWEC'S STATEMENT ON IMPLEMENTING VIETNAM'S PDP 8 TARGET AND NET ZERO COMMITMENT

MAY 2022



Summary

GWEC welcomes the leadership role that the Government of Vietnam has shown with its commitment to achieve Net Zero by 2050 and its pledge to phase out coal-powered generation by the 2040s. The 7 GW of offshore wind (OFW) targeted by 2030 in the latest draft PDP 8 (April 2022 Draft) is an important step to fulfill the government's Net Zero target and transition away from fossil fuels. The higher overall 2045 targets for onshore and offshore wind can ensure Vietnam is on track for Net Zero by 2050.

OFW brings several economic, social, environmental and security benefits to Vietnam:

- OFW generates huge volumes of investment across the entire wind value chain. GWEC predicts that 7 GW of offshore wind by 2030 could translate into more than \$20 billion dollars (or \$3 billion/GW) of OFW project investment, and further initiate port infrastructure upgrades, local supply chain investment and other industrial development.
- Wind energy is a limitless domestic energy resource that can improve energy security and shelter Vietnam from price volatility in international gas and coal markets. GWEC projects that 7 GW of OFW by 2030 will enable Vietnam to avoid \$2 billion per year of coal and gas imports (based on mid-2022 fuel costs) – this amount can

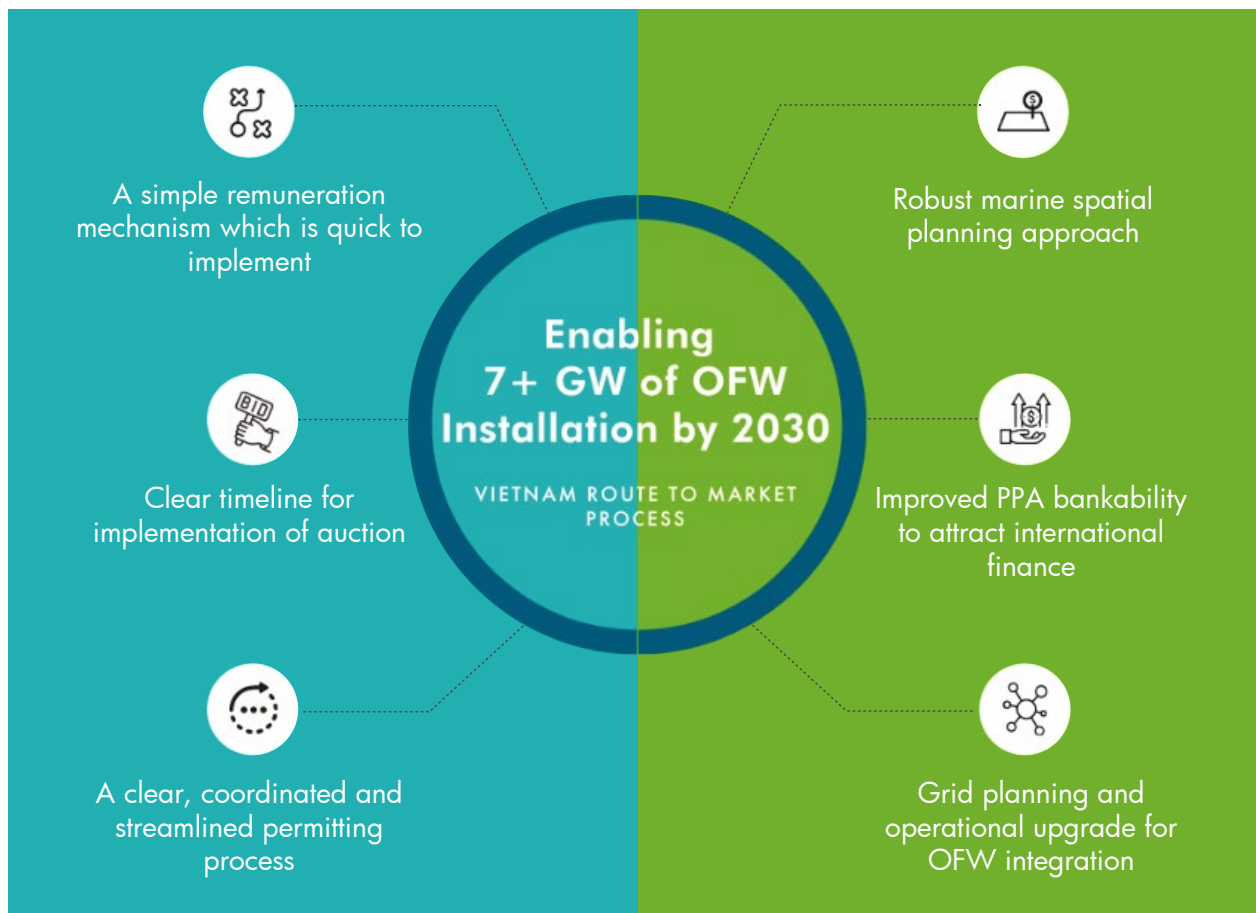
instead shift to domestic investment and other areas of productivity.

- The OFW sector can generate significant local jobs. A typical 500 MW OFW project can generate 2.2 million days of work across its full life cycle – equivalent to around 8,650 full-time jobs¹. Vietnam already possesses strong transferrable supply chain capabilities from the oil and gas industry, manufacturing and construction industries. Vietnam can become a hub of talent and services in the fast-growing regional wind supply chain.

Currently, Vietnam does not have any true OFW installed. Given the typical development and construction timeline of 5-7 years for projects after all the permitting hurdles are cleared, getting the first generation of OFW connected by 2030 will require consultation and establishment of policy and regulatory frameworks to begin today.

1. Data originally provided by IRENA in person-days; jobs were determined by dividing the person-day figure by 260, the typical number of working days in a year. One job is defined as one calendar year of full-time employment (260 working days) for one person. See: <https://gwec.net/wp-content/uploads/2021/04/jobs-Note-April-2021-2.pdf>

Route to Market for Vietnam Offshore Wind Development: How to Deliver the 2030 OFW Target in PDP 8



Source: GWEC, 2022

This paper outlines the urgent need for a Route to Market process to enable the installation of 7+ GW offshore wind by 2030. Key components include:

1. A simple remuneration mechanism which is quick to implement and can cover the first tranche of 4-5 GW of projects.
2. A clear timeline for the implementation of an auction to cover the remaining tranche of 2-3 GW in this decade.
3. A clear, coordinated and streamlined permitting process to ensure projects can be implemented on time and
4. A marine spatial planning (MSP) approach which allows for a light mechanism to ensure projects can get underway in the next few years, while a more robust framework is developed for the next generation of offshore wind projects.
5. Improved PPA bankability to attract international finance, which will be required to bring in the large investment volumes required for offshore wind.

6. Grid planning and operational upgrades to facilitate the integration of OFW, with consideration of location (the proximity to power load center, e.g. north and south), as well as concrete plans and mechanisms on encouraging private-sector investment in transmission to solve upcoming transmission challenges.

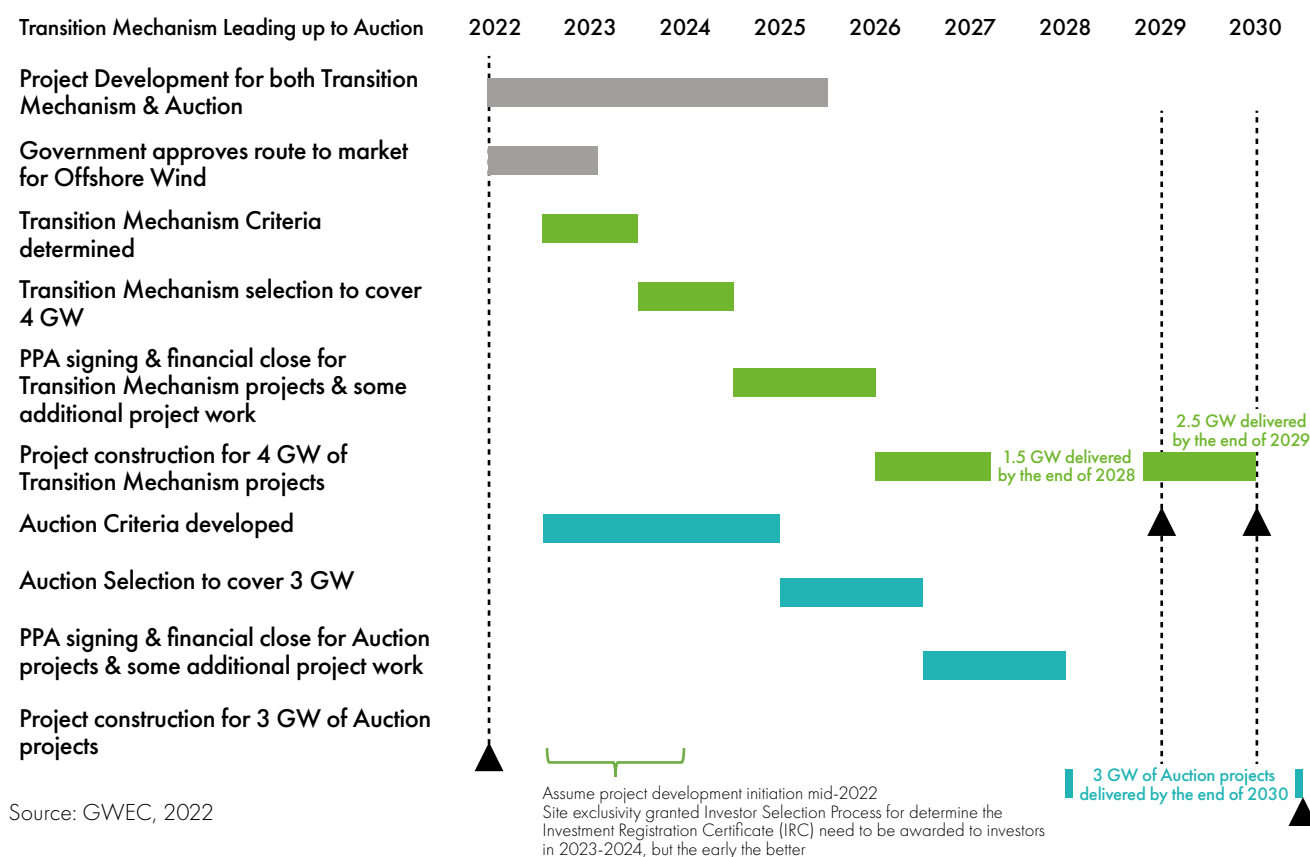
In addition to the above components of a Route to Market, other supporting policies like a supply chain development plan and ports upgrade plan also bear consideration by the Government of Vietnam.

In particular, this paper analyses international experience of offshore wind project development timelines and procurement mechanisms to propose an appropriate pathway for Vietnam to meet

its PDP 8 targets by 2030. GWEC recommends the introduction of a Transition Mechanism by end of 2023 to secure the first tranche of 4 GW of offshore wind projects, followed by a competitive Auction by end of 2026 to secure the remaining tranche of 3 GW. These concurrent schemes are illustrated in the timeline below, which will offer the Government of Vietnam and the industry the highest degree of confidence and efficiency to deliver a large volume of offshore wind within this decade.

GWEC is ready to support the Government of Vietnam in assessing and implementing a clear Route to Market for offshore wind. Through 2022, GWEC will actively provide case studies, insights and information to the government, to support this process.

Indicative development timeline for Transition Mechanism leading up to Auctions



Source: GWEC, 2022

Determining a Route to Market to Kick Off OFW in Vietnam

There is currently no true OFW installed in Vietnam (inter-tidal or nearshore projects have different risk profiles and technology needs for construction, investment and maintenance). As well, OFW projects typically have development to COD timelines of 5-7 years, the bulk of which is spent in the permitting and consenting stage; these timelines can be even longer if there are barriers or delays in the permitting process.² Finally, there are currently supply chain limitations in Asia and worldwide, ranging from COVID-19 related shutdowns of major component exporting hubs to vessel availability, which may impact project deliverability in the near-to-medium term.

Given these factors, delivering 7 GW of OFW by 2030 is a very challenging task.

Getting Vietnam's first generation of OFW projects fully online by 2030 means that project development work, supported by concrete policies and regulations, needs to start today.

GWEC believes that there is an urgent need for a Route to Market process in place to enable the installation of 7+ GW of OFW by 2030. The key components of the Route to Market include:

1. **A simple remuneration mechanism which is quick to implement:** Given how long it takes to develop and run an effective auction for offshore wind (typically 3-4 years), GWEC proposes the first 4-5 GW of projects are developed through a Transition Tariff (TT)/Transition Payment (TP) made available in the next 1-3 years;
2. **A clear timeline for the implementation of an auction by middle of the decade** which can provide a clear signal of procurement schedules for long-term investment³ and sufficient time to create suitable guidance, regulations, evaluation criteria and other elements of auction design.
3. **A clear, coordinated and streamlined permitting process** to ensure projects can be implemented on time and secure seabed exclusivity for development work; this also requires a centralized and well-organized development/permitting office within the government which can oversee the necessary licenses and approvals from various public bodies, with a focus on implementing, collecting and coordinating consultations and comments;
4. **A marine spatial planning (MSP) approach** which allows for a light

2. <https://windeurope.org/about-wind/reports/our-energy-our-future/>

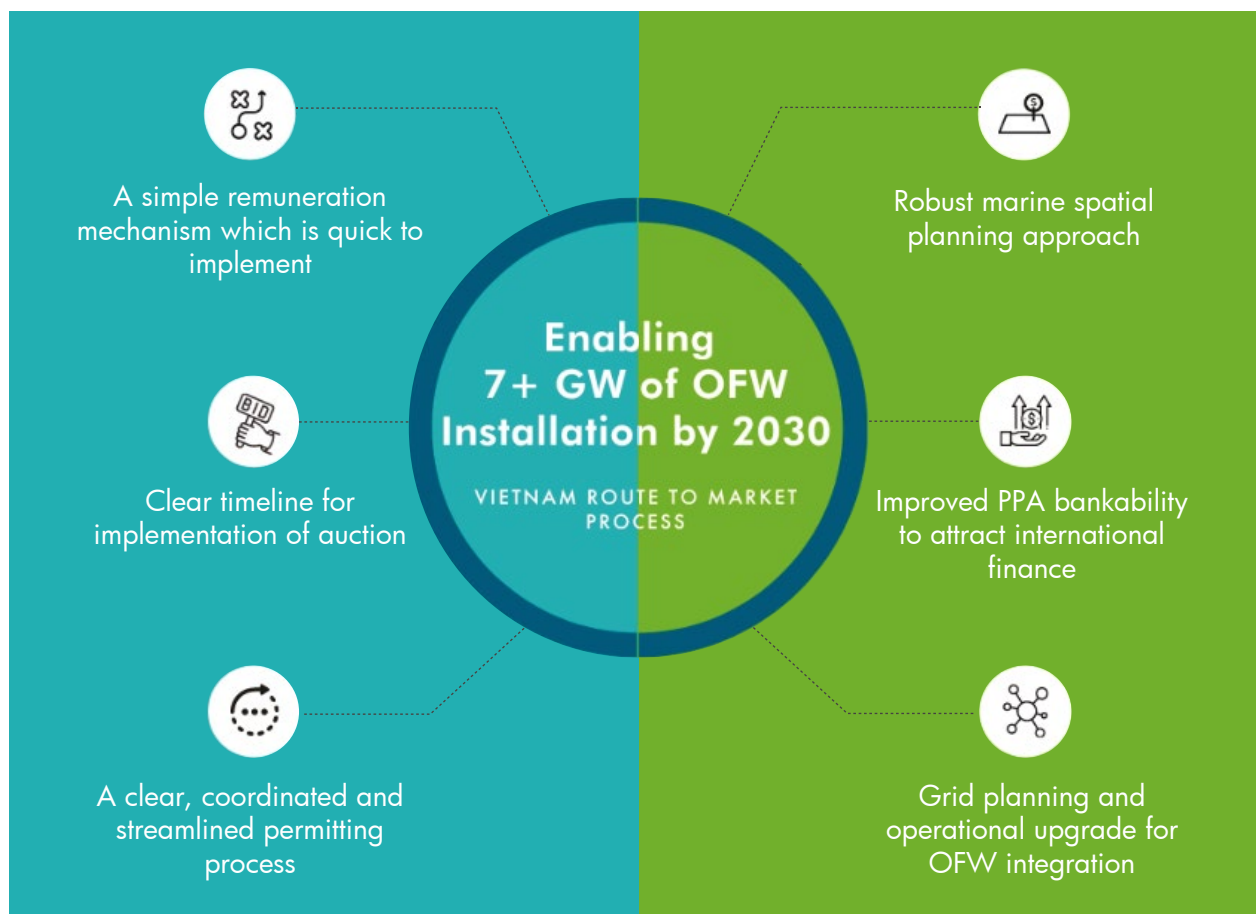
3. GWEC elaborates on the best practices to transition from an initial procurement scheme to a competitive auction for offshore wind in this report on offshore wind in Vietnam from 2021: <https://gwec.net/vietnams-future-transition-to-offshore-wind-auctions-international-best-practices-and-lessons-learned/>

mechanism to ensure projects can get underway in the next few years, while a more robust framework is developed to ensure smooth mid-term offshore wind planning and mitigation of conflict between ocean users;

5. Improved PPA bankability to attract international finance, which will be required to bring in the large investment volumes required for offshore wind. Domestic banks and institutions may not be able to provide sufficient capital to a new sector such as OFW, particularly given current lending limits;

6. Grid planning and operational upgrades to facilitate the integration of OFW, with consideration of location (the proximity to power load center, e.g. north and south), well-managed timelines to ensure deliverability on-schedule and concrete guidance on the requirements for successful developers; the Government may also wish to consider mechanisms on encouraging private-sector investment in transmission to solve upcoming transmission challenges.

Figure 1: Route to Market for Vietnam Offshore Wind Development: How to Deliver the 2030 OFW Target in PDP 8



Source: GWEC, 2022

The following sections elaborate on each of these elements of the Route to Market.

1. A simple procurement and remuneration mechanism which is quick to implement: Given how long it takes to develop and run an effective auction for offshore wind (typically 3-4 years), GWEC proposes the first 4-5 GW of offshore wind projects are developed through a Transition Mechanism (TM).

1.1 Why a Transition Mechanism to kick off the offshore wind sector in Vietnam?

- As Vietnam is a new OFW market, a **TM is the most effective way to incentivize investors and developers** to kickstart development, takes less time to implement than an auction and allows for long-term revenue predictability that enables local supply chain investment.
- Most countries with successful OFW markets began with a Feed-in Tariff (FiT), or a similar system for revenue stabilization, such as the Renewable Obligation in UK. After the industry gains some expertise in local development and the supply chain is more established, then price-competitive auctions can be smoothly integrated.
- Case studies show the risks of rushing into a competitive auction in a new OFW market (see [Table 1](#)):
 - France ended up with a failed auction in 2010 and its OFW market was delayed for 10 years.

- Around 2010, China kicked off its OFW market with an auction, but none of the four winning projects were developed due to the low tariff generated from the auction. China's offshore development started when the Chinese government introduced FiT in 2014.
- Turkey kicked off its offshore wind with an auction of 1.2GW in 2018; However, due to poor design of the auction, it led to no project being developed 4 years after the auction took place.
- Japan held an auction in late 2021 for three fixed-bottom OFW sites, but all three awards went to a single inexperienced developer at a very low price, leading to uncertainty around deliverability – the target COD dates have already been delayed.
- The only exception is the US OFW market which kicked off with competitive auctions, but this was after many years of pre-development consultations, cost reduction studies and supply chain planning.
- Analyzing these cases, it has been universally unsuccessful to initiate an offshore wind market with competitive auctions, due to the following:
 - In a new OFW market, developers find it difficult to predict risks and calculate costs, especially when many basic market fundamentals

are not fully developed and understood, including supply chain and infrastructure (ports and grid);

- Competitive auctions usually select the bidders with the lowest price; despite other non-price factors included in an assessment, cost is usually the determining factor, which often leads to a situation where the most aggressive bidder, rather than the most reliable or experienced, wins the bid. This is the reason that experienced developers are usually more cautious on bidding in new markets, as they fully understand the risks involved (and the ability to deliver a project in relation to these), and are usually not able to win in such a competitive case, especially in the initial stage of a new market OFW development.
- If the auction ends up selecting the most aggressive developers with limited understanding of the OFW

market, it is highly likely to lead to failure of delivery. The loss then is carried by the host government, with years of delay in project and supply chain development, as well as missed generation targets which may have a detrimental impact on energy security of the host country. It could also take years to regain investor confidence.

- Given the level of market maturity, risk profile and the stage of development of OFW in the country, GWEC encourages Vietnam to kick off its OFW market with a Transition Mechanism. For more details on the history of the how OFW started in a number of European and Asian countries, please refer to the GWEC report [“Vietnam’s Future Transition to Offshore Wind Auctions”](#). The table below summarizes how these markets started with a FiT or similar mechanisms; these are further explained in Annex 1.

Table 1: Geographies with revenue stabilization mechanism to kick start the OFW Market

	Initiated OFW with FIT or other Revenue Stabilization Mechanism	Is There a Transition Period Before Switching to Competitive Auctions?
UK	Yes. With Renewable Obligatory System; RO can be trade in the market and act as a supportive system	Yes, FIDER which ensured consistent pipeline and no delays in auction, functioned as Stepping Stone Transition ⁴
Denmark	Yes. Kicked off the OFW with FiT	Yes, with Stepping Stone transition
Netherland	Yes. Kicked off the OFW with FiT	Yes, with Stepping Stone transition
Germany	Yes. Kicked off the OFW with FiT	Yes, with Overlap transition
Taiwan	Yes. Kicked off the OFW with FiT	Yes, with Stepping Stone transition
France	Kicked off in 2010 by competitive auction. None of the Auction projects materialized and this led to 10 years of delay in the OFW sector	No transition and Delay of OFW for 10 years

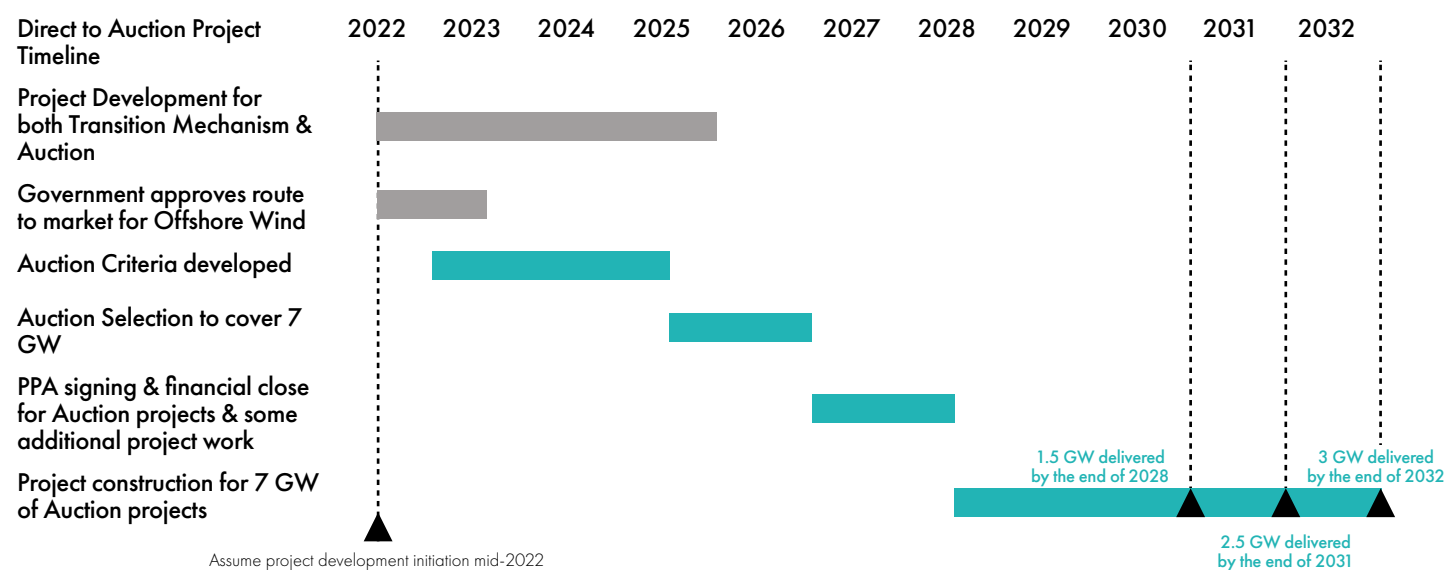
4. A Stepping Stone Transition, which is usually not a competitive bidding process, can be used as a way to prevent delays and minimize gaps in installation. Refer to Case Study 1 below.

1.2 There is not enough time to implement competitive auctions and meet the PDP 8 target

- How long does it take for an offshore wind auction scheme to be properly designed? Looking at international cases, it can take up to 5 or 6 years for schemes to be properly designed and implemented. For example, the UK and Taiwan took five years to design their first auctions. Vietnam may need at least 4 years to properly design and run an auction.
- Below is a chart (Figure 2) showing the estimated time needed to design and run an auction in Vietnam, based on international experience. GWEC estimates it will take 4 years to design and run the auction, which will be completed by the end of 2026. With streamlined permitting,

project development and financial close can take up to two years and could be finalized by mid-2028, after which project construction can start. This leaves less than two years to deliver the 2030 targets and install 7 GW between mid-2028 and end of 2030. No market globally (except China) has delivered this volume of OFW in such a short span of time – no new market has ever installed more than 1 GW in the first year of delivery. This also assumes that all the other elements of the Route to Market are addressed by then, including grid access, bankable PPA, ports and other infrastructure.

Figure 2: Indicative development timeline for Direct to Auction projects



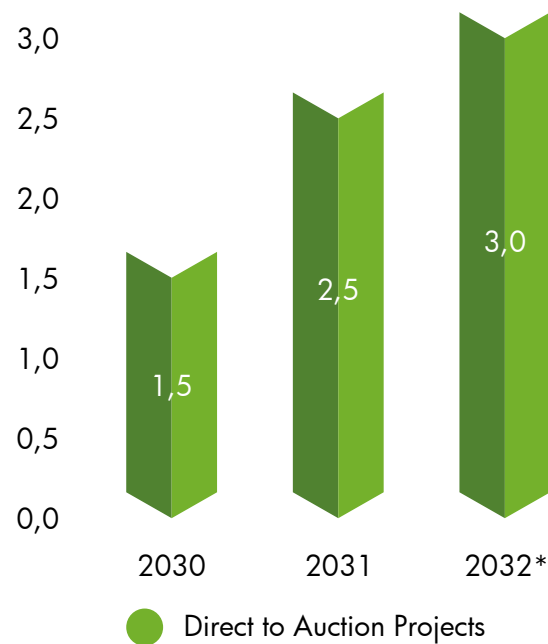
Source: GWEC, 2022

In this scenario of introducing auctions at the outset, we believe there will be massive delays of projects being delivered before 2030. According to GWEC's estimations as indicated in [Figure 2](#) and [Figure 3](#), the first 7 GW of OFW will be delivered as follows: only 1.5 GW by the end of 2030; another 2.5 GW by 2031; and the last 3 GW in 2032. This estimation is based on the speed of market development, which is mainly determined by supply chain maturity. To give an example, a more mature market like Taiwan is struggling to deliver 1 GW/year of installation due to various supply chain constraints. In a new market like Japan, the first round of auction projects selected in 2021 are expected to deliver approximately 1 GW split across three projects 6-8 years post bid award, by the end of 2028.

1.3 The only way to meet the PDP 8 target by 2030 is through a Transition Mechanism before an Auction

GWEC estimates that a simplified Transition Mechanism (TM) can be established within the next year and the authorities can then complete a selection process for a large tranche of 4 GW of projects by the end of 2023. Financial closure and other project work can be finalized by mid-2026; the project construction work can then ensure 4 GW can reach COD by the end of 2030. This gives more time for potential delays in the supply chain, port development and grid infrastructure, and enables projects to be

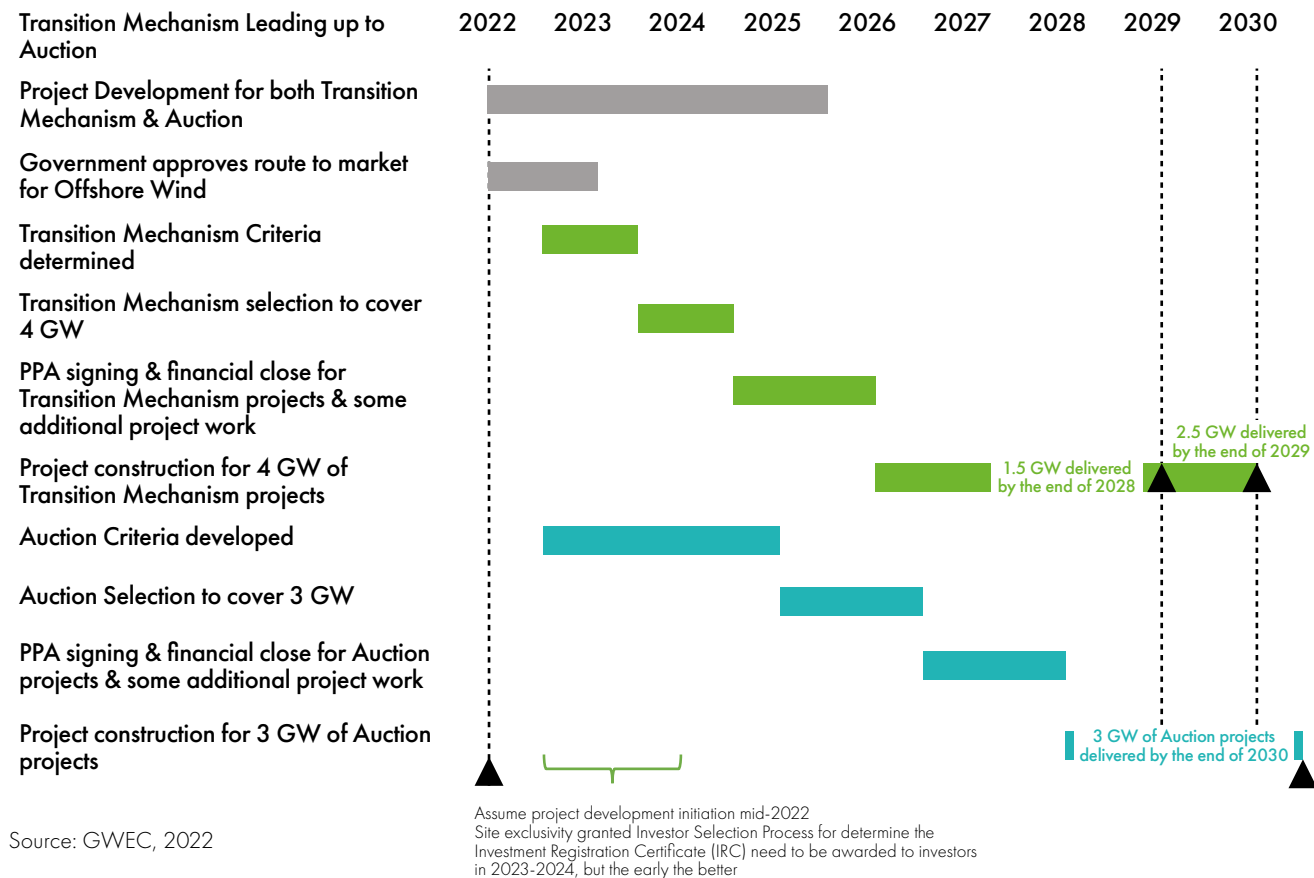
Figure 3: Annual Offshore Wind Installations From 2030-2032 (Direct to Auction Scenario)



* Note: 7 GW delivered by 2032

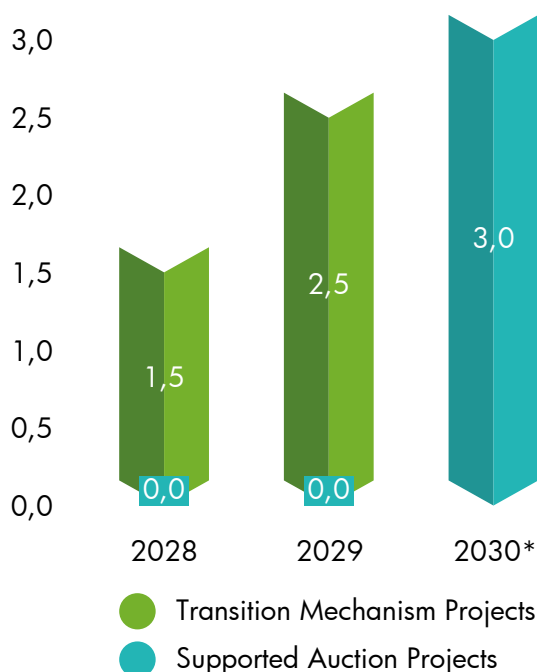
developed in tranches, rather than 7 GW altogether in a short timeframe. An auction scheme can be developed and run in parallel by the end of 2026 covering the remaining 2-3 GW of volume targeted in PDP 8 (see [Figure 4](#)).

Figure 4: Indicative development timeline for Transition Mechanism ahead of Auctions



As indicated in [Figure 5](#), using the same assumption in the Direct to Auction Scenario that the first 1.5 GW will take about 2 years to be installed, the Transition Mechanism and Auction Scenario will deliver the first tranche of projects by 2028. The remaining tranche under the Transition Mechanism will be delivered by 2029, and then projects awarded in an Auction will be delivered by end of 2030. This scenario allows a supply chain base to be established, and the market to develop incrementally with greater investor confidence and learning, while still meeting PDP 8 targets.

Figure 5: Estimated Annual Offshore Wind Installations From 2028-2030 (Transition Mechanism and Auction Scenario)



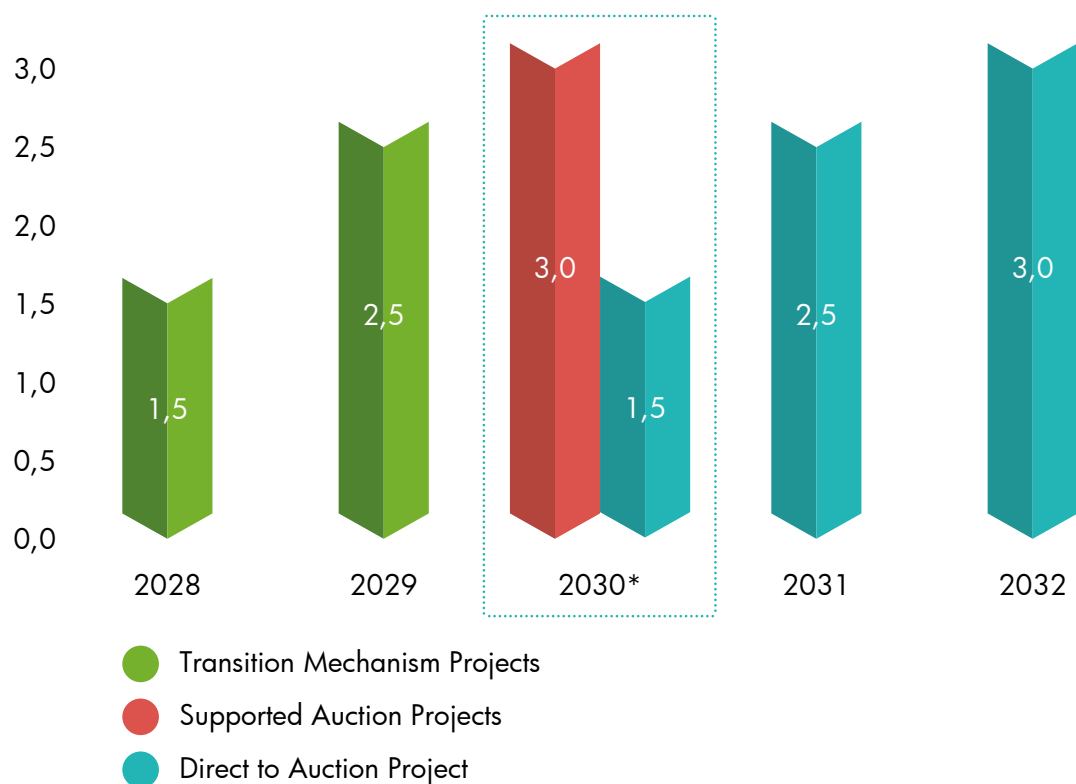
* Note: 7 GW delivered by 2032

Figure 6 below shows the delivery of the PDP 8 target of 7 GW with the two procurement and remuneration schemes. In the Transition Mechanism and Auction Scenario, the PDP 8 target can be delivered by 2030. In the Direct to Auction Scenario, the PDP 8 target will be missed by 5.5 GW in 2030, and 7 GW is only reached by 2032. Furthermore, in the Transition Mechanism and Auction Scenario, the first 4 GW tranche of projects helps to kickstart local supply development and build investor

confidence and hence enables higher auction volume (~3 GW) to be delivered up-front, rather than the ~1.5 GW in the first year of delivery in the Direct to Auction Scenario.

We note again that these estimates are based on international offshore wind experience of project development, permitting, financing and construction timelines as well as auction design timelines.

Figure 6: Comparison of the Estimated Delivery Timelines of Two Scenarios (Transition Mechanism to Auction vs. Direct to Auction)



* Note: 7 GW delivered by 2030 for Transition Mechanism lead up to Auction projects as compared to 2032 through Direct to Auction projects.

1.3.1 TM is a transitional mechanism prior to auctions, or a demonstration phase for early OFW deployment in Vietnam

- GWEC, representing the global wind industry, recommends that a fixed amount of 4-5 GW of the first generation of OFW Projects receive a revenue stabilization payment under a simplified selection scheme that assigns capacity to competent developers with experience and resources – this in order to ensure these early projects can be developed efficiently and successfully. The fixed amount of GW allows the government and EVN to calculate the total cost for the programme at the outset and sends a clear signal to investors. This also caps the amount of offshore wind capacity that will request connection to the grid in a given period of time.
- A TM can also be introduced as a “Demonstration Phase” or a “Transition to Auctions”.
 - Several successful offshore wind markets (e.g. Germany, UK, Denmark and Taiwan) implemented a TM by extending a FiT to let it run in parallel with auctions. This helped to ensure the stability of the OFW industry and catered for deficiencies in auction design and implementation.
 - A number of geographies also had “demonstration” phases for OFW deployment, such as Taiwan, where a FiT was given to demonstration projects.
- Remuneration level: Further study and

consultation with industry is needed to determine a suitable payment level, selection criteria and timelines. GWEC is ready to support the Government of Vietnam on identifying a feasible OFW payment scheme that can enable 4-5 GW of OFW during a transition period.

1.3.2 Transition Mechanism Investor Selection Process

4-5 GW of capacity in a TM can be assigned through a selection process or a hybrid selection/competition process, Selection criteria can be developed and can include:

- Year of COD: 2027-2028; 2028-2029; 2029-2030; different COD time can be associated with different rounds and remuneration levels⁵;
- Financial strength of the developer with key numbers and ratios defined;
- Technical capabilities – to achieve the 2030 targets, it is important that experienced developers with a proven track record of on-time delivery are selected (usually with a local partner).
- Other non-financial criteria, such as community benefits, environmental impact and local supply chain investment.
- Location of projects relative to available grid capacity may also be factor; this is addressed in the next section 1.4.

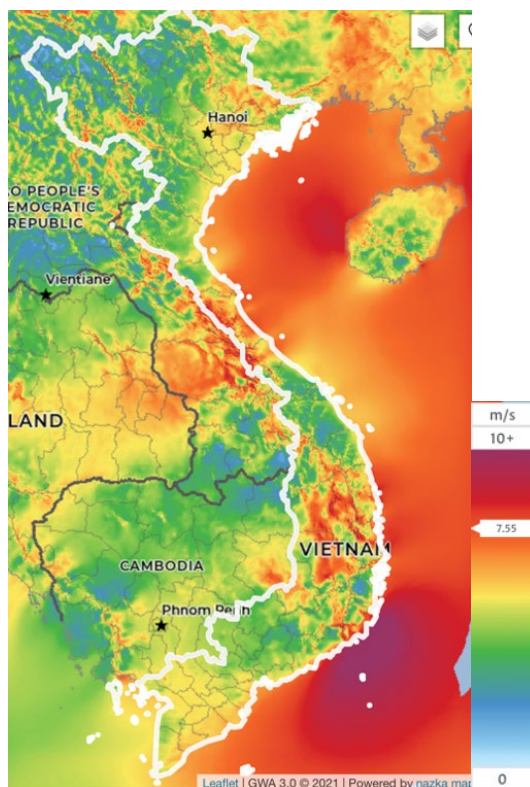
5. Within the UK, prior to transitioning into auctions, a FiT mechanism using ROCs (Renewable Obligation Certificates), was used that allowed the UK government to set FiT levels based on the year that projects were to reach COD in and therefore gradually reduced these over time, therefore focusing the industry to deliver for the period required to meet the governments goals

1.4 Addressing the PDP 8 North/South Split Targets

Vietnam's OFW resources are not evenly distributed throughout the country, with the south having the best wind. If not given specific incentives or targets, developers will focus project development in areas with the most attractive and bankable wind resources, i.e. in the south.

Given the challenges of building long-distance transmission (cost, land acquisition, etc.) and EVN's stated desire to have more resources built in the north, the new PDP 8 draft splits OFW targets between the north and the south. What mechanisms can be used to ensure adequate focus in the north by OFW developers?

Figure 9: Vietnam Wind Resource Map



Source: Nazka Map, 2022

For any procurement mechanism or auction, there needs to be consideration given to the differences by region. Locational measures could include:

- Specific GW allocations in an auction for the north, central and south (or other regional split)
- Non-financial scoring points given for projects that reduce the need for additional transmission capacity or are located in areas with greater availability of grid capacity
- Other options to be considered

Higher wind speeds in the south mean that OFW projects there (all other things being equal) will cost less on a per MWh basis. But projects in the north will help to avoid the building large-scale transmission links from the south to the north. The avoided cost of those transmission upgrades can be used to offset the higher cost of OFW in the north.

2. A clear timeline for the implementation of an auction to cover the remaining tranche of 2-3 GW in this decade.

- Designing and running successful OFW auctions takes at least 4 years, including two years to develop and another two years to run. In some cases, the first round of auctions undergo a trial-and-error phase before finalization.
- In [Table 2](#), GWEC highlights the following key issues for the government to consider during the auction design (next page):

Table 2: Key considerations for the government in auction design

Issue area	Points for discussion
Auction timelines and scale	<ul style="list-style-type: none"> • What is an appropriate auction design development timeline? • What is an ideal notification period for industry to prepare? • What is an ideal award window? • What are best practices in terms of scale and frequency of auctions, and visibility of pipeline?
Industry Consultation	<ul style="list-style-type: none"> • What are helpful practices in terms of consulting with industry on auction design? Open forums, written comment periods, etc. • What should be the frequency and iterations of industry consultation? • How long is an appropriate comment period?
Wind-specific auctions	<ul style="list-style-type: none"> • What should be considered for wind-specific auctions? • Best practices regarding price caps and capacity caps
Scoring criteria	<ul style="list-style-type: none"> • How to breakdown non-price based scoring criteria • Looking at track record and project feasibility / experience • Local content and national interest – creating a flexible and reasonable scheme
Assessment of bids	<ul style="list-style-type: none"> • Best practices for providing clarity, information and guidelines on weighting and assessment of scoring • Clarity on how to score maximum points • The risks of opacity in assessment
Authority for auctions	<ul style="list-style-type: none"> • Who should be the authority or authorities in auction design? • How can contact points be streamlined for industry?
Leasing for land/ seabed	<ul style="list-style-type: none"> • How to create a level playing field for leasing rounds? • Should there be limitations for bids given low economic productivity attached to leases?

3. A clear timeline for the implementation of an auction to cover the remaining tranche of 2-3 GW in this decade.

- Permitting issues are a critical early-stage enabler that gives developers and government a clear understanding of which developers have exclusive rights to which areas of the seabed, and what those rights include. This is crucial before developers spend up to \$50 million in surveys, design, consents, etc. Without exclusivity, many developers will be hesitant to invest the large amounts of capital needed in the development phase.
- Currently, there is no clear permitting process for offshore wind development in Vietnam. Decree 11/2021/NĐ-CP defines MONRE as the authority to issue site survey licenses – a key permitting

process to ensure site exclusivity. However, MONRE is currently reluctant to grant site survey permits due to OFW being a new industry with many new characteristics not mentioned in the Decree. GWEC is happy to support MONRE in capacity-building to resolve these issues. Ideally there would be close alignment between MOIT, MONRE and provincial authorities on this aspect.

- To assist developers, provincial authorities and other stakeholders, a complete list of all the required permits and licenses should be developed, including which organisation is responsible for what functions, permits, licenses, etc. To avoid delays, the timeline required to review, consider, comment and approve these permits should be clear.
- Experience from a number of countries

in Europe shows that a centralized and well-organized function/department within the government to coordinate the development/permitting process is best practice. Ideally there should be a “one-stop shop” agency, with clearly

defined steps for the permitting process, as well as timelines for different permit approvals. In [Table 3](#), GWEC provides a set of best practices on permitting, based on experience in the international wind sector.

Table 3: General practices to streamline permitting for offshore wind projects

Steps to streamline permitting for grid-scale wind projects	Details of the steps
Mandate maximum lead times to permit offshore wind energy plants	Standard recommended lead times are 3 years for offshore wind projects – but these could be halved in light of the current energy supply crisis.
Government permitting body	Dedicate centralized authorities and single focal points who can work with renewable project developers to streamline the siting and permitting process, and coordination and consultation with relevant ministries to ensure timely responses and access to key information.
Management of the permitting process	Invest in more staff and digital resources for the various public authorities which make decisions during the permitting process of grid-scale wind projects.
Making data available	Build digitized, searchable and up-to-date databases for land registrations and siting of renewable energy projects, including an inventory of local ordinances and records of where energy projects have met community resistance, which can support local authorities with zoning for projects.
Clear guidance on land and ocean use	Align land and ocean use guidance at national and sub-national level, prioritizing projects which support energy security, “Do No Significant Harm” principles and the green economy. This should include designation of promotional “go-to” zones for new renewable energy projects to spur future development.
Mechanism for dialogue between stakeholders	Convene active dialogues between local authorities, communities and industry to ensure a shared understanding of priorities and concerns during the consenting and construction stages of grid-scale wind and solar projects.
Clearing house mechanism	Implement an emergency clearing house mechanism for legal disputes to prevent extended delays to critical infrastructure projects, including offshore wind projects and associated transmission and cabling infrastructure, and a structured and time-limited process for developers to provide evidence.

4. A marine spatial planning (MSP) approach which allows for a light mechanism to ensure projects can get underway in the next few years, while a more robust framework is developed for the next generation of offshore wind projects.

- MSP is the process of coordinating the different marine uses, such as shipping channels, defense exclusions, marine protected areas, commercial fishing,

tourism, offshore wind and other uses, this to explicitly balance all the various uses of the sea. MSP is usually also coordinated with transmission grid planning and auction design to consider locational issues. International experience has shown that challenges from other ocean users due to unclear MSP can be a barrier to OFW development if not clearly defined.

- In the Transition Mechanism and

Auction Scenario, meeting the PDP8 OFW targets will require selection of projects by 2023 under the TM and by 2026 under the Auction. This leaves little time for authorities, civil society, industry and other stakeholders to work together on a robust and comprehensive MSP process before capacity for offshore wind projects is allocated.

- As such, GWEC recommends a light or hybrid form of MSP planning is conducted alongside the TM and auction design process, including public notifications and short consultation periods in project zones, and encouragement of stakeholder forums as part of project development.
- For harmonious and efficient long-term development of OFW in Vietnam, a robust MSP process is crucial (see Annex 3 for an explanation of the MSP process for OFW planning in Denmark). GWEC therefore recommends that after the auction selection is complete in 2026, an intensified MSP planning framework is conducted to guide the development of OFW out to 2040.

5. Improved PPA bankability to attract international finance, which will be required to bring in the large investment volumes required for offshore wind.

- Offshore wind investment is significantly larger when compared to onshore wind. There are a variety of ways that onshore wind projects were financed in Vietnam,

including vendor finance, corporate balance sheets and local bank guarantees, and these were mainly led by domestic investors. For comparison, the investment needs for a typical 500 MW OFW project are approximately US\$1.5 billion (or \$3 billion/GW), while an onshore project would typically be less than \$100 million (\$1.5 million/MW with project sizes typically less than 70 MW). As such, the involvement of international banks in OFW is likely to be necessary.

- We would encourage dialogue between government and the industry on several terms in the PPA, such as curtailment risk, arbitration and termination. Clarity on these issues would likely unlock huge amounts of international finance.
- GWEC hosts a Finance Working Group of the major international and local financial institutions, including both development and commercial banks in Vietnam and Asia, and law firms in Vietnam which support investment in wind energy. GWEC is ready to offer consultation, data and support from this group and from wind developers to determine how to strengthen the current wind PPA.

6. Grid planning and operational upgrades to facilitate the integration of OFW, with consideration of location, as well as concrete plans and mechanisms on encouraging private-sector investment in transmission to solve upcoming transmission challenges.

- The needs of Vietnam's Net Zero commitment and the surging renewable energy penetration of the grid require fundamental changes to the grid system to embrace the challenges of the new electricity system and increase grid flexibility.
- Between 2019-2021, wind and solar projects saw 20 GW of new capacity come online. Currently, the grid is congested in some areas, as the grid was designed to facilitate large gas and coal plants and not the relatively distributed and variable nature of wind and solar energy.
- In addition, Vietnam's power demand is growing rapidly and the grid will need to expand to meet this demand.
- With Vietnam's move towards Net Zero by 2050, grid development and operation will shift away from large coal and gas plants to a more modern, flexible and sustainable grid system that draws on large shares of wind, solar, hydro, batteries, etc. As the Vietnamese power system further develops, demand-side response, storage and other types of balancing services can be implemented to improve grid flexibility.
- Transmission investment is needed soon to support greater renewable energy generation. Different countries, especially in Europe, have different models for transmission ownership. These models can be examined to assess their relevance for Vietnam.

6.1 Grid planning for offshore wind by 2030:

6.1.1 For the Transition Mechanism and Auction Scenario to install 7 GW of OFW by 2030, location can be considered – projects which are optimally located away from areas of grid congestion, such as in the north, can receive higher non-financial scores for selection. This can help optimize the grid, limit curtailment and ensure demand can be met and distributed in alignment with grid capacity (see Annex 2).

6.1.2 Clarification on the timeline for planning and buildout of an inter-regional HVDC transmission line connecting the north and the south of the country should also be integrated with OFW procurement timelines, as this transmission line could ease curtailment risk and limit the need for heavy incentives to develop away from the south, where OFW wind resource is most attractive and bankable.

6.1.3 In the medium term, grid operations and planning should be designed with a view to the country's move to Net Zero, including the planning and operations of the grid, procurement of balancing and storage services and integrating the schedule of renewables procurement with grid reinforcement and enhancement.

7. Other considerations

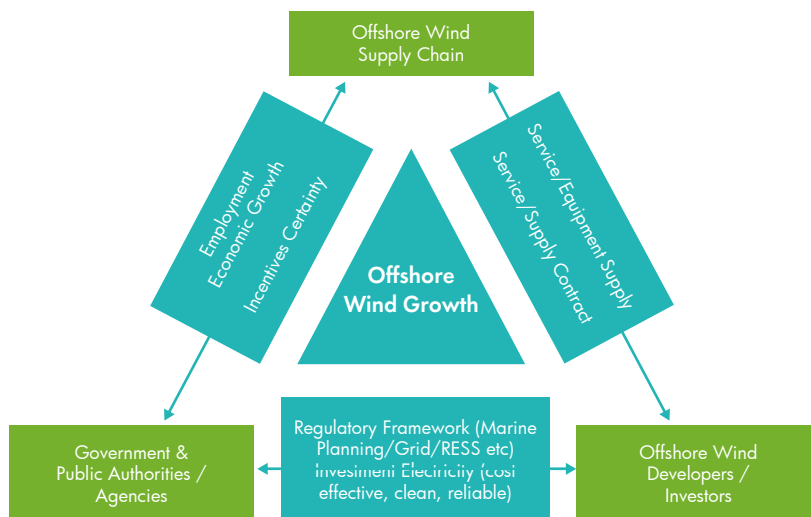
7.1 Supply chain development plan and policies

- Given the scale and complexity of supply chain development, it takes time to build up a reliable supply chain to accommodate the large volume of OFW to be developed in the next decade.
- OFW supply chain development should be conducted through a multi-stakeholder approach. On the one hand, government and public authorities are crucial to developing regulatory frameworks and enhancing investment incentives and long-term market visibility. On the other hand, developers, investors and supply chain providers need to actively collaborate and innovate to meet the growing energy and industrial demands in a cost-efficient way.
- It is important for the Government of Vietnam to commit to a pipeline of projects with a clear timeline of

deliverables as soon as possible so that the industry can invest in the supply chain ahead of the introduction of a price-competitive auction scheme.⁶

- **Incorporate non-stringent supply chain capability planning activities prior to project bidding**
- Vietnam leads onshore wind development in South East Asia and can also lead in OFW. It is possible for Vietnam to enhance the existing industry clusters or establish new OFW industry clusters. Industry clusters arise when companies in similar sectors are attracted to a specific areas by factors such as: close proximity to products and skilled labour markets; easy access to shared infrastructure; and common resources. Different actors along the whole OFW supply chain can collaborate around the specific expertise, network and resources to develop multiple OFW projects at a large scale.

Figure 8. A virtuous triangle of activities needed to secure supply chain investment and development



6. For instance, around 2009 the UK was undergoing the Electricity Market Reform (EMR) process and the Renewable Obligation Certificate (ROC) scheme was coming to an end, which left the supply chain unclear of the next step. The UK government recognized this challenge and implemented the transition scheme FIDER (Final Investment Decision Enabling for Renewable contacts were awarded to five OFW projects with a combined capacity of around 3 GW) to ensure project pipeline continuity and keep the momentum going. Siemens successfully secured turbine agreement on four FIDER projects and this provided them the confidence to invest in a new facility in the UK during 2014.

7.2 Port and infrastructure upgrades

- GWEC encourages stakeholders to start to examine and plan for upgrades in ports and logistic infrastructure to prepare for large scale build-up of OFW. For instance, fixed-bottom offshore wind projects often have large components such as blades manufactured and assembled quayside, due to the complexities in overland transport.
- Large, advanced port facilities with portside transportation links for equipment to move from one site to another are highly conducive to efficient and cost-effective manufacturing and assembly, with cost savings reflected in auction bids down the road.
- These upgrade projects can also bring public/private capital investment into port areas and surrounding communities.



1. Case Studies of a Transition Mechanism to Offshore Wind Auctions in the UK, Germany, Denmark and Taiwan.

GWEC's report "[Vietnam's Future Transition to Offshore Wind Auctions](#)" (2021) reviewed six geographies on their process and transition to auction for the offshore wind development. There are several ways of designing a transition to auction:

- **Stepping Stone**, which is usually not a competitive bidding process, and can be used as a way to prevent delays and minimize gaps in installation.
- **Overlap of the original policy/supporting mechanism with auction for a given period of time or with certain installation volume:** the developer can have access to a FiT or similar revenue stabilization mechanism, or enter into an auction; the period of overlap normally also involves a gradual reduction in the price level of the original support scheme, e.g. incremental reductions to the FiT.
- **No Transition** where the previous mechanism stops when the competitive auction starts.

2. Case Study: Danish Experience on MSP for OFW

The Danish government started the MSP process for OFW in 1997, when the government realized there is a need for through planning process to enable the new offshore wind sector. In total, an MSP strategy was undertaken four times, in 1997, 2007, 2011 and 2012. An MSP for Offshore committee was established in 1995 and is dormant when the planning is done, but revived when new planning needs are back.

The MSP for OSW committee is led by the Danish Energy Agency and government agencies responsible for natural environmental conservation, safety at sea, navigation and offshore wind extractions, visual and grid transmission condition.

The committee combine the OSW turbine technology, wind farm siting in interaction with other marine functions, grid transmission condition, as well as OSW conditions, such as wind resources, to make the relevant plan which then lasted for years.

Key learning from Danish MSP plans:

- Carry out a thorough screening and planning before designating areas for offshore wind turbines.
- Take wind conditions, sea depths, grid connection options, seabed conditions, marine life etc. into consideration when screening for suitable sites for offshore wind farms.
- Consult all relevant authorities with interests at sea, in order to avoid future conflicting interests. Often compromises can be found.
- Consider also as a minimum competing interest such as shipping routes, environmentally sensitive sites, fishing areas, resources and extraction up front in the planning.
- Involve all affected parties with interests at sea at government level already at the beginning of the planning procedure. This will create interest in an commitment to the process as well as to the sites chosen.
- Consult with evidence from effect studies on environmental impacts already assessed and accessible in the public domain before requiring expensive and time consuming analysis as part of the EIA requirements.
- If not in place, consider setting up a general framework for EIAs.

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