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Update | Offshore Wind November 2021







# Dear friends and readers,

Access to renewable energy is becoming ever more important if we are to meet the objectives of the Paris Agreement. According to estimates of the European Commission, between 240GW and 450GW of offshore wind power is needed by 2050 to avoid a temperature increase above the 1.5°C target. By comparison, the total amount of installed capacity in the Norwegian power system today is approximately 38GW. According to the Commission, investments in the area of EUR 800 billion in offshore energy production are needed to reach these very ambitious goals.

The Commission has created a roadmap which will make electricity the primary energy source, representing at least 50% of the total energy mix in 2050. The roadmap furthermore implies that 30% of the future electricity demand will be supplied by offshore wind.

This represents huge opportunities for Norway. Not only do we have substantial offshore wind power production possibilities, the global offshore wind industry has a potential of becoming one of Norway's most important export industries. Norway is a floating offshore wind pioneer, and the first offshore wind farm in Norway will be the world's largest.

The roadmap for the development of a new profitable industry for Norway is in the making, but a number of important questions remain. In this newsletter we focus on the regulatory backdrop which is essential for the deployment of commercial offshore wind projects in Norway, as well as within the EU. We also address practical and legal issues in relation to financing and profitability as well as technology and supply chain development. We have included articles regarding offshore wind development in jurisdictions outside of Norway and the EU as well.

We hope that you will find the articles of this newsletter interesting, and welcome any feedback you may have as well as your participation in our on-going discussion on offshore wind.

Finally, I would like to thank the editorial team Elise Johansen, Alexandra Eriksen and Lina Malone for excellent work with this publication.

Tormod L. Nilsen
**Global Head of Renewable Energy**

According to estimates of the European Commission, between 240GW and 450GW of offshore wind power is needed by 2050 to avoid a temperature increase above the 1.5°C target.

# How to manage REGULATORY RISKS in your joint venture agreement

**Several large companies have recently teamed up in consortiums, announcing their interest in the development of Norway's first large scale offshore wind farms in the Utsira Nord and Sørlige Nordsjø II areas in the North Sea. At the same time, the Norwegian energy authorities are carrying out a revision of the Offshore Energy Act, the Offshore Energy Act Regulations, and the guidelines for the offshore wind concession process, leaving many unanswered questions in the regulatory landscape.**

Where companies are teaming up and potentially committing to large future investments prior to regulatory clarity, it is crucial that elements of regulatory risk and uncertainty are managed appropriately in their consortium/ joint venture (JV) agreements. In this article we touch upon how the parties can manage and mitigate regulatory risk factors in their JV agreement.

## IDENTIFICATION OF REGULATORY RISKS

Identifying risks at an early stage is central when forming a JV in an uncertain regulatory landscape. The following examples show us why:

- While the authorities have been clear that they want a competitive process for awarding exclusivity in the pre-application phase, there is currently a lack of certainty around the allocation process. The proposed auction process for Sørlige Nordsjø II has been criticised, and there is an ongoing discussion around whether qualitative or quantitative criteria should be decisive for the award. Furthermore, the proposed process does not clarify when any payment for the exclusivity award must be made.
- The criteria for pre-qualification, in particular for consortiums, also remain unclear. It is for instance not clear how established the JV's relation to its participants must be in order to draw on the participant's competence and financial strength in the pre-qualification process.
- Many involved parties request appropriate support schemes for floating wind and a more tailored tax regime.
- Hybrid grid connections are highlighted as a prerequisite for profitable bottom-fixed wind turbines by several of those interested in Sørlige Nordsjø II, but the regulatory framework and the associated market design remain unclear.

Below are some mechanisms that may be used in order to take account of such unclarities in the JV agreement.

## PURPOSE-ORIENTED FRAMEWORK

When the goal is evident but the pathway is uncertain, a possible contractual measure is to make the agreement purpose-oriented. This can be achieved by clearly defining the JV's objective and overall expectations in respect of each party's contributions, for example by way of technology, know-how, funding, competence, and the like.

In such cases, the parties will need to agree on limitations for the purpose outlined, in order to avoid open-ended commitments. Limitations can take many forms, including financial, geographical, technical (e.g. floating vs. bottom-fixed offshore wind farms) and/or time-bound limitations. A time-bound limitation can more narrowly include whether the parties will submit an application in both the first and later tender rounds, or just in the first round and any long-stop dates. Furthermore, depending on the purpose outlined, parties should consider whether there are certain prerequisites for realisation of their JV project, e.g. reliability on hybrid grid connections. The parties should then consider whether these limitations and prerequisites are viable for further consideration and decision, or if they are true show stoppers.

## INCENTIVES

Ensuring that parties have the right incentives to achieve the project's objective is crucial. By finding the right incentives for each party, chances are they will be more aligned in decision-making processes, and the JV will more likely navigate successfully through uncertain regulatory waters. The parties' incentives will, however, largely be contingent on what each party brings (or wants to bring) to the table in the JV.

## RISK ALLOCATION

Some risks and associated limitations may be allocated equally between all JV partners, while other risks should be allocated to the party with the best chances of handling them. This will differ depending on the parties' individual roles. The parties should therefore have a clear view on which risks are allocated to and accepted by each party. Moreover, a party's decision-making authority, for example veto powers or exit rights, must be balanced against that party's risk-taking and involvement.

## MANAGING CHANGES

Flexibility and dynamic solutions are necessary where the regulatory landscape is not yet determined and changes are bound to occur. The parties to a JV agreement should clearly agree on the appropriate processes, as well as designate an authority, in case of changes. One option includes incorporation of a layered decision-making structure. As an example, an appointed committee with a clear decision-making mandate may have authority to make majority decisions for matters with limited impact. For decisions on changes with a large impact, but which are still within the project's purpose and limitations, qualified majority or veto rights of the parties' executives may be introduced. Lastly, changes which go beyond the project's purpose and limitations may trigger hardship clauses, renegotiation clauses, or a party's exit option.

## CONTINGENT SOLUTIONS

For developments that are likely, but not yet certain, the parties can agree on principles relating to such developments already in the JV agreement.

Firstly, the parties can agree on a dynamic budget process, for example one containing an obligation for the parties to revise their budget in case of material changes to the regulatory regime, and certain project "non-negotiables". Secondly, the parties may pre-agree their position in respect of a likely regulatory outcome. Lastly, uncertainties around the formalities applicable to the company seeking concession can be dealt with by way of mechanisms in the JV agreement. Such mechanisms can ensure that the parties must do what is necessary to form and incorporate the company which will be seeking concession. The parties should, however, consider alternative set ups (e.g. a private limited liability company or a partnership) and any implications the different set ups may have in advance.

## IN SUMMARY

The need for dynamic and flexible solutions in the JV agreement, with clear parameters around each party's contribution, risk, and authority, seems clear. If properly prepared, risks and surprises along the way can be managed by pre-agreed terms in a purpose-oriented manner. •

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# AUCTIONS AS AN ALLOCATION TOOL

## – how auctions can be tailored to reduce uncertainty

**Norway is in the process of opening up for establishment of offshore wind production. One option is the use of auctions to allocate exclusive rights for this purpose. Industry players have raised concerns in particular due to uncertain prerequisites for these auctions. In this article, we point out that uncertainty might be mitigated by tailoring the auctions, and we give examples on how uncertainty can be reduced.**

An auction is an allocation tool – a mechanism to efficiently allocate limited goods and services. There are numerous different types and sub-types of auctions, and each of these can also be tailored specifically. Four basic auction formats are: first-price sealed-bid auction, second-price sealed-bid auction, open ascending-bid auctions and open descending-bid auctions. Most auctions are based on these basic formats, and all auction theory is in essence economic game theory.

Authorities worldwide increasingly use auctions to allocate limited exclusive rights, such as licences on a wide variety of areas. Internationally, probably the most common rights to allocate using auctions are spectrum licences. In Norway, also milk quotas for farmers and salmon fish farming licences are examples of exclusive rights auctioned out by the authorities.

When authorities design auctions, they normally engage auction experts to tailor the auction format to the specific case and also to provide the auction software since most such auctions are digital and web-based. The most important elements from the auction format is regulated in an auction regulation. Further details are often set out in detailed auction rules. Combined with other relevant information material to bidders, these elements form the frame and content of the auction.

### CONCERNS RAISED BY INDUSTRY PLAYERS

The Norwegian Ministry of Petroleum and Energy (the Ministry) is currently in the process of further developing the legal framework for offshore wind production in Norwegian sea areas. In awarding projects, they can decide whether to use auctions, or an assessment of applicants using objective and non-discriminatory terms, or a combination of these two allocation methods. For Sørlige Nordsjø II, the Ministry has suggested that allocation of an exclusive right to conduct a project specific impact assessment of potential offshore wind energy production, and to later apply for a licence to operate, can be decided using auctions. A public hearing was conducted this summer, and the Ministry is currently assessing the input from the consultation.

In the consultation, several industry players argued against the use of a quantitative allocation method such as an auction, in particular when the framework conditions are as uncertain as they are today. As an example, the future technological requirements, but also key infrastructural aspects such as physical market access, may influence the energy price and thus the potential income from the specific offshore wind activity. Furthermore, uncertainty related to the government's ambitions for future development in the field of offshore wind, and also the pace of this and future allocation processes, were highlighted as concerns by the industry in the consultation.

Authorities worldwide increasingly use auctions to allocate limited exclusive rights, such as licences on a wide variety of areas.

To an extent the concerns raised are also that an auction can have a too narrow perspective, focusing too much on maximising the government's profit – and by doing so limiting the variety of industry players. From society's and authorities' point of view, maximising profit from an allocation process is often not their only goal. In most cases there are also other, goals that have to be taken into consideration when designing and deciding upon an allocation tool.

### HOW CAN UNCERTAINTY BE MITIGATED AND GOALS MET?

An auction for offshore wind production – now in the relatively near future – may be encumbered with uncertainty which may affect the estimated future income for the production, and thus the market price of the exclusive rights in the auction. An important question drawing up and constructing

the allocation process is how risk can be reduced prior to the process and how the allocation process itself – including the auction format – can mitigate at least some of the remaining uncertainty, and ensure that the authorities' goals for the allocation are met.

From society's and authorities' point of view, maximising profit from an allocation process is often not their only goal. In most cases there are also other goals that has to be taken into consideration when designing and deciding upon an allocation tool.

Some of the risks can be reduced by authorities prior to the auction. This seems to be what the Ministry is planning for. For example, it seems that Statnett (a Norwegian government owned power system operator) will give at least some more clarity to potential applicants/bidders in relation to physical market access and questions related to infrastructure in the coming period leading up to an auction.

In any event, there will be a pre-qualification of potential bidders. In the consultation, the Ministry indicated a pre-qualification setting minimum criteria related to technical competence and financial strength. Another way to organise the allocation process could be to increase the degree of qualitative criteria in the pre-qualification assessment. This increases the Ministry's possibilities to use their discretion to ensure that relevant goals of the allocation process are met.

Also the auction format itself can contribute to mitigate uncertainty and ensure the authorities' various goals are met. For example, the choice of auction format can be of importance to what degree the auction has a price accelerating effect. Auction experts will be able to give relevant input. However, also more specific elements can be effective tools. The authorities can set a reserve price for the auction, providing a starting point price level. Another tool is to give bidders indications of the demand at different price levels during the auction. Both of these elements can help reduce the strategic and tactical complexity of the auction – creating a more level playing field – and give bidders greater confidence in how bids of the individual bidder relate to the development of the market price during the auction.

## CONCLUSION

As demonstrated above, an auction can be tailored to meet a set of goals – also other than maximising profit for the government, but this requires expertise. Our recommendation to the Ministry is first to use sufficient time on the design of the allocation process. Second, we recommend engaging auction experts who can prepare the auction. This entails both the theoretic auction format, and offering suitable software solutions that allows the auction to be conducted in a good way according to the auction rules and regulations.

Depending on the strategic and tactical complexity of the auction format, potential bidders should also seek assistance from auction experts and lawyers in order to prepare for the auction. For example, an auction where there is uncertainty related to the valuation of the exclusive rights, and where little information on the demand is shared, may be particularly strategically and tactically complex. It will be time well spent actually understanding the dynamics of the auction. •

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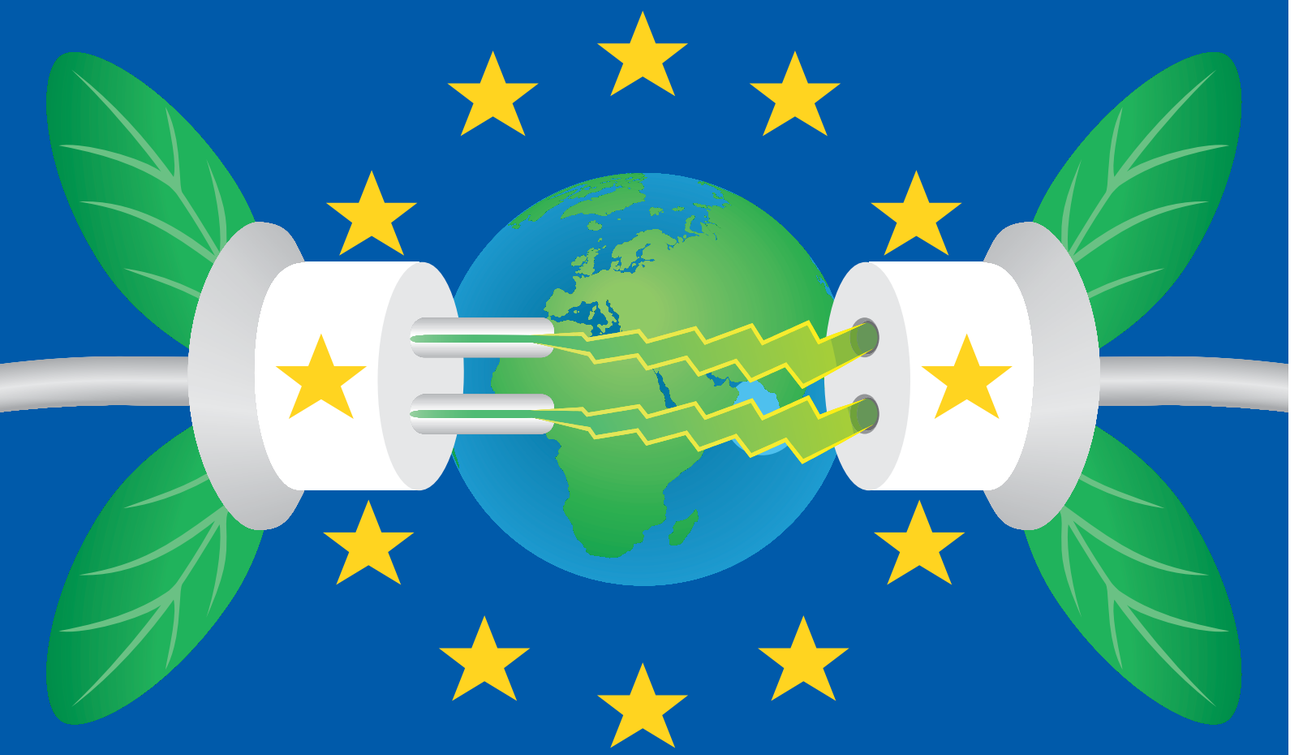
# Distribution of congestion revenue from INTERCONNECTORS

**Offshore renewable energy plays a key role in achieving the EU's climate and energy goals set out in the European Green Deal. The EU aims to reduce greenhouse gas emissions by 55% by 2030, and to become the first carbon-neutral continent by 2050.**



A significant amount of renewable energy is required to reach a 55% emission reduction. The EU acknowledges this through prioritising and further developing the renewable energy sector. The goals are partly planned achieved by developing offshore wind projects with grid connections to several countries, referred to as "hybrid" grid connections, which in reality will be cross-border interconnectors. In Norway, hybrid grid connections with power exchange to other countries in Europe seem highly relevant for the development of offshore wind in the "Sørlige Nordsjø II" area.

As regards to Sørlige Nordsjø II, the industry has made it clear during public consultations that this area can only be developed without state aid if (i) an offshore hybrid grid is built, and (ii) project developers receive income from hybrid grids' revenue streams. A key issue is therefore whether congestion revenues, arising from price differences between the price areas where the electricity is produced and delivered, can lawfully be allocated to the project developers.

## CURRENT REGULATION OF CONGESTION REVENUES FROM INTERCONNECTORS

Congestion revenues are not a new phenomenon in power exchange between countries. Traditionally, power exchange through interconnectors has generated large revenues due to congestion and occasionally major price differences across national borders.

According to the currently applicable EU/EEA regulations, the revenues from cross-border power exchange are accorded to the operators of the relevant interconnectors, normally Transmission System Operators (TSOs), whose main task is to plan, operate and develop domestic power systems and cross-border connections. The recipient of congestion revenues from interconnectors to Norway has therefore been the state-owned enterprise Statnett, as the country's designated TSO.

The EU/EEA regulations impose important restrictions for use of such revenues. Norway recently implemented the third EU energy market package, where such revenues are regulated under Regulation (EC) No. 714/2009. Article 16(6) sets out the following main rule:

> The goals are partly planned achieved by developing offshore wind projects with grid connections to several countries, referred to as "hybrid" grid connections, which in reality will be cross-border interconnectors.

*"Any revenues resulting from the allocation of interconnection shall be used for the following purposes:*

*(a) guaranteeing the actual availability of the allocated capacity; and / or*

*(b) maintaining or increasing interconnection capacities through network investments, in particular in new interconnectors."*

In other words, the main purpose of this provision is to channel congestion revenues towards developing, maintaining and increasing the exchange capacity of the transmission network across national borders.

The fourth (clean) energy market package, which is not yet implemented into Norwegian law, contains many of the same main features for the use of congestion revenues. This is stated in Article 19(2) of Regulation (EU) 2019/943. However, the new regulation goes further in some areas, including by adopting a reporting requirement on the use of congestion revenues, according to Articles 19(4) and 19(5).

Does this mean that the industry's clear views and expectations on having entitlement to congestion revenue remain far-fetched?

## EU'S ANNOUNCEMENT OF THE "OFFSHORE RENEWABLE ENERGY STRATEGY" PROVIDES FOR A NEW DIRECTION

With the development of new hybrid offshore grid solutions with connections to two or more countries, new needs will arise which current regulations are not suited for. A coordinated approach to these issues

lead to the European Commission's preparation and release of a common EU strategy for offshore renewable energy ("*EU Strategy to harness the potential of offshore renewable energy for a climate neutral future*", COM(2020) 741) in November 2020. The European Commission states the following in its Commission Staff Working Document, SWD(2020) 273:

*"This paper recognises that the electricity market rules were not designed with the specific needs of offshore hybrid projects in mind..."*

The main objective of the strategy is to put in place a holistic approach on how best to utilise and scale up the use of offshore renewable energy between EU countries. This is a key element to reach the overall goal of climate neutrality in the EU by 2050.

In the time leading up to 2050, the EU has estimated a need for investment of up to EUR 800 billion in offshore renewable energy to achieve its climate and energy goals. The majority of these investments should be directed towards development of offshore wind projects, with an upscaling from the current capacity of 12 GW up to 300 GW in 2050. These future prospects indicate that the need for investment of capital for offshore renewable energy will be on a much higher level than what has been seen before.

In line with the need for more capital, future investments will to a far greater extent than before depend on parties in the private sector. This raises the question of the use and distribution of congestion revenues from hybrid grid connections, especially with regard to whether these may in the future be allocated to developers of offshore renewable energy.

The strategy proposes, as a measure, that Member States are given greater freedom to distribute the congestion income in offshore hybrid projects than current regulation allows. The Staff Working Document mentioned earlier also states that:

*"A way to align these incentives could be an amendment to the rules on the use of congestion income. For example, by opening up the possibility for Member States and NRAs to allocate congestion income to renewable energy producers active in an offshore bidding zone, this could ensure that hybrid projects are no less attractive for a renewable energy investor."*

The EU Commission thus aims to make it attractive to invest and develop the renewable energy sector towards 2050, by mentioning a more flexible allocation of congestion income for offshore hybrid projects. Based on the above, the Commission also seems to believe that distribution of congestion revenues under current regulation may not encourage the most efficient utilisation and upscaling of capacity. The European Commission has stated that proposals to solve this will come by 2022. Legislative changes to the current system regarding the use of congestion revenues thus seem likely.

Although the legal content of future legislative changes remains unclear, there is reason to believe that congestion revenues in the future to a greater extent may be allocated to third parties – such as developers and operators of offshore wind power plants. This represents an incentive to contribute to development in the years to come. •

The main objective of the strategy is to put in place a holistic approach on how best to utilise and scale up the use of offshore renewable energy between EU countries.

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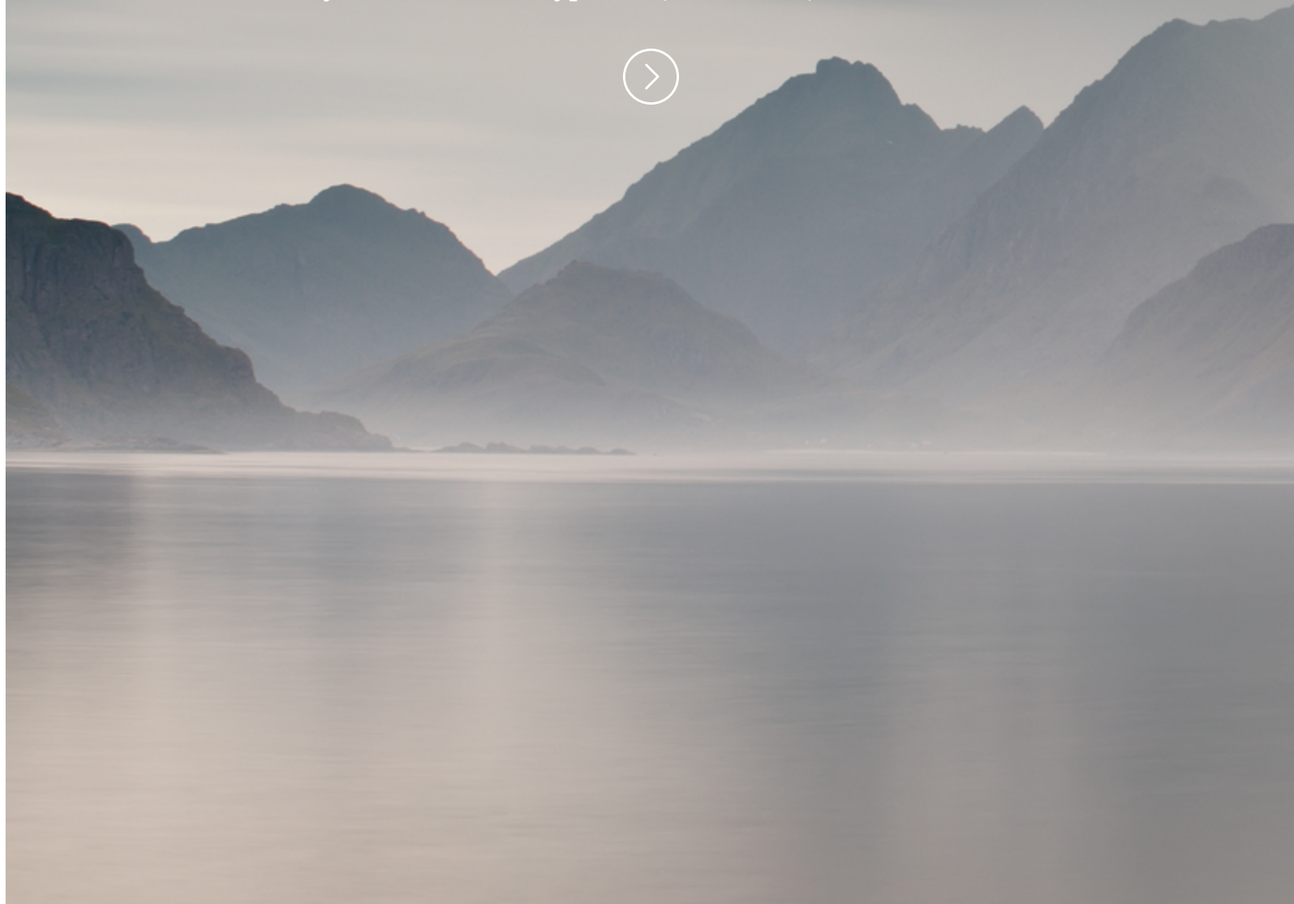
Marine spatial conflicts: Offshore wind

# Increased pressure on Norway's marine areas

**Norway's large sea areas remain one of the country's most important advantages in the global transition to a greener and more sustainable society. Solving the global climate challenges includes investments in measures such as ocean-based transport, restoration of marine ecosystems, seafood, storage of carbon in the ocean floor and ocean-based renewable energy. While these activities can help reduce the carbon footprint, they may also lead to increased activity in the sea areas already used for other types of (traditional) marine activities.**



In response to the strong likelihood of future conflicts in marine areas, this article looks at how the Offshore Energy Act (*Havenergiloven*) (OEA) – the legal basis for regulating Norwegian offshore wind production – regulates marine-related conflicts of spatial management and conflicts of interest.

## ALLOCATION OF MARINE AREAS AND MANAGEMENT OF CONFLICTS OF INTEREST DURING THE LICENCING PROCESS

The right to utilise renewable energy resources at sea belongs to the state. Unlike with oil and gas, it is not the resource itself, but the right to exploit the resource that is the important factor for renewable energy resources. Management of resources is based on a system of licence and permit allocations for areas identified for this purpose, based on impact assessments and consultation processes.

According to the OEA and the Offshore Energy Act Regulations (*Havenergiforskriften*) (OER), a licencing process takes place over several steps. The first notable step is the "opening of an area". The areas available for resource exploitation today are only available as a result of assessment processes of several sea areas, on the basis of identified or potential spatial conflicts. Under §2-2 of the OEA, the most important interests of certain areas should be considered before an area can open for use. This provision of the OEA emphasizes that the impact assessment should include assessments of both environmental and social consequences of the proposed renewable energy production, as well as consequences for other commercial interests. The competence to open an area lies vested with the government, and cannot be delegated to the Ministry of Petroleum and Energy. The provision is meant to ensure that planning and development of energy production and transmission facilities take place within a holistic perspective, after the conduction of a broad assessment of any relevant interests and conditions.

After the opening of a sea area, the licencing processes can begin. Under §3 of the OER companies that wish to apply for a licence must first submit a notification to the Ministry with a proposal for a project-specific impact assessment program. The assessment should consider any environmental and social effects of the proposed energy facility, including potential conflicts with other business activities and proposals for mitigating measures (see §2 a of the OER). The purpose of this assessment and the licencing process is to uncover any advantages and disadvantages in proceeding with the project, and the effects of the development so that any conflicts of interest can be identified and resolved at an early stage.

## RELATION TO OTHER INDUSTRIES

The OEA also contains provisions that directly regulate relationships with other industries and interests. Sami interests are provided special protection, where §1-5 of the OEA establishes an obligation to place due emphasis on consideration of the Sami culture during all stages of the process.

The authorities also have the ability to implement conditions for granted permits, which can be used as a tool to handle spatial- and interest conflicts (see §3-4 of the OEA). Notably, §10-8 of the OEA further authorises the relevant ministry to reverse a decision if they wish to, by changing the stipulated conditions for a licence.

Further, Chapter 9 of the OEA is designed to deal with conflicts of interest between offshore energy production and the fishing industry. This chapter regulates claims for compensation to fishermen who suffer financial loss resulting from occupation of fishing grounds, or from the energy activities causing pollution, waste or damage. §9-2 of the OEA directly relates to spatial marine conflicts and handles this by introducing a compensation scheme. This means that licences awarded under the OEA take precedence over conflicts of interest with fisheries and automatically awards financial compensation as the solution.

## TOUGH CONFLICTS CAN STILL ARISE

Although the OEA contains mechanisms for handling conflicts of interest, the provisions are quite narrow and case-specific. For example, they do not regulate other industries' needs to obtain information about various development stages, such as the fishing industry's potential need to know of plans for laying submarine cables. Much like other laws regulating various maritime sectors, the OEA does not currently take a holistic management approach. Instead, the legislation assumes that consideration for the marine environment is safeguarded through environmental legislation and the system of providing conditions attached to permits. The former government under Solberg was aware that spatial conflicts posed a risk in today's marine spatial management system. As such, they established a cooperation forum with representatives from the energy sector, the fishing industry, and the supplier industry. Despite this, Norwegian legislation still lacks legal marine planning tools with mechanisms for prioritisation based on a general approach – the EU's holistic approach to marine spatial planning may therefore provide a useful template.

## MARINE SPATIAL PLANNING: EU'S RESPONSE TO SPATIAL CONFLICT MANAGEMENT

EU's approach to marine spatial planning stems from their Integrated Maritime Policy (IMP) – a political framework for promotion of the sustainable development of all maritime activities and coastal regions. IMP acts as an umbrella policy, established on the premise that the EU can obtain higher returns from its maritime space with less impact on the environment, by coordinating different uses of sea and coastal areas.

The EU's narrower response to spatial conflict management is the legislative planning tool, the Marine Spatial Planning Directive (Directive 2014/89/EU) (MSP Directive). The MSP Directive requires member states to draw up marine spatial plans for a more sustainable use of coastal areas, with the narrower goal of encouraging land allocation in order to avoid marine spatial conflicts. The purpose of such legislative tools is to create a more efficient, structured and reliable approach to spatial planning. This is done by including compliance-mechanisms in legislation, such as transparency or reporting requirements. The MSP Directive, for example, opens nations up to being sanctioned for non-compliance should they fail to submit plans for their designated coastal areas. Although it does not represent a perfect response to future pressure on use of marine areas, the MSP Directive and EU's overall approach does introduce a promising starting point for management of the Norwegian coast. •

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# Offshore wind
# POWER PURCHASE AGREEMENTS

**Power purchase agreements (PPAs) often play a crucial role in project financing of renewable energy projects, including offshore wind. Having a PPA in place to secure the revenue stream for a renewable energy project is often a necessity to attract banks and other project financiers. While a PPA may make an offshore wind project bankable, there are several considerations to be made in the drafting of a PPA. In this article we take a closer look at some important questions surrounding those considerations.**

There is no market-standard PPA for offshore wind projects, and we don't expect this will change. There is no market-standard PPA for onshore wind either, and we see market players taking rather different approaches to drafting, though many of the key elements remain the same. PPAs are to a large extent customised based on each project's specific characteristics, and we expect this to continue.

## CHOOSING THE SETUP OF A PPA FOR AN OFFSHORE WIND PROJECT

A key consideration when choosing what type of PPA suits your project or company is whether to go for a virtual (synthetic) or physical (sleeved) PPA.

A virtual PPA is essentially a contract for difference – a financial swap – where the buyer pays a fixed price for electricity without physical delivery. The electricity is sold in the spot market, and the difference between the fixed price and the spot price is settled by and between the buyer and seller. In the UK sector, government-sponsored 'Investment Contracts' have since 2014 played a critical role in encouraging developers to invest in complex and challenging offshore wind projects. These contracts share many similarities with a virtual PPA. As a financial PPA does not involve physical delivery of electricity, it can be entered into between parties that are not part of the same power market.

On the other hand, a physical PPA means that the producer delivers and the buyer offtakes a certain volume of electricity at an agreed price. In practice, the buyer and offtaker under a physical PPA are situated apart geographically. The electricity is in such cases sleeved through e.g. a utility which handles the transfer of energy and money between the producer and offtaker. The utility often acts as the balancing responsible party as well.

How to choose? On the surface there are great similarities between the two main types of PPAs.

Market image and a close connection to the power generation could be important factors for the offtaker, and might suggest use of a physical PPA. How decisive this is for the choice of PPA could however be discussed, as offtakers are rarely connected directly to the generator. In addition, guarantees of origin are used by most players to certify use of renewable power, thereby repairing lack of physical connection to the generator. Market players should also pay attention to the development of EU regulations on *inter alia* additionality requirements which may favour physical PPAs in the future.

A key consideration when choosing what type of PPA suits your project or company is whether to go for a virtual (synthetic) or physical (sleeved) PPA.

The other main difference between a virtual PPA and a physical PPA is how they are treated under applicable accounting rules such as GAAP vs. IFRS, where the general tendency is that a virtual PPA may potentially be considered as a financial derivative under IFRS rules, but not under GAAP. If the PPA is considered a financial derivative under your accounting rules you may need to regularly re-assess the value of the PPA and reflect changes in value on the balance sheet. This may be a complex as well as time- and cost-consuming exercise, as the fair value of a PPA is a derivative of the forward energy prices.

In addition to deciding whether to enter into a physical or a financial PPA, other important factors to consider at the outset is the duration, pricing structure and volume obligations under the PPA. Corporate PPAs for hydropower and onshore wind in Norway typically have a term of 10-25 years. Pricing models may impact the term of a PPA, as it may be difficult in the current markets to predict price developments long term. In terms of volume three common structures include fixed volumes, delivery and offtake obligations within set minimum and maximum limits ("base load"), as well as delivery and purchase of all volumes actually produced at the renewable energy installation ("as produced" og "pay-as-produced").

## KEY CLAUSES TO CONSIDER FOR AN OFFSHORE WIND PPA

Aside from often being necessary to obtain financing for an offshore wind project, PPAs are entered into in order to de-risk power market volatility for the parties involved. Producers generally aim to secure a steady income in a volatile power market. Offtakers often have multiple motives – i) to secure access to electricity at predictable prices, ii) to ensure a green source for their power consumption for reporting and marketing purposes, and iii) to become or remain taxonomy-aligned. While these are overarching motivations for each party entering into a PPA, there are several risk factors for both sides which should be mitigated through the specific terms of a PPA. Risk factors include, among others, failing to reach commercial operation on time if the PPA is linked to a project under development and construction; reduced production volume due to technical issues; or curtailment as a result of issues such as limited grid capacity or grid incidents, changes in the applicable regulatory regime, events of default, force majeure, and termination. In the following we will take a closer look at how to reduce risk related to these elements when drafting a PPA.

Aside from often being necessary to obtain financing for an offshore wind project, PPAs are entered into in order to de-risk power market volatility for the parties involved.

## DELAYED OR REDUCED PRODUCTION

It would not come as a surprise if especially first-mover offshore wind projects experience delays in reaching commercial operation or reduced production due to commissioning issues, technical hurdles, or curtailment. Placing risk for delayed or reduced production will therefore be an important element in offshore wind PPAs in Norway. If risk related to delayed commercial operation is placed with the producer, it is important to mitigate such risk in time-sensitive supply and construction contracts entered into by the producer. Risk related to reduced production volumes will depend on the set-up of the PPA. For PPAs under which the buyer will purchase actual produced volumes, risk is limited for the producer. Under PPAs where the producer commits to deliver a specific minimum amount of power, it is advisable to include exemptions from the obligation to deliver a specific volume caused by third-party defaults or interference.

## CHANGES IN APPLICABLE REGULATORY REGIME

The regulatory framework for offshore wind in Norway is still under development. Even after the initial framework is in place, future changes can be expected to mitigate negative effects of the regulatory framework. Therefore, a PPA should include provisions which take into account that regulatory changes may require amendments to the contractual relationship between the parties to the PPA, and that such amendments shall be negotiated in good faith.

## FORCE MAJEURE

Force majeure clauses are commonly included in commercial contracts, offshore wind PPAs being no exception. Force majeure clauses in common law jurisdictions are at times based on background law. Thus, parties to a PPA should carefully check relevant background law of the governing law applicable to the PPA. In particular, parties should investigate what type of events are considered force majeure events, as well as the extent to which force majeure events relieve a party of its contractual obligations. Preferably, force majeure clauses should be customised to provide for specific risks applicable to the project in question, in order to avoid disagreement should such events occur. The waiver period triggered by a force majeure event should be adapted to account for the likely duration of potential force majeure events.

## EVENTS OF DEFAULT AND TERMINATION

The occurrence of the above-mentioned risk factors may eventually lead to a default under the PPA. Ensuring that consequences of events of default are carefully regulated in a PPA will reduce disagreement in such a situation, saving the parties time and costs. Elements to consider include liquidated damages, obligations, and limitations related to substitute purchases, as well as loss-mitigation obligations for both parties. Clear provisions on when an event of default will give a party a right to terminate the PPA is also advisable.

## FINDING A COMMERCIALLY ACCEPTABLE SOLUTION

At the early stages of the Norwegian offshore wind adventure it might be challenging to find a risk-sharing model which is commercially acceptable for all parties involved. However, carefully considering the risk factors applicable to specific projects will increase the chances of obtaining a fair and balanced PPA. A fair and balanced PPA would make it attractive to buyers, while providing sufficient security for the project's income stream; it would also ensure the PPA is acceptable to lenders, and that financing is available at reasonable cost. •

## TAXONOMY

- The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities, with the overarching aim of steering private investments toward more sustainable activities
- It applies to large companies and financial market participants and establishes reporting obligations which enter into force gradually from January 1, 2022.
- Although the Taxonomy does not create an obligation to become sustainable, it will undoubtedly increase the pressure on corporates to reduce their CO2 emissions.
- Power Purchase Agreements are suitable instruments for companies to reach their climate targets and may in some cases help entities become EU Taxonomy compliant.

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# DEBT CAPITAL FINANCING

## of offshore wind projects

**Offshore wind projects will play an important role in meeting the world's need and demand for sustainable energy going forward. Offshore wind projects make an attractive investment, due to, among other factors, their stable and heavily regulated nature, as well as their green profile and the possibility of long term cash flows.**

A number of issues will however need to be resolved in order for financing of Norwegian offshore wind projects to attract commercial financiers. Central in this regard is a legal framework to enable adequate security to be available for financiers. Existing Norwegian legislation does not contain a legal basis to allow for adequate security for offshore wind production, possibly due to it being a newer industry.

### LEGAL BASIS FOR THE CREATION OF SECURITY

Under Norwegian law, there must be a legal basis for security to be validly created over an asset. In addition to the Norwegian Liens Act (*Panteloven*), various pieces of Norwegian legislation allow for the creation of security, such as the Norwegian Maritime Code (*Sjøloven*) and the Norwegian Petroleum Act (*Petroleumsloven*). On the other hand, the Offshore Energy Act (*Havenergilova*) – which regulates offshore wind production – does not currently address provision of security.

Security typically provided in commercial finance is also available in offshore wind projects. Examples include pledges of the shares in the project company and floating charges over the borrower' movable property (e.g. inventory, operating assets, and trade receivables). Security may also include assignment of the borrower's monetary claims in respect of its bank accounts, insurance policies, loan agreements or other contracts. The borrower's most valued assets in offshore wind projects, which are the wind turbines and licenses required for use of wind turbines in power production are not sufficiently covered by the listed examples.

Further, restrictions by law on the right to transfer an asset will equally restrict the creation of security over such an asset, unless otherwise expressly provided by law. According to the white paper dated 11 June 2021 published by the Norwegian Ministry of Petroleum and Energy (*Veileder for arealtildeling, konsesjonsprosess og søknader for vindkraft til havs*), a sale of an area for offshore wind installation or a direct or indirect transfer of an ownership interest in the holder of the license will require the consent by the Ministry. This will have implications on a pledge of shares in a project company, as enforcement will not be possible without first obtaining consent.

The regulatory framework for offshore wind projects should facilitate healthy competition and diversity on both the investor and supplier side.

## WIND TURBINES AND LICENSES AS SECURITY

Floating wind turbines could arguably constitute "operating assets", allowing for security to be created in accordance with the Liens Act; based on the size and nature of the turbines, however, their status as operating assets remains uncertain. Further, floating turbines could qualify as "floating devices" (which do not constitute "operating assets"), allowing for security to be created in accordance with the Maritime Code. In 2020, one floating wind turbine was successfully registered in the Norwegian Ship Register (NOR). The registration process was time-consuming, partly due to technical requirements. As larger offshore wind project could consist of several hundred turbines, the suitability of this system for creation of security over larger offshore wind projects remains uncertain.

Turbines permanently installed and attached to the seabed (which applies to most turbines today), will not in any case qualify as either "operating assets" or "floating devices". The view that floating and bottom-fixed turbines should not be distinguished between, provides the argument that floating turbines should not be covered by these definitions either. In fact, existing legislation on offshore wind does not generally distinguish between floating and bottom-fixed turbines. Market participants would therefore likely prefer that security against floating and bottom-fixed wind turbines are established in the same form and manner. Accordingly, relying on existing legislation permitting registration of ownership to and security against floating installations in general will not suffice.

Wind turbines on land, unlike those at sea, are mortgaged together with the real estate. Since the seabed is not subject to private property rights, offshore wind turbines cannot be mortgaged in the same way, whether floating or fixed.

As for the license to operate offshore wind turbines, no legal framework currently exists for the creation of security.

As shown above, the existing legal basis for the creation of security in offshore wind projects remains unsatisfactory for potential lenders. This could inhibit necessary investments for future developments. The regulatory framework for offshore wind projects should facilitate healthy competition and diversity on both the investor and supplier side. The aim should include ensuring that both smaller and newer developers get an opportunity to participate in competition with larger, established global players. This is especially true given these global players will have the edge of a stronger existing financial base, balance sheet, and potential equity investors. Regulatory solutions should therefore be put in place as soon as possible in order to meet the growing demand for green and sustainable energy and finance.

## DEBT FINANCING

Offshore wind projects are expanding, and hold a big potential for growth under global goals to transition from fossil fuels to clean energy. This calls for the development of green and/or sustainable finance for banks and bond lenders to support. In this case, sustainable finance consists of the practice of integrating environmental, social and governance (ESG) criteria into financial services.

## GREEN BANK OR BOND LOANS

To cater to the demand for green investments and promote integrity in the green loan markets, the International Capital Market Association (ICMA), a non-profit membership association for participants in the international debt capital markets, has developed Green Bond Principles (GBP) for the issuance of green bonds. Further, The Loan Market Association (LMA) has published corresponding Green Loan Principles (GLP) for green loans.

Both GBP and GLP are sets of voluntary guidelines to clarify the circumstances in which a bank or bond loan can be considered green, and focus on use of proceeds. In order to qualify, proceeds must be designated for use within ESG. Offshore wind power is a renewable and seemingly infinite energy source, and the conversion of wind into power creates no harmful greenhouse gas – thus qualifying offshore wind projects as "green".

To issue a green bond or take out a green loan, the borrower must agree on a green framework for the project (which should be verified by an external third party), and report on the use of proceeds to the bondholders or lenders.

In addition to the voluntary standards described above, the EU has developed its own EU Green Bond standard. This is intended to be a voluntary "gold standard" for green bonds. Use of the standard would protect investors from greenwashing and, hence, allow companies and public bodies to more easily raise large-scale financing for climate and environmentally-friendly investments. The standard will use the detailed definitions of green economic activities in the EU Taxonomy, and only projects that are in line with the EU taxonomy would be eligible for funding. Use of the EU green bond label will be voluntary, It will, however, also define a framework for green assets in the capital markets.

## SUSTAINABILITY-LINKED BANK OR BOND LOANS

Both the ICMA and LMA have provided guidelines for Sustainability-linked loans (as they did for Green loans). However, it remains slightly more complicated to classify the loan as sustainability-linked, compared to the requirements to classify a loan as green. As supposed to the process for qualifying a green loan, the key to qualify as sustainability-linked is to show the borrower itself is performing in line with ESG criteria. •


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# State Aid for Offshore Wind

**There is no doubt that offshore wind needs considerable public support in order to be financially viable. However, such support must first pass the threshold of EEA state aid law. How can state aid for offshore wind be granted legally, and what sources of state aid are available in Norway and the EU?**

State aid is granted when economic advantages from public funds accrue to certain undertakings that are liable to distort competition and trade in the EEA. State aid is at the outset prohibited. However, there are wide reaching exceptions in order to rectify market failures. These clearly apply to state aid for renewable energy, which comprises offshore wind.

State aid for renewables can be found legal in accordance with guidelines published by the EFTA Surveillance Authority (ESA) and the EU Commission, and under the so-called Block Exemption Regulation. State aid can be granted as support for both investments and running operations.

The overall condition for state aid to be found legal is that the aid must facilitate the development of renewable energy production without adversely affecting trade and competition. Aid must incentivise projects that would not have taken place, or would have taken place in a less environmentally friendly manner, without public funding. Furthermore, the aid amount must be limited to the minimum necessary to incentivise the project.

The overall condition for state aid to be found legal is that the aid must facilitate the development of renewable energy production without adversely affecting trade and competition.

As of January 2022, the current Guidelines on state aid for environmental protection and energy (the "EEAG") will be replaced by the Climate, Energy and Environmental Aid Guidelines ("CEEAG"). Certain novel conditions will be introduced, which will set the course for future aid schemes for offshore wind. The most important conditions include that:

- State aid measures must, at the outset, be technology neutral. It is possible to limit aid schemes to offshore wind, but the granting authority must provide justification acceptable to ESA or the EU Commission
- Aid should in general be granted through a competitive bidding process

## STATE AID FOR OFFSHORE WIND IN THE EU

An array of European states grant financial support to offshore wind energy technology and production. For example, Germany, the UK and France have granted aid for several individual plants, in addition to having vast schemes with available state aid in place. Some schemes comprise all renewable energy production, while others are directed to offshore wind in particular.

Operating aid is the most common. This takes several forms, that are often designed along the following lines:

- Feed-in tariffs (FiTs); all electricity produced is collected by an independent entity, which places it in the market. Producers are guaranteed certain prices
- Feed-in premiums (FiPs); electricity producers sell their electricity directly on the power market, for which they get the electricity market price and a premium (fixed or variable) as a support element on top of it
- Contracts for difference (CfDs); these entitle the electricity producer to a payment equal to the difference between a fixed 'strike' price, and a reference price per unit of output. Contracts for difference may also involve paybacks from beneficiaries to taxpayers or consumers, should the reference price exceed the strike price (called "two-way contracts for difference")

The CEEAG clearly favours more market-integrated aid instruments that have less distortive effects on competition. CfD schemes are found best in that regard, while FIT schemes, considered the least favourable, are largely being phased out.

Neither FiTs, nor FiPs, are likely aid instruments in a possible future operating aid scheme in Norway.

## STATE AID FOR OFFSHORE WIND IN NORWAY

At present, the 'green certificate scheme' represents a type of operating aid for renewable energy production, whereby producers obtain additional income from the sale of green certificates that energy suppliers are obliged to purchase. However, the scheme is being phased out – no new plants will receive green certificates after 31 December 2021. No offshore wind farms will make this deadline. It is unclear if the scheme will be replaced by other means of operating aid.

Investment aid, on the other hand, is granted by several sources that focus on different levels of technological maturity.

Aid for late-stage technology development and early market introduction can be granted by the Norwegian government enterprise Enova. Enova has financed offshore wind projects at different maturity levels, the biggest being Equinor's Hywind Tampen project (88 MW). This consisted of a direct grant of NOK 2.3 billion for the realisation of Norway's first floating offshore wind (FOW) farm. The wind farm will partially cover the energy needs of the Snorre and Gullfaks fields, and aims to facilitate the development of industrial solutions as well as drive down costs for the whole of the FOW industry.

Innovation Norway, a state-owned company and national development bank, is another entity with support-schemes in place. They can support research and development activities for less mature technologies within renewable energy, including offshore wind. Lastly, the Research Council of Norway provides support for offshore wind technology in the earliest stages of research and development. In 2020, the Council established NorthWind, a research centre for both wind energy in general and offshore wind in particular, pairing research institutions and the industry.

## PLANS FOR STATE AID TO FUTURE OFFSHORE WIND PARKS IN NORWAY

A June 2021 white paper published by Norway's previous government, stated that bottom-fixed offshore wind projects in the Sørlige Nordsjø II area are expected to be developed on a commercial basis, without state aid. Meanwhile, large-scale FOW projects in the Utsira Nord area may obtain financial support from Enova.

The government also indicated that future FOW projects must have a considerable capacity (up to 200-500 MW) in order to contribute to further technology development. It is acknowledged that this will require state aid worth several billion NOK. The government will therefore consider increasing Enova's budget when the allocation of concessions at Utsira Nord draws nearer.

Any new support programs from Enova will, at the outset, have to comply with the new CEEAG condition on technological neutrality. Should Enova wish to put in place programs specifically directed towards offshore wind, they will first have to convince ESA to approve this.

Norway's new government took office in October 2021, and have declared an intention to facilitate offshore wind as part of their new policy (Hurdalsplattformen). It remains to be seen, however, whether they will choose a different approach to state aid. •

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Floating offshore wind

# How to structure technology development

**Technology development within offshore wind, particularly floating offshore wind, is expected to continue at a significant pace in the coming years. How could such technology development be structured, and what should the involved parties be aware of and take into consideration?**

The announcement of offshore wind licences in the Utsira Nord area, where conditions are suitable for floating offshore wind, gives high hopes that the Norwegian offshore industry can take a leading role within this field both domestically and internationally. However, in order for floating offshore wind to be commercially viable on a large scale, further development of floating wind technology is necessary.

Due to the need for technology development, companies intending to apply for licences for floating offshore wind will likely need to either develop new technology and intellectual property rights by themselves, or together with third parties. Simply relying on existing technology might not be a viable alternative for those who intend to apply for licenses.

## STRUCTURING TECHNOLOGY DEVELOPMENT – AN OVERVIEW

Development of new technology and intellectual property rights may be structured in different ways. The best structure will depend on the particulars of each project, such as the resources and knowledge of the licence applicant(s), and whether they need to engage or cooperate with third parties. Most of the companies interested in applying for a licence will likely focus on operating the wind farms, and may not have the required expertise to design and develop the floating technology on their own.

In the following sections, we will focus on the situations where new technology and intellectual property rights are developed together with third parties. These types of projects are normally structured as non-incorporated development (or cooperation) projects. The involved parties usually enter into cooperation, consortium, or innovation agreements, which set out each party's rights and obligations.

These agreements typically include clauses detailing each party's contributions, a project schedule/plan, and detailed rules on intellectual property rights. In addition, such agreements often include rules on project governance, use of sub-suppliers, confidentiality, breach of contract, and/or limitation of liability clauses. If the project is receiving grants, conditions set by funding authorities also need to be taken into account.

## REGULATING INTELLECTUAL PROPERTY RIGHTS IN TECHNOLOGY DEVELOPMENT

Intellectual property clauses normally require the most attention when negotiating and drafting technology development agreements. In this respect, parties normally require protection for the intellectual property they bring into a project, commonly referred to as the 'background intellectual property rights' or 'project background'. This is a core principle which everyone usually agrees upon.

The parties also need to agree on rules regarding ownership of any intellectual property which may be developed in the project, often referred to as the 'foreground intellectual property rights' or 'project results'. Additionally, other aspects related to intellectual property rights may also be relevant and necessary to include; for example, a single party may wish to be entitled to keep certain intellectual property rights developed during a project.

The specific regulations on ownership of new intellectual property rights depend on the project and the parties involved. If all parties contribute with relevant background intellectual property rights, a starting is often models with joint ownership or sole ownership based on whose intellectual property rights the new rights are based on. Further, if contributions from one or more parties remain limited to financial contributions (or making available testing facilities and the like), a common starting point is to not grant them ownership rights.

The above only demonstrates starting points subject to tailoring for each project. A wide range of different contractual regulations may be sought, and the end result of negotiations between cooperating companies may deviate substantially from the above referenced principles. In certain projects, the parties may for example agree that a single party should own all new intellectual property rights, and subsequently commercialise the product. This could be combined with clauses requiring transfer of the intellectual property rights, or the granting of perpetual licences, if commercialisation is not achieved within a certain time period. Further, the parties who only contribute financially may require ownership rights, licences, royalty payments, a preferred customer status, or similar, in return for their contribution.

In order for floating offshore wind to be commercially viable on a large scale, further development of floating wind technology is necessary.

In order for floating offshore wind to be commercially viable on a large scale, the overall project costs have to be reduced. Allowing suppliers to develop and deliver new solutions to several companies, may be an important factor in order to obtain such cost reductions. Both the suppliers and offshore wind project owners will need to work together to ensure technology development, and the commercial viability of future projects. As outlined above, a wide range of different strategies may be used in order to achieve this. •

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# BIMCO ASVTIME

**Earlier this year BIMCO expanded their suite of offshore contracts by launching the new standard time charter for accommodation support vessels. Wikborg Rein participated in BIMCO's drafting committee for the form, and set out an overview of its key features below.**

The ASVTIME is intended for use in the renewables as well as oil and gas sectors of the offshore industry. Within a rapidly developing offshore wind industry, the form is a useful basis for chartering of walk-to-work vessels (WTWs) and service operation vessels (SOVs) – in particular as the offshore wind farms move further offshore. The form is based on SUPPLYTIME (the longstanding industry standard time charter for offshore service vessels), but incorporates several features from the WINDTIME (a form developed for crew transfer vessels in the offshore wind industry). The objective has been to develop a new form that builds on well-established industry precedents, all the while adding tailor-made features for vessels; these vessels have the primary function of providing accommodation for personnel performing offshore installation, operation, and maintenance work. BIMCO's drafting committee consisted of members from Deme, Eni, Floatel International, Hagland Shipbrokers, Siemens Gamesa, Wagenborg, Wikborg Rein, and Ørsted.

## SERVICES

In addition to the general description of the chartered vessel, it will be no surprise that ASVTIME contemplates a detailed specification of the accommodation, recreational facilities, office space, workshops, and other areas available for the charterer's use, as well as the catering to be provided to the charterer's personnel. The form also considers a detailed description and limitation of the number of charterer's personnel permitted on board.

Vessels providing accommodation services may also perform ancillary functions that are very important for the charterer's use of the vessel. ASVTIME therefore include provisions regarding optional equipment that may be available on the vessel, including walk-to-work gangways, cranes, an offshore bunkering system for charterer's crew transfer vessels, and daughter crafts provided by the shipowners. The operational requirements for such optional equipment will need to be specified, as well as the environmental limits within which it can function. This equipment would generally not be available on a 24-hour basis, and the number of operational hours per day therefore also needs to be specified. Since "parallel operations" of the optional equipment may require particular planning, organisation, and use of the same specialised crew, the form allows for specification of if and when such parallel operations may be required by the charterers.

## OFF-HIRE AND REDUCTION OF HIRE

The new form offers a traditional off-hire regulation for situations where the vessel is prevented from working, during which the charterer's payment obligation is suspended. In case of breakdown or unavailability of any of the optional equipment, the off-hire regulation may however not be satisfactory. From the shipowner's perspective, the vessel is still providing the key vessel- and accommodation functions, and the shipowner should therefore receive remuneration for the same. In such a case, the charterer may face issues due to the unavailability of the optional equipment, but may not be able to substantiate that the vessel is prevented from working or that there is a loss of time resulting in a corresponding off-hire period.

ASVTIME seeks to resolve this challenge by introducing a separate regime. In this regime, parties can specify a percentage by which the hire may be reduced – in the case of unavailability of the optional equipment – upon entering into the contract. The regime is not, however, mandatory. It provides that the charterers may request the continued performance of the vessel without the optional equipment, but at a reduced rate. If the shipowners consent, the reduction of hire applies. If the consent is not forthcoming, the charterers would need to rely on the general off-hire regime to the extent applicable.

## EXTENDED OFFSHORE OPERATIONS AND OFFSHORE BUNKERING

Another typical aspect with vessels providing accommodation services is that they may remain at the area of operation for extended periods of time, and not have regular port calls such as other offshore service vessels. Issues that arise in relation to such extended offshore operations are addressed in a separate clause. This clause divides the responsibilities for crew change, delivery of fuel, stores, and other provisions, as well as vessel surveys or inspections that cannot be undertaken offshore. The provision is based on a special annex to SUPPLYTIME that has recently been developed by BIMCO. Given that provisions in this annex are likely to be very relevant for vessels providing accommodation services, it was decided to include them in the ASVTIME.

The form also includes provisions for the use of an offshore bunkering system on the vessel, for bunkering of crew transfer vessels provided by the charterers. The provisions thereby seek to provide a contractual framework for a common practice in the offshore wind industry.

## OTHER KEY FEATURES

Several other key features in ASVTIME should be noted, including that:

- **Delayed delivery** is addressed in a similar way as under WINDTIME. In addition to the right to cancel the charter, parties need to specify if the charterers would (i) be precluded from claiming damages, (ii) be able claim damages based on the applicable background law or (iii) be allowed specified liquidated damages.

- **Charter period extension** to complete the immediate task undertaken is adjusted for the contemplated scope of use of the form.

Within a rapidly developing offshore wind industry, the form is a useful basis for chartering of walk-to-work vessels (WTWs) and service operation vessels (SOVs) – in particular as the offshore wind farms move further offshore.

- **Fuel** is traditionally provided by the charterers under a time charter, but ASVTIME includes the ability for this to be provided by the shipowners and reimbursed by the charterers to reflect a common practice in the offshore wind industry.

- **Maintenance allowance** amounts to 24 hours per month on a cumulative basis. During such periods the vessel will remain on-hire whilst performing maintenance, dry-docking, statutory, or mandatory surveys or inspections. However, unlike in SUPPLYTIME, the reference to "repair" is not included in order to avoid maintenance allowance used for repair of damages, rather than solely preventative repairs. Surveys are furthermore only included to the extent that they are "statutory or mandatory".

- **Liabilities and indemnities** follow the typical structure in offshore contracts with a knock-for-knock liability regime for damage to personnel and property. This with the aim of a shipowner only being responsible for pollution emanating from the vessel, and mutual exclusion of special, indirect, and consequential losses. Similarly to WINDTIME, there is also an ability to specify a cap on the parties' contractual liability. However there is no default size of the cap, as it was considered more appropriate for the parties to decide this on a case-by-case basis rather than BIMCO making a generic suggestion. Further, the insurance obligations have been made mutual between the parties, and the annex for insurances have also been updated to reflect industry practice for these types of vessels. We consider it to be a particularly positive development that yet another (of very few) standard contracts for vessels in the offshore wind industry includes knock-for-knock as the applicable liability model.

- Certain adjustments linked to the key accommodation service are also made in the *infectious or contagious diseases, war risk, and ice clauses.* The adjustments are made to reflect that the vessels will typically not carry any substantial cargo, but rather have a large number of people on-board.

**SUMMARY**

Although the SUPPLYTIME is intended for offshore support vessels, it has in practice also been used for decades with bespoke adjustments for accommodation service vessels in the offshore oil and gas industry. By developing a specialised form for accommodation service vessels, BIMCO has provided yet another useful standardisation for the benefit of industry participants. Although the market for these types of units is relatively small, the form will hopefully be of particular use for vessels in the offshore wind industry as it continues to develop. •

By developing a specialised form for accommodation service vessels, BIMCO has provided yet another useful standardisation for the benefit of industry participants.

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# CHARTERPARTIES FOR WIND TURBINE INSTALLATION VESSELS

**An important part of every offshore wind project is the installation of wind turbines. Installation of modern bottom-fixed offshore wind parks require specialised turbine installation vessels (WTIVs) to perform impressive lifts in challenging conditions. Currently, there is limited number of vessels available for these projects, in particular as wind parks are developed further offshore and with larger turbines. The charters for WTIVs are often fixed a couple of years prior to the project execution and accordingly, negotiation of the charterparties for these vessels is critical for a project's success.**

Whilst BIMCO forms exist for for example service operation vessels which can be fixed on ASVTIME and crew transfer services which can be fixed on WINDTIME, BIMCO has yet to develop standard charterparties for installation services. The industry players therefore often rely on heavily amended SUPPLYTIME charterparties or inhouse standards. While the SUPPLYTIME gives a good starting point for offshore services, several modifications are necessary to make the charterparty fit for installation services.

## SCOPE OF SERVICES

Although a charterparty for WTIVs will require several special contractual features, the WTIVs are typically fundamentally chartered under time charter structures. As with any time charterparty, the scope of services needs to be defined, and in the case of WTIVs, shipowners will essentially be required to provide a specific turbine installation vessel with warranted individual capabilities available for the charterer's instruction.

Because offshore wind turbines vary from project to project, it is often also necessary to include provisions for modifications to the WTIV such as installation of grillage. Shipowners seldom take on turn-key obligations to install turbines, and even if the offshore wind industry has matured, we do not expect shipowners to take on significant installation risk.

## CHARTER PERIOD

The charter period also need careful consideration. Due to the need for long time planning and the pressed supply of WTIVs in the market, there is as mentioned above often a significant period between signing and delivery. Parties therefore need to balance charterer's need for flexibility with the shipowners need to have the vessel on hire and to build a backlog for several projects. A compromising solution is typically to give the charterer's a wide delivery window, which is successively narrowed by charterer's notices at agreed intervals until delivery.

Because the installation of the wind turbines is often on the critical line, we also see that shipowners are liable for liquidated damages for delayed delivery, even if certain charterparties only include cancellation without liability or cancellation without prejudice to other rights in the event of delay.

The charterer may also need flexibility after delivery, given the uncertainty of the length of the project. Therefore, charterparties often include options for

extensions, such as (i) extension for a set time period, (ii) extension to complete an ongoing turbine installation, and (iii) extensions for downtime periods.

## CHARTER HIRE

In order to address specific risks that arise in offshore wind installation projects, the charters often operate with a differentiated rate structure. In such rate structures, the risk for the vessel being prevented from working is allocated either to the charterer or the shipowner, depending on the cause of the delay. For the shipowner it is important to specify, as the clear base case, that the standard full operating rate applies as long as no other special rates are applicable.

Most charterparties include standby rates which apply when the charterer instructs the vessel to wait, for example to standby in port while waiting for the next turbine delivery. This rate is usually not much lower than the standard rate (typically only reflecting the reduced OPEX of the shipowner during standby). Specific rates typically also apply when force majeure situations prevent the vessel from working. Here we see solutions where the charterer takes the full risk or where the parties share the risk by reducing the rate, for example by half, while force majeure persists.

Every charterparty also include an offhire / zero rate and considerable time is often used to negotiate this rate. For the shipowner, being on hire is critical to cover interest payments on capital expenditures for expensive WTIVs, while for the charterer every day the installation campaign is delayed may lead to lost earnings.

Offshore wind parks are constructed in areas with sufficient wind to support an effective energy generation, and there is therefore always a risk that challenging weather conditions will prevent installations. The weather risk is often divided by the parties such that the shipowner takes the risk for being prevented from operating in weather conditions within set WTIVs warranted capabilities, while the charterer takes the risk for weather conditions above such WTIVs warranted capabilities.

WTIVs are often based on jack-up technology, and the seabed and subsoil conditions therefore becomes another key area to consider in relation to performance of services. While considerable time is spent analysing the ground conditions of the wind park, there will never be full visibility on the seabed and subsoil conditions due to the enormous area covered by modern offshore wind parks. In practice we therefore typically see that the shipowner only takes the risk for challenges in seabed and subsoil conditions which it ought to have discovered based on the information provided by the charterer, while the charterer takes the risk for other challenging conditions.

Although shipowners in our experience will not take the full installation risk as such, some charters contain bonus / malus regimes linked to the number of turbines installed within a given timeframe.

## LIABILITIES

Lastly, during the course of installation, turbines, the vessels and other property or personnel may suffer damage. For offshore oil and gas services the knock-for-knock liability model has been well established as the industry standard for decades – providing that each party covers and takes out insurance for the risk of damage to its own personnel and property irrespective of fault and cause. The knock-for-knock model is considered an economically efficient way of distributing risk, and is fortunately also gaining ground as the standard in the offshore wind industry. However, in practice we see some deviation from this principle – typically that the shipowner is liable up to the amount of the deductible under the charterers insurance where the loss is caused by negligence of the shipowner. Parties are well advised to confirm deviations from the knock-for-knock model with its insurers.

## CONCLUSION

As the offshore wind industry develops further we expect to continue to see heavily amended SUPPLYTIME-forms or in-house standards as the starting point for charterparties for installation of offshore wind turbines. With BIMCO having taken a proactive approach by the developed WINDTIME and ASVTIME, reinforced by the momentum of the offshore wind industry, we also hope to see BIMCO developing a standard charterparty fit for installation. •

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# Offshore Wind Projects in China: KEY LEGAL ISSUES

**For those who are interested in the Chinese offshore wind market, it is crucial to understand that the Chinese regulatory framework for this sector is complicated and comprehensive, covering the whole value chain.**

Offshore wind investments in China have been under the spotlight following a global wave of capacity increase in recent years. This article provides a general introduction to some key legal issues – such as corporate, license, HSE, and maritime safety – related to project establishment and project construction for offshore wind EPC projects in Chinese waters.

## 1. PROJECT ESTABLISHMENT

### PROJECT PERMISSION

The owner of an offshore wind project (the "**Owner**") is responsible for obtaining necessary administrative permissions for implementing the project. Meanwhile, the EPC contractor (the "**Contractor**") may also be required by the Owner or the relevant regulations to obtain certain permissions/certificates to be deemed qualified. The following sets out the main requirements in order to obtain project permission:

**1. Business license**
A business license is a certificate of incorporation of a company. It is a document required for all businesses involved, including the Contractor, to be able to engage in any offshore project within China.
**Responsible party(s):** Owner and Contractor.

**2. Feasibility study report**
This report must be issued by a qualified professional institution that has analysed the feasibility of the project and must be filed with the relevant authority.
**Responsible party(s):** Owner.

**3. Preliminary project siting (use of maritime area) opinion from competent local Oceanic Administration**
The main purpose of this document is to ensure that the selection of a project site complies with the sea planning.
**Responsible party(s):** Owner.

**4. Approval for wind power generation projects issued by the competent National Development and Reform Commission ("NDRC")**
This is an important approval as well as a material step for the project permission.
**Responsible party(s):** Owner.

**Selected issues to be aware of**
It is important to keep in mind that before signing of the EPC contract, the Contractor must review the above items to ensure the project is compliant.

It is also important to be aware that some documents are pre-conditions for obtaining the others. Documents no. 1-3 above must be obtained before document no 4. Document no. 3 must be obtained before starting an application for permits required for HSE (see below).

In addition, every year, the National Energy Administration and State NDRC will issue and publish a list of the wind power projects pre-approved for construction. Being included in this pre-approved project list is a pre-condition for obtaining documents 2-4.

### HEALTH, SAFETY AND ENVIRONMENT ("HSE")

**A. Environment**
**1. Report and Report Form on Environmental Impact Assessment ("EIA") with approval from the competent local Oceanic Administration**
This report is to analyse the environmental impact which might be caused by the project. It must be issued by a qualified environmental impact assessment agency before one submits it to the authority. Failure to maintain an EIA entails risk of the project being terminated and/or fined.
**Responsible party(s):** Owner.

**2. Certificate from local competent authorities that the project does not involve important, sensitive, and fragile ecological areas nor ecological red lines**
Breach puts the project at risk of being demolished or relocated.
**Responsible party(s):** Owner.

**B. Health, Safety:**
**1. Review Opinions on Seismic Safety Assessment Report by administrative departments or institutions**
Failure to obtain such document will put the project at risk of facing punitive fines.
**Responsible party(s):** Owner.

**2. Review Opinions on Occupational Health Evaluation Report by competent Supervision and Administration of Work Safety**
Occupational and operational safety is strictly regulated in China. Without this document, the project is at risk of being terminated or subject to punitive fines.
**Responsible party(s):** Owner and Contractor.

**3. Registration of Offshore Facility with Offshore Oil Safety Department ("OSD" )**
This is a procedural filing requirement and failure to do so will be subject to punitive fines.
**Responsible party(s):** Contractor.

**Selected issues to be aware of**
HSE is heavily regulated in China. There are various HSE-related registrations, approvals, and permits that must be obtained before project construction. The above overview is therefore not exhaustive and there are a variety of further documents and permits that should be obtained for employees engaged in offshore construction/supply work.

In addition to the documents and permits to be obtained from public authorities, Owners and Contractors are also required to establish a safety management system in accordance with the applicable laws and regulations overseeing the lifespan of an offshore project.

## 2. PROJECT CONSTRUCTION

### THE BIDDING PROCESS

Offshore wind EPC projects fall within the scope of "large-scale public infrastructure". Pursuant to the Chinese Bid Invitation and Bidding Law, the surveying, design, construction, and supervision of the project, as well as the purchase of key equipment and materials for the project, are all subject to bidding procedures.

### CONSTRUCTION PERMISSIONS

**1. Land planning permit for construction project**
This permit is to certify that the project site meets the Chinese government's planning for usage of the sea. Without this permit, the project risks being demolished or relocated.
**Responsible party(s):** Owner .

**2. Project planning permit for construction project**
This permit is needed to certify that the project construction meets the Chinese government's facility planning. Without this permit, the project risks being demolished or relocated.
**Responsible party(s):** Owner.

**3. Construction permit for construction project**
This is a permit certifying that the selection, qualification, and capacity of the Contractor meets the requirements of relevant Chinese laws and regulations.
**Responsible party(s):** Contractor.

**4. Maritime traffic permit**
This permit must be obtained to ensure that the Contractor is able to conduct offshore construction work and use offshore vessels for the work.
**Responsible party(s):** Owner.

**Selected issues to be aware of**
All registrations, approvals, and permits which must be obtained at the project permission stage are preconditions for the government to grant all permits and give a green light for commencement of construction.

If the project needs to construct any submarine cables, a submarine cable routing and laying construction permit is required as well.

## 3. CONCLUSION

Even if the Chinese regulatory environment for offshore wind EPC construction projects might appear daunting, a well-regulated legal environment provides predictability, and our experiences evidence that the process can be manageable. However, knowing the requirements and planning well alongside experienced advisors is essential for Owners and Contractors in offshore wind projects. As the old saying by Aristotle goes, "well begun is half done". •

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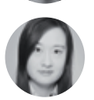
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Post-Trump: The Winds of Change

# Opportunities for offshore wind farm installation vessels in the US

**Despite the USA having what has been described as a “globally significant wind resource”, the development of the offshore wind industry in the United States has had something of a slow start, with only 5 electricity generating turbines currently in operation in US offshore waters with generating capacity of only around 30 MW.**


Photo: dominionenergy.com

Despite the USA having what has been described as a "globally significant wind resource", the development of the offshore wind industry in the United States has had something of a slow start, with only 5 electricity generating turbines currently in operation in US offshore waters with generating capacity of only around 30 MW.

US shipyards have a tradition of building high quality vessels, the costs of construction in the US are generally regarded as being significantly higher than the equivalent construction costs at for example a South Korean or Chinese shipyard.

Photo: dominionenergy.com

By way of comparison, Europe has over 5,000 grid connected offshore wind turbines spread across 12 countries with capacity of approximately 25 GW (1 GW equals 1000 MW).

## CHANGING SENTIMENTS TO OFFSHORE WIND IN THE US

Why the US are so late to the party is without doubt partly due to a lack of political will on the part of successive presidential administrations to take on the hugely powerful fossil fuel lobbies in the USA. Clearly, scepticism to the efficacy of renewable energy sources, and offshore wind in particular, has also played a role. Indeed, as recently as December 2020, President Trump, widely credited being a renewables sceptic, was quoted as saying "*I never understood wind... You know I know windmills very much. I've studied it better than anybody. I know it's very expensive.*".

With the election of a more climate-conscious Biden Administration in January 2021 however, it seems that the situation is set to change, with President Biden pledging within his first few weeks in office to deploy 30 GW of offshore wind in the US by 2030.

This is clearly a hugely ambitious target and one that will require a very rapid scaling up of the US's domestic offshore windfarm component supply chain, vessel spread (in particular the highly specialised wind farm installation vessels) and port infrastructure needed to service this fledgling industry. In doing so, they will undoubtedly have to leverage off and rely heavily on the vast reserves of knowledge and experience built up over the past 20 years in the European sector (just as the North Sea oil industry benefitted from the knowledge and experience of the US oil industry back in the 1970s), thus presenting a myriad of opportunities for the more experienced European and other industry players.

## THE EXTENT OF THE OPPORTUNITY

For owners of wind farm installation vessels however, the opportunities for directly deploying their tonnage are likely to be limited by the impact of various US protectionist laws built into US federal law, including the Merchant Marine Act of 1920, more commonly known as the "Jones Act", which requires that all goods transported by water between US ports be carried on ships that have been constructed in the US and that fly the US flag, and are crewed and owned by US citizens and/or US permanent residents.

The impact of the Jones Act therefore effectively precludes vessels built and owned outside of the US from being employed in connection with the construction of US offshore wind farms, unless they operate out of non-US ports (e.g. in Northern Europe or Canada), and/or receive components and crew delivered by Jones Act compliant feeder vessels, neither of which present particularly efficient solutions in the context of a large scale infrastructure project located close to the US seaboard.

Non-US vessel owners will therefore have to look at more creative options if they are to gain any market share, either by accepting more of an advisory role or by looking at establishing US subsidiaries or joint ventures which pass the "US owned" test and which can then contract for US built vessels.

Whichever way we look at it however, in order to deliver on President Biden's ambition, a newbuilding programme will be required to build a new US flagged, US built fleet of wind farm installation vessels.

Whilst US shipyards have a tradition of building high quality vessels, the costs of construction in the US are generally regarded as being significantly higher than the equivalent construction costs at for example a South Korean or Chinese shipyard (with estimates ranging from the costs being anywhere between 50 and 100% higher). For those that can swallow such costs however, the future employment opportunities, particularly for those who are first to market, look extremely positive.

## FIRST TO MARKET

In readiness to meet the projected demand, the first industry player to place an order for a Jones Act compliant wind farm installation vessel was Virginian power and energy company, Dominion Energy who contracted with Keppel Amfels in Brownsville, Texas (a US subsidiary of Singapore's Keppel Offshore and Marine) in 2020 for the construction of a Gusto-MSC designed wind farm installation vessel with crane capacity of 2,200 tons. The vessel, to be called "CHARYBDIS", is expected to be operational in late 2023 and will be deployed first to assist Ørsted with the construction of the 704 MW Revolution Wind and 880 MW Sunrise Wind developments off the US North Eastern seaboard before supporting construction of Dominion's own 12 MW Coastal Virginia Offshore Wind pilot project off the coast of Virginia.

UK based owner Seajacks International, who themselves were one of the first to market in the wind farm installation sector in the North Sea, are assisting Dominion Energy with construction supervision and operations oversight.

Wikborg Rein LLP has assisted Seajacks International with various aspects of its role as construction and operations advisor to Dominion Energy. •

## THE MERCHANT MARINE ACT

The Merchant Marine Act of 1920 is a United States federal law which provides for the "promotion and maintenance of the American merchant marine" and amongst other things regulates maritime commerce in US waters and between US ports. The act requires, inter alia, that goods transported by waters between US ports be carried on ships that have been constructed in the USA, that fly the US flag and are owned by US citizens and are crewed by US citizens and US permanent residents. The act was introduced by Senator Wesley Jones who lends his name to the act's more common moniker, the "Jones Act".

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Coming of age, what to do with mature wind farms?

# EXTEND, REPOWER OR DECOMMISSION?

**At a time when many nations are expecting an explosion of new leasing rounds to meet the gap left by the phasing out of fossil fuels (and in some jurisdictions, nuclear power), it might seem odd to consider the 'end of life' options for wind farms – whether lifetime extension, repowering or decommissioning. However, wind turbines have an operational lifetime of 20-25 years. For the original offshore developments in the North Sea, this may be shorter as technology, fabrication and construction knowledge has developed rapidly over the past 20 years.**

It is thought that repowering might reduce the number of turbines by a third while multiplying electricity output by as much as three times.

Already, we have seen the UK's first pilot offshore wind project, Blythe Offshore (commissioned in December 2000) decommissioned in 2019, with one (of the two) turbines recycled and the other being re-erected as a training facility in Blythe Harbour, so this is not a topic which is far from existing operators' minds.

This article briefly considers the options available for UK wind farms (lifetime extension, repowering or decommissioning) that are approaching the end of their (initial) operating life.

## LIFETIME EXTENSION

The availability of the lifetime extension will depend on the existing condition and design-life of the wind farm**.** In principle, no major aspects of the wind farm are replaced as part of the extension, but instead, repairs and maintenance take place.

It is thought that lifetime extension offers the lowest investment cost of the three options, preserving the farm's annual electricity production for an additional 10 or even 15 years (with further investment). As offshore wind learnt much from the pioneers in offshore oil and gas, there is significant scope of lifetime extension (which has consistently added 5, 10 or even 20 years to predicted asset lifespans for assets in the North Sea).

Industry commentators suggest that half of Europe's existing wind farms will have their lifetime extended for 5-10 years once they reach 20 years of operation.

## REPOWERING

In essence, 'repowering' a windfarm means replacing the older (smaller of 1-3MW) turbines with next-generation (larger) turbines which now reach 6-8MW and even 10-15+MW in the next 15 years.

It is thought that repowering might reduce the number of turbines by a third while multiplying electricity output by as much as three times.

According to industry commentators, partial repowering (that is, not undertaking major infrastructure works such as re-piling/new subsea caballing) offers a maximum return to developers, extending a wind farm's lifespan by 25 years and increasing existing developments' electricity generation by as much as 34,000 GWh. Full repowering offers a lower return, as infrastructural changes are required as opposed to merely replacing turbines.

In theory, it could become common practice that established wind farms are routinely repowered with developments in floating wind/fixed base construction techniques allowing farms to continue towards the middle to end of the century, after all, offshore wind doesn't face the greatest challenge of fossil fuels – finite supply.

## DECOMMISSIONING

As a last resort, wind farms may be decommissioned by completely removing the farm's foundations, turbines and cables. This is the least cost-effective option as it does not create future revenue and involves a greater risk of delays and extra costs. It is also, perhaps surprisingly, the option with the highest environmental cost as turbine blades are difficult to recycle and the removal of subsea cables and installations will require huge amounts of energy, almost all of which is currently generated by fossil fuels.

In the UK, the process of decommissioning is governed by Sections 105-114 of the Energy Act 2004, which imposes obligations on those responsible for offshore installations to prepare and carry out a decommissioning programme. The regime aims to reduce the risk of companies defaulting on their liabilities whilst ensuring that it does not impose obstacles to new offshore clean energy developments.

In support of this, the Crown Estate (as the owner of the sea bed in the UK) works in tandem with the Government to reduce duplication of requirements and simplify the scheme, providing a 'one-stop shop' for decommissioning. As such, developers are only required to prepare and submit one decommissioning programme to the Department of Energy and Climate Change (DECC).

Developers are encouraged to consider decommissioning plans at an early stage, and in any case, before construction begins. The plan should be in line with Government decommissioning standards and should cover proposed decommissioning measures, environmental impact assessment, costs, proposed financial security provisions and post-decommissioning site management, amongst other areas, which are detailed in the Government guidance.

## CURRENT UK POLICY

The scheme under the Energy Act 2004 endorses a "polluter pays" principle for decommissioning (imported from the Petroleum Act 1998).

However, in the Government's Ten Point Plan published in November 2020, the Government set out plans to deploy 40GW of offshore wind power by 2030 and there are concerns that the decommissioning of existing farms could result in missing the target.

It is thought that around 1,600 wind turbines are set to be decommissioned in the UK by 2030. Thus, whilst the Energy Act scheme provides a decommissioning framework, it seems that Government policy is currently far more focused on expansion, without (perhaps) much consideration for how decommissioning will come into play and affect targets.

Does this suggest that lifetime extension and repowering will become the norm? Time will tell, but if the UK is to reach net-zero by the middle of this century then offshore wind will have a substantial part to play and the UK government will need owners and operators to maximise offshore wind capacity, not decommission it. •

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FROM EAST ANGLIA TO EAST ASIA

# A commercial perspective on the development of offshore wind in Taiwan and further afield

Alex Hookway, a Senior Lawyer in Wikborg Rein's Renewables Team, sat down with Sam Stout, Managing Director of Colebrook Offshore[1] in London. They discussed the current status of offshore wind in the Asia-Pacific, the (sometimes painful) lessons learned from the early wind farms in Taiwan and further afield, and what's next for wind energy in the region.

1 CBO is a fully independent and dynamic vessel procurement specialist, focused on providing solutions to the Renewables and EPCI market. (http://www.colebrookoffshore.com/)

**Sam, thanks for speaking with us today – what's currently keeping you and your team busy?**

Thanks for the invite – the bulk of our work in SEA is in Taiwan at present as the main renewables market in South-East Asia, focusing on the construction phase of the first initial wind farms in Taiwan (Formosa and Yunlin amongst others). So this year we've had 13 or 14 vessels on hire in Taiwan that have been focused on the installation campaigns for those wind farms.

**You've been involved in many of the North Sea campaigns over the years – what's different about working in Taiwan?**

Because it's a new market, people are still getting used to the local content and regulatory systems. The local regulations and processes are a world away from operating in the North Sea – it's essential to get to grips with what is required at the earliest opportunity, particularly for local crewing requirements where there may not be an established base of Seafarers with relevant experience. It's also fair to say that the local regulatory framework has developed significantly over the past 3 years as the market matures – and Taiwan does present challenging operational conditions.

**So how do these local conditions impact vessel procurement and rates?**

Rates for projects in Taiwan remain strong, but the impact of COVID – particularly quarantine and crew change costs – are being felt, though often not in the rates themselves. For vessel procurement, when operating in Taiwan first and foremost the Vessel has to have been built outside the PRC, which instantly limits the market. The first impact of this was felt when Charterers were looking to secure larger barges but it's an issue that persists with a variety of asset types.

**Which was never historically an issue in the North Sea...**

Exactly! All part of the learning curve working in Taiwan. Another difference from the North Sea is the Vessel flag and CR Class requirements. Not an uncommon practice in certain markets, but in Taiwan to bring in a foreign flag asset you need a permit from the MPB and Bureau of Energy. That gets approved, and then you are allowed to bring a foreign flag vessel in but to do that there need to be no blockages from local vessels.

As local owners are increasing their reach in terms of their partnerships with international owners and bringing vessels in – classing them and re-flagging them – they can lodge a block on those permits. So you can't bring in a foreign-flagged asset if there is a block from a locally flagged asset until that blockage is removed.

**So are JVs the solution for established foreign contractors, or are there other options?**

It varies a little, it doesn't necessarily have to be a JV depending on the asset or work scope. There are certain licenses required for particular work roles and some of these can only be obtained through a local entity. So care and consideration need to be given to the specific work role the vessel will be performing, and which licenses might be required to comply with local regulations.

**Taiwan is keeping you busy now, but what's next?**

There is a high degree of confidence in that market and as we move to O&M phases there will be requirements for long term SOVs to service the fields. Beyond Taiwan, we see Korea, Japan, and Vietnam being big growth markets from the middle of the decade onwards. They will vary in the requirements for vessels; floating wind may become more prevalent in Japan and Vietnam, while an already established OSV market may provide limited opportunities for international Owners etc. Whilst they vary in the details there are promising signs from these growth markets.

**And we can't complete a discussion about wind power in Asia without discussing China and the enormous offshore development potential it has...**

It's certainly a market on the move, and we've seen numerous enquiries from Chinese operators looking to acquire tonnage, and there is several conversions hitting the water to meet the increasing demand within China. We do, however, expect that domestic operators will largely dominate. •

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