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Offshore Wind Grid Development Consultation
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Your letter of
Our reference N/A

Date 21st July 2020

Re: Siemens Energy Response to the Offshore Grid Delivery Model Option Consultation

Please find below our response to the consultation questions set out within the consultation document produced by the Government of Ireland on the topic of Offshore Grid Development Policy. It should be noted that a response has been given to select questions where we felt our contribution as a technology solution provider would be relevant.

Question 1

With respect to key driver (i), cost levels, which of models 1,2,3,4, or variant of these, delivers the most satisfactory results? Which features of the model, or variant, are the most influential for your given choice?

From a purely offshore perspective, Options 1 & 2 would provide the most optimised cost levels as the projects would be tendered and designed to achieve the lowest cost per MWh for a specific site and grid connection point. However, as already described in the report, the picture is much less clear when onshore grid reinforcements are taken in to consideration. It may be very expensive to provide certain grid reinforcements/connections that could significantly increase the overall cost to the consumer.

Looking at Option 3, and to some extent Option 4, the longer term saving on the onshore grid reinforcement may potentially tip the balance in terms of overall value for money. A key cost influencer of option 3 is that the developer is still free to design the wind farm and offshore transmission assets according to the best-fit for their business case. This includes their operation and maintenance.

Question 2

With respect to key driver (ii), environmental impact, which of models 1,2,3,4, or variant of these, delivers the most satisfactory results? Which features of the model, or variant, are the most influential for your given choice?

Question 3

With respect to key driver (iii), future proofing and technologies, which of models 1,2,3,4, or variant of these, delivers the most satisfactory results? Which features of the model, or variant, are the most influential for your given choice?

It is clear already from the consultation that Options 3 and 4 have the highest potential for future proofing. It should be noted that from our experience modification in the offshore transmission assets during the *design*

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stage (e.g. extra GIS bays for future OWF strings, uprating the transformer to include future power upgrades etc.) would constitute a comparatively minor increase in cost and execution complexity when considering the overall cost of the project and the consequences of having to retrofit or build new infrastructure.

Incidentally, the UK has launched an "Offshore Coordination Project" that has been set up by NG ESO with support from Ofgem and BEIS, in conjunction with NGESO, SSE and SPEN, in order to understand and evaluate an offshore network integrated approach. Please see the following link: https://www.nationalgrideso.com/future-energy/projects/offshore-coordination-project.
The project is also investigating the Irish Sea so I would recommend that you get in touch with the representatives in the link above.

Question 4

- With respect to key driver (iv), required infrastructure, which of models 1,2,3,4, or variant of these, delivers the most satisfactory results? Which features of the model, or variant, are the most influential for your given choice?

Naturally, the required infrastructure can be best optimised to maximise value for money with a holistic approach that takes into consideration onshore and offshore developments in tandem i.e. Option 3 & 4. The principle driving best use of the infrastructure is the involvement of the TSO in the transmission asset coordination, application and planning.

Question 5

With respect to key driver (v), compatibility with Relevant Projects, which of models 1,2,3,4, or variant of these, delivers the most satisfactory results? Which features of the model, or variant, are the most influential for your given choice?

Question 6

With respect to key driver (vi), social acceptance, which of models 1,2,3,4, or variant of these, delivers the most satisfactory results? Which features of the model, or variant, are the most influential for your given choice?

As a turnkey EPC supplier, we spend considerable effort in supporting our customers with a multitude of public engagements and commitments. This can range from general public consultations and "meet the buyer" events to school visits and charity events. Consequently, regardless of the model chosen, social acceptance will form a key factor for the offshore wind industry development in ROI.

Question 7

With respect to key driver (vii), facilitating the timely development of offshore wind capacity to achieve the 2030 target, which of models 1,2,3,4, or variant of these, delivers the most satisfactory results? Which features of the model, or variant, are the most influential for your given choice?

All models have the potential to achieve the 2030 target in one way or another, as detailed in the consultation. The state body/ local authorities and the TSO have to determine, or give weight to, the critical factors (cost, future-proofing, public acceptance, competition etc.) that would define a successful achievement of the 2030 target. Consideration should also be given for beyond 2030, and the ground work that is necessary over the next few years to ensure that further wind deployment can be incorporated effectively. It would be a balance between making the policy attractive to developers and value for money for consumers while also ensuring that the onshore grid can be developed in a proactive, cost-efficient and sustainable manner.

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Question 8

Rank the key drivers in order of importance 1-7, which have the greatest impact on the choice of model.

Question 9

How important is it for Ireland to develop an indigenous offshore wind energy industry? How best can an indigenous industry be developed?

An ever-increasing number of global players participating in all aspects of the offshore wind industry has led to a sharp decrease in costs relating to the design, construction, operation and maintenance of an offshore wind farm. Any indigenous offshore wind industry within Ireland would have to carefully evaluate the respective business case and ensure that it can compete not just at a national level but also on a global level. However, having local and capable industries could potentially prove beneficial when it comes to project execution and operation e.g. civils and O&M

For the overall development of an indigenous industry, there would have to be clear incentives to use local content, including also, potentially, the development of the local content. This means developing specialised skill sets to the same quality standards found elsewhere and with a large enough resource pool to ensure that they can be used by multiple projects.

Furthermore, the scale of the market would have to be of sufficient size to justify skill and/or manufacturing localisation within ROI. Setting up a new supply chain, as an example, for a relatively small volume can be more expensive.

Question 10

How should onshore and offshore grid connections be optimised? For example, should consideration be given to common hubs for adjacent projects?

Onshore and offshore grid connections optimisation should ensure that the overall 3.5GW remains feasible by 2030. Consequently, the additional 2GW of onshore reinforcement becomes as vital as the offshore transmission assets. State body and TSO should evaluate the cost differentials behind a potentially reactive response to reinforcement (Option 1) versus a proactive one (Option 3 & 4) and weigh that up against the cost/effort/risk associated with having a direct role in the development, design and execution of the offshore transmission assets (Option 3 & 4).

It should be noted that serial production of relatively standardised (but not completely) equipment, such as offshore platforms, can provide a number of synergies throughout project execution. This also includes a significantly easier transfer of lessons learned.

As stated previously, the UK has launched an "Offshore Coordination Project" that has been set up by NG ESO with support from Ofgem and BEIS, in conjunction with NGESO, SSE and SPEN (the major network transmission operators), in order to understand and evaluate an offshore network integrated approach. Please see the following link: https://www.nationalgrideso.com/future-energy/projects/offshore-coordination-project.
The project is also investigating the Irish Sea so I would strongly recommend that you get in touch with the representatives in the link above.

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Question 11
Are there any further considerations which might reduce the cost to the consumer?

As mentioned previously serial production of equipment can provide a number of synergies e.g. production of a number of offshore platforms that have a similar design can maximise lessons learned, reutilise the experience of project teams, remove the need for various design loops etc.
Additionally, using existing supply chain rather than building a new supply chain would potentially have lower overall costs to the consumer.

Question 12
Currently, developer compensation is not provided for delayed delivery of grid connections to renewable generators connecting to the network. Should developer compensation arrangements be provided for delivery of offshore grid connections to renewable projects? Similarly, who is best placed to bear the outage risks under the various options?

Question 13
Are there any further drivers which should be considered when assessing a grid delivery model suitable for offshore wind development in Ireland?

Question 14
Overall, which model, or model variant, is most appropriate as an enduring grid delivery model for offshore wind in the Irish context?

While we cannot comment on exactly which model or variant thereof is most suitable, we would like to point out that 10 years is not a very long time to achieve 3.5GW of offshore wind in a relatively new market. Consequently, an element of coordinated speed and scale may be necessary to the achieve target. This includes offshore and onshore assets. Site selection and permitting need to be made practical and efficient.

Question 15
It is accepted that a transition towards the chosen enduring grid delivery model will be required to leverage the development of the Relevant Projects in the short term. Taking into account the high level roadmaps set out at Figures 5 and 6 above, what should this transition look like?

Kind regards,

[redacted]
Large Transmission Solutions
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