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Department of Communications, Climate Actions and Environment
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Public Consultation on the Mid-Term Review of the Offshore Renewable Energy Development Plan

Statoil ASA welcomes the opportunity to respond to the consultation on the Mid-Term Review of the Offshore Renewable Development Plan (OREDPA).

Statoil is a leading Norwegian energy company and the largest global operator of offshore energy facilities. Statoil has been present in Ireland for over 25 years and currently has ownership in the Corrib gas field and several exploration blocks, along with an office in Dublin.

Statoil's New Energy Solutions business area develops renewable energy and low-carbon solutions, with a focus on offshore wind, solar and carbon capture and storage. Statoil is the only offshore wind developer that has experience in developing both bottom-fixed and floating offshore wind projects. Statoil is involved in the operation and development of over 5GW of offshore wind projects across Northern Europe and US. In the UK, Statoil operates more than 700MW across two projects and is developing the 3.6GW Dogger Bank offshore wind project. In addition, Statoil is a partner in the 385MW Arkona offshore wind project in Germany. In 2016 Statoil was awarded an offshore wind license in New York with a potential to develop a 1 GW offshore wind park. Statoil is also looking for opportunities to develop offshore wind in other regions.

Furthermore, Statoil has developed the advanced Hywind floating offshore wind technology, recently deployed in the 30MW Hywind Scotland project, the world's first floating offshore wind pilot park, which opened in October 2017. Statoil is currently in the process of developing a 1MW battery storage facility to be linked to the Hywind Scotland project.

In Statoil's opinion, the Mid-term Review reflects the positive developments seen globally for offshore wind and the opportunities that offshore wind could bring to Ireland. Statoil believes, for several reasons, that it is a pivotal time for Ireland to bring offshore wind into the energy mix. As seen from recent auctions in other European countries, the cost of developing offshore wind resources has been substantially reduced in recent years and is now cost competitive with conventional and other types of renewable generation. In addition, the offshore wind industry has the potential to deliver jobs and promote a local supply chain. Hence, Statoil's recommendation is that Ireland should establish the necessary

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framework to deploy offshore wind in Irish waters as soon as possible and not wait until the end of the current OREDP period in 2020.

Ireland has a substantial potential both for bottom fixed and floating offshore wind and should take the necessary steps to promote both technologies. Given the maturity of bottom fixed offshore wind, such projects, mainly in the Irish Sea and eastern Celtic Sea, should be of a commercial scale.

Floating offshore wind offers particular opportunities for Ireland, especially off the west and south west coasts. The European supply chain for this technology is under development and will offer substantial potential for Irish companies to take part in its development, establishing a leading position and capture a large export potential. In order to take a leading position in the development of floating wind, it is recommended that the first steps towards a commercially based 'flagship'-park off Ireland are taken as soon as possible to ensure that a first park could be operational by 2025. In order to keep the cost per MWh as low as possible, such floating offshore wind park should be no less than 250-300 MW. An alternative could be to build the first park in stages, where the first phase is 100-200MW and the lease is awarded with a firm commitment to develop the park to its full potential.

In order to develop Ireland's potential for offshore wind power, the challenge of the grid-infrastructure as well as the long-term export potential need to be addressed.

Statoil's detailed response to this consultation can be found in the appendix. Statoil would welcome the opportunity to discuss the response in more in detail and to present ideas for offshore wind in Ireland as well as the Hywind floating offshore wind technology, including the Hywind Scotland project. Please contact Geirr Haarr, Ireland wind project manager, at ghaa@statoil.com or +47 90913568.

Kind regards
Statoil ASA


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Appendix : Detailed consultation response

Q1 Do you have any suggestions or additional measures to support and enhance the governance structures of the OREDP?

Statoil believes that the OREDP is an important tool for Ireland in its development towards maximising the sustainable use of offshore renewable energy, creating jobs and ensuring a long term affordable, domestic energy supply. Statoil supports the suggestion that a dedicated offshore wind working group should be set up under the ORESG.

Q2 Do you think that the Exchequer support for Ocean Energy RD&D has been sufficient?

See response to Q3

Q3. Has the distribution of the Exchequer support been appropriate and can you suggest alternative areas that require additional Exchequer support?

Statoil supports the suggestion that specific recognition of floating offshore wind in the OREDP would be welcome, as would provision of greater funding for this technology. Floating offshore wind is moving rapidly to commercial stage. Ireland has the vast resources necessary to become a leader in the adaption and deployment of floating offshore wind, particularly along the west coast of Ireland, and has the potential to become a major export hub/centre of supply chain to other parts of the world through conceptual design, manufacturing and service provisions.

Q4 Do you think sufficient progress has been made on the development of the Atlantic Marine Energy Test Site in County Mayo?

The two renewable test sites off Ireland are primarily suited for wave and tidal energy devices, due to water depth and proximity to land, and to some extent for scaled prototypes of wind devices. Area A at AMETS may be suitable for testing full-scale floating offshore wind units when the site is fully developed and commissioned.

The presence of such test sites is positive when seen as part of a larger strategy for the development of an emerging industry. The need for scale-tests for offshore wind will be reduced as the industry matures, and test sites in general have an optimal usefulness when being able to test full-scale new devices or improvements to existing devices. Scale-testing will in most cases be adequate in facilities like Lir NOTF. A continuation of the dialogue with industry is recommended. Floating offshore wind is to a large extent beyond the R&D and test stage and is rapidly moving towards commercialization.

Q5 Do you agree that significant progress has been made on the Galway Bay Marine and Renewable Energy Test Site and that it is having a positive impact on the development of the offshore renewable energy sector in Ireland?

See response to Q4

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Q6 Do you think that there is a positive impact from the development of the MaREI Centre and Lir National Ocean Test Facility?

MaREI has become a centre of excellence for all sides of Irish marine competence, learning and sustainable development. Having the centre as a bridge between European offshore renewable industry and Irish academia as well as a doorway to the various Irish marine industries is of great importance. The Lir NOTF is, as far as can be judged from demonstrations, of the highest standards and should perhaps be even more proactive in engaging with the industry to become part of Ireland's emerging renewable offshore industry.

Q7 Do you believe that the PDF is a suitable funding structure for the sector?

No comment

Q8. What if any improvements would you suggest?

No comment

Q9 Do you have any suggestions for additional Exchequer support required for the development of the offshore renewable energy sector in Ireland?

Given the substantial potential for offshore wind in Ireland, in particular floating offshore wind, it is important to ensure appropriate Exchequer support for these technologies. Experience from Europe shows that many of the emerging technologies will need an extra level of support in the initiation phase while the need for subsidies diminishes significantly as the technologies matures into a sustainable industry. The level of support required for bottom fixed offshore wind and floating offshore wind would be different as bottom-fixed wind is more mature in the development and deployment cycle than floating offshore wind.

Q10 Do you have any suggestions on how to enhance or further implement support tariffs for this sector?

Statoil appreciates that the new Renewable Electricity Support Scheme will have the flexibility to apply several auction categories, including separate auctions for emerging technologies such as offshore wind. In Statoil's opinion, this will be essential in order to meet the energy objectives of Ireland of broadening and diversifying the renewable technology mix, enhancing security of supply, promoting economic development while simultaneously delivering value for money to the customer. It is also possible to consider alternative support mechanisms, such as site-specific tenders for offshore wind as seen in Denmark, the Netherlands and France.

Statoil fully agrees with the recommendation that the limit of 30 MW for support to floating offshore wind demonstration projects is too low. Floating offshore wind is to a large extent beyond the R&D and test stage and is rapidly moving towards commercialization. To be effective and not delay the development of a sustainable Irish offshore wind industry, it is recommended that the support mechanism is used towards developing large-scale 'flagship' projects for both bottom fixed and floating offshore wind. Bottom fixed offshore wind is a proven technology and ready for deployment at scale

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(e.g. 300MW+). Similar size would be preferable for floating offshore wind to realize the cost reduction potential, however if a demonstration project for floating offshore wind is considered necessary, it should be of minimum 100MW size, with an option to expand to 300 MW+ after a relatively short period in operation. Projects of an appropriate size will need less support per MW than smaller projects, while the impact of such larger projects, in terms of jobs and infrastructure, will be more substantial.

Q11 Do you think that Ireland should develop offshore renewable energy resources to export electricity?

Ireland has great potential for offshore wind which could form the basis for export of electricity, hence it is important that the ongoing work on new interconnector capacity is supported. However, offshore wind should at first be focused on becoming a significant part of the future energy supply solution for Ireland. Surplus generation can then be considered for export potential. As illustrated by the recent EIRGRID report "Tomorrow's Energy Scenarios 2017", offshore wind will be an important energy source for Ireland under several of the scenarios. Statoil believes, for several reasons, that it is a pivotal time for Ireland to consider offshore wind in its energy mix:

- 1. Offshore wind is cost competitive with conventional and other types of renewable generation.** Reducing costs has been a key focus in the offshore wind industry in recent years which has been achieved through utilising the learning curve and scaling of projects. For example, the recent auctions in the UK under the renewable support mechanism delivered a 50% reduction in costs between 2015 and 2017. Similar reductions have also been achieved in offshore wind auctions in the Netherlands, Denmark and Germany where the lowest bids have been based on market price, with offshore transmission grid access provided by the respective grid operators. As a result, offshore wind is now established as a low cost, low carbon energy source for the future.
- 2. Offshore wind can better provide reserve capacity to the network and improve system stability compared to alternative intermittent technologies such as onshore wind.** Offshore wind energy features some of the highest load hours amongst all intermittent renewable technologies while power fluctuations are smaller due to the more constant and consistent nature of wind offshore. The introduction of larger turbines has played a significant role in boosting electricity production and capacity factors at offshore wind sites. Large scale power production at sea not only moves turbines out of sight and hearing distance, but places clean power production near coastal consumption centres, where many key cities are located. The potential to combine offshore wind with storage could provide for further system stability.
- 3. The offshore wind industry has the potential to deliver jobs and promote supply chain.** Following the success of onshore wind, offshore wind technology has mainly been developed in the last 15 years, with Europe being the main market with 12 GW of installed capacity. With over one million jobs in wind worldwide, the offshore wind sector employs over 100,000 skilled workers. In particular, for an emerging technology such as floating offshore wind, Ireland would have good opportunities to develop a substantial supply industry.

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Q12. Do you have any suggestions on further measures that can be taken to support the implementation of this action?

Statoil agrees that it will be beneficial for Ireland to increase the interconnector capacity, including the Celtic Interconnector, as well as maintaining the electricity market across the island of Ireland and trade between Ireland and the UK and EU member states. However, the main measure to release the potential for offshore wind of Ireland is to establish a system for award of new licenses and an appropriate support mechanism.

Q13 Do you think that significant progress has been made, to develop the supply chain for the offshore renewable energy industry in Ireland?

Deployment of offshore renewable energy projects, and in particular offshore wind, will be key to develop the Irish supply chain. Hence, to realise the substantial potential for Irish supply chain and creation of local jobs, it will be important to ensure that a system for award of new licenses and an appropriate support mechanism for offshore wind are established.

Offshore wind development in Europe is advancing rapidly and clusters for supply chain have already started to emerge. While still at an early stage, should Ireland intend to play a role in the supply chain, then it is necessary to position now before the opportunity is missed. Particularly in floating offshore wind, there is a huge potential for Ireland to become the market leader.

Q14. Do you have any suggestions on how to further implement this action?

See response to Q13.

Q15 Do you think that Ireland has been presented at home and abroad as open for business in offshore renewable energy?

To prove that Ireland is open for business in offshore renewable energy it is important that steps are taken as soon as possible to bring forward the new Foreshore Bill into legislation, initiate a licensing round for offshore wind and finalise an appropriate support mechanism. Government should be specific on ambitions for offshore wind.

Q16. Do you have any suggestions on how to further implement this action?

Statoil agrees with the described challenges and suggestions in the document. The publication and enactment of the Maritime Area and Foreshore (Amendment) Bill will be key, as is the implementation of a more efficient licensing regime. Statoil supports the suggestion to designate areas suitable for ORE development and conduct licensing rounds, possibly using the model used for oil and gas licensing areas. Furthermore, it will be key to be concurrently moving on grid development, licensing and funding arrangements. By adapting a holistic view to marine development, environment, fisheries, energy, local population and socioeconomic aspects, job creation and growth can be maximised in a sustainable manner with minimum harm to environment and society. There are ample examples of this from elsewhere in Europe and other places and much of the experience can undoubtedly be used in Ireland with a positive effect.

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Q17 Does the progress section capture all the relevant information and activities that have taken place for this action since publication in 2014?

Yes.

Q18. Do you have any suggestions on how to further implement this action?

Bilateral agreements between Ireland and other countries could help transferring competence necessary for developing ORE projects. The proposal by the Nordic countries at the Nordic Green conference to collaborate with Ireland with the aim to decarbonize the Irish energy sector could be advantageous, in particular for offshore wind, as could utilization of collaboration mechanisms under the EU Renewable Directive and under the North Seas Cooperation.

Q19. Do you think that sufficient progress has been made on the action to introduce a new planning and consent architecture for development in the marine sector?

In order not to be left behind, it is now timely for Ireland to decide upon a simple, constructive and predictable system for all aspects of the sustainable development of marine energy, fisheries and aquaculture.

Q20. Do you have any suggestions on how to best implement this action?

See responses to Q10, Q12 Q13, Q18 and Q19

Q21 Does the progress section capture all the relevant information and activities that have taken place for this action since publication in 2014?

Yes

Q22. Do you have any suggestions on how to further implement this action?

As long as there are no commercial offshore wind projects under development all impact assessment studies become general and generic. The award of one or more licenses will focus the work and highlight what work is needed in addition to existing baselines. Most floating offshore developments off the south-west or west coast will be far from shore, in deep waters and should be a good place to start without running into complicated stakeholder issues.

Q23 Does the progress section capture all the relevant information and activities that have taken place for this action since publication in 2014?

Yes

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Q24. Do you have any suggestions on how to further implement this action?

Statoil agrees with the identified challenges and sees a merit in the suggested need for a 'flagship project' which would open up the sector. It would be a merit in promoting both a bottom fixed project off the east or south east coast and a floating offshore wind project off the west coast. To facilitate this, it is recommended that the Government publish a clear vision for offshore wind and as soon as possible establish the necessary licensing arrangements and support mechanism. This would build confidence and attract investments to Ireland.

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