

DCCAE Offshore Wind Grid Consultation Response

SuperNode
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1 Key Points

- More focus on the projects that come afterwards
- A 2050 plan led approach is favourable for grid development
- A new option which features a developer led approach for generation, and a plan led approach for transmission

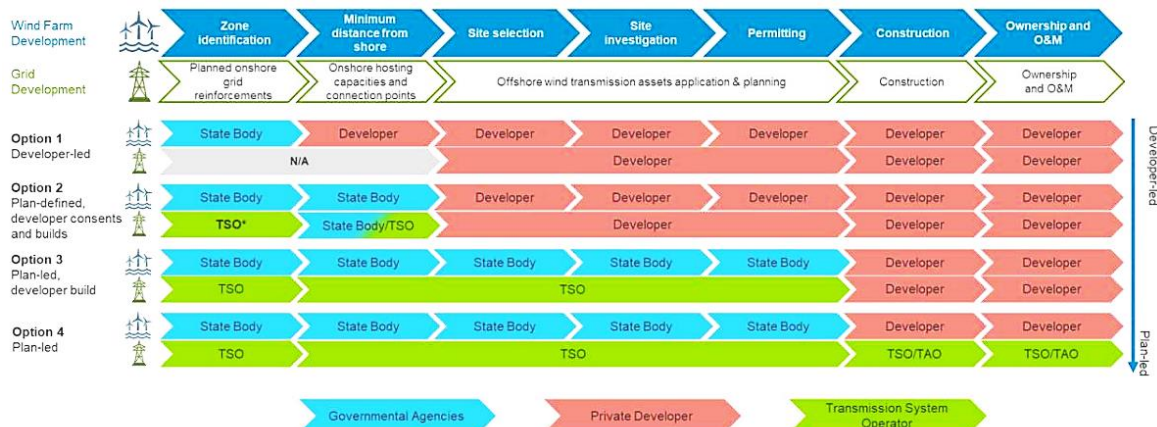
2 Consultation Response

With the latest updated version of the 2030 Irish NECP being released next year, this consultation comes at an important time for Ireland. It comes at a time where Irelands offshore wind industry is non-existent, even though Ireland has one of the best offshore wind resources in the world.

Offshore wind has rightfully been identified as a key enabler for Irelands decarbonisation of its economy, but it requires addressing the challenges of getting power back to the national grid in an efficient manner. Grid planning and development to date has been relatively easy, as fossil fuel-based power plants are not geospatially constrained to where resources are best, as its fuel can be transported to site. Renewables require more planning to integrate them into the grids, which again, to date, has not been overly difficult at the lower penetration levels.

It is now, when Ireland looks to push to 70% RES-e, that grid planning becomes a challenge. Ireland can look at this 2030 target and plan on how it gets to this target, or Ireland looks at the overall goal of decarbonisation by 2050 and plans towards this goal with 2030 in mind. Due to its nature, grid development is a long and arduous process, and as such, planning for 2030 is too near term a target for development as it would result in a less efficient grid system than longer term planning towards 2050. To put it another way, Ireland, in trying to decarbonise by 2050, is trying to reach Everest, not basecamp (2030).

As was outlined in the report, the four grid model options are only some of the many options existing in the spectrum of grid delivery models. For this reason, a separation between the generating asset (wind farm) and its transmission infrastructure must be made; the consultation should not consider nor define how the offshore wind farms are to be planned, developed, and constructed. The figure below should not define the responsibilities of who selects the sites, who investigates the sites, and who permits the sites. This is a topic of discussion for another time, as this consultation should be solely focused on grid transmission.



There is one requirement which is common for all grid model options below; Ireland needs to establish a single state body for offshore renewable energy (could be called the State Offshore Renewable Energy Body, SOREB) which should be responsible for development zone identification, leasing of development zones, and the pre-permitting process for wind farm and transmission asset development. This body can fall within DCCAE but operate with the sole focus of the offshore marine space. This body should be incentivised to deliver on GW targets, and thus be responsible for maintaining the efficient management of both wind farm developers and the transmission asset developer.

For the purpose of this consultation, we would like to propose an Option 5. The Option 5 grid model would operate identically to the post 2025 German model, with SOREB responsible for zone identification, site selection and site investigations before handing this over to the developer for permitting and construction. On the grid development side, the TSO would be responsible for holding tenders for the development of the offshore transmission asset where transmission developers can compete competitively to construct the asset on behalf of the TSO.



One final point on the consultation process, we believe there is one key driver that is not being considered for this process: creation of indigenous jobs. This is a key factor in considering which grid option model is best for Ireland to develop its renewable resources and create as many new jobs within this industry that stay in Ireland.

- 1) With respect to key driver (ii), **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?

The definition of the most cost-efficient model depends on the time frame being considered. In order to achieve Ireland's 2030 targets, a project developer led model would favour achieving this goal in a timely manner. However, the choice of an effective grid model for Ireland's future decarbonisation should be longer term thinking and look beyond connecting the existing "Relevant Projects", and for this to occur, a master plan must be used. As such, A planned long term approach of shared infrastructure would be the most cost-effective model.

- 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?

It should be easy to conceptualise that a shared transmission master plan would result in fewer cables going back to land and a decrease in the footprints of export cable corridors. As such, Option 5 would be the best option to reduce the environmental impact of offshore wind in the long term. New technologies mean that high levels of power can be carried in cables and reduce the quantity of cables required.

- 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?

Adopting a developer led model for the long term would result in vast amounts of onshore grid reinforcement to accommodate the multiple landing points for each offshore wind farm. Compare this with an approach which builds a large capacity offshore connection point where projects can connect to over time. For example, a 5GW offshore connection point where 3GW is to be connected by 2030, and the remaining 2 GW will be connected into by 2035-2040.

- 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?

With respect to the required infrastructure, the most effective method of ensuring that the correct infrastructure is developed in an efficient manner comes down to appropriate long-term planning aligned with long term decarbonisation goals. As such, Option 5 is the optimal model here.

- 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?

As above, the definition of the best choice of grid model for compatibility with relevant projects here differs depending on the time frame chosen. It is clear that ongoing decarbonisation plans and the defined "relevant projects" should be treated independently with respect to offshore transmission infrastructure. To achieve the timely construction of the "relevant projects", a developer led model (Option 1) would be favourable for relevant projects, while the longer-term goal of integrating higher capacities of offshore wind would be best met with a master planner and shared infrastructure (Option 5).

- 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?

One of the critical challenges in developing an offshore wind farm is ensuring that the local population are in favour of the project. Offshore wind farms can mitigate most complaints against their project by locating the wind farm further offshore. In a developer led model, this would result in the development of multiple far shore transmission export cables back to land. In a planned approach, a high capacity offshore connection could be planned and constructed allowing multiple wind farms to connect at a single point. This can result in the development of further offshore wind clusters (2-5GW in capacity) being developed further offshore where wind speeds are higher, and shared transmission costs are lower resulting in a lower cost of energy to the end consumer.

- 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?

It is explicitly clear with Irelands history in attempting to facilitate offshore wind that the required regulatory and policy changes to facilitate Option 5 would take far too long to allow the “relevant projects” make it to market in time for Ireland to meet its 2030 targets. As such, with respect to these targets, grid delivery models 1 and 2 are best suited to meeting Irelands 2030 targets. It again depends on what the focal timeframe is for this consultation and for Irelands decarbonisation plan.

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

1. Cost levels
2. Future proofing of policies and technologies
3. Required infrastructure
4. Creation of indigenous jobs
5. Environmental Impact
6. Social Acceptance
7. Facilitating the timely development of offshore wind capacity to achieve the 2030 target
 - a. We believe that the focus should be more on a 2050 target with 2030 acting as a steppingstone.
8. Compatibility with Relevant Projects

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

Ireland possesses one of the greatest offshore wind resources in Europe, and the world. It is not too late for Ireland to take advantage of this vast renewable resource and develop vast quantities of offshore wind. The adoption of a planned grid model which facilitates coordination and deeper interconnection with neighbouring grids will allow for Ireland to become an exporter of a vast amount of offshore wind energy. With this comes the possibility of a large amount of job creation from early stage environmental consenting consultants, to jobs in the operations and maintenance of commissioned assets.

Ireland has the capacity in its waters to develop a vast export opportunity with the development of an appropriate grid model. With this opportunity comes the potential for the creation of jobs and a large industry which contributes to local economies.

These jobs can be created all around the country sparking life into communities that are currently dropping in population due to the movement of people into the larger cities and abroad. Offshore wind demands local maintenance bases which can reignite activity into ports that have long been sitting nearly idle. Jobs lost from the closing of fossil-based plants, and the supporting industry can be re-skilled for work in the renewables sector.

It is essential for Ireland to invest in creating these jobs as the UK has done to date with their offshore sector. We must look at the UK as a key example on the development of a plan for investment into the industry, and how to reap the rewards.

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

Yes common hubs for adjacent projects should be considered.

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

The adoption of long-term planning which is aligned with a fully decarbonised energy scenario is vital to the appropriate planning of our energy infrastructure. Today's scenarios looking into electricity demand in 2050 are too conservative and do not consider highly electrified energy scenarios where electricity demand could more than double vs today's levels. Poor model inputs result in poor model outputs, and as such, grid planning will be inadequate for these highly electrified scenarios. Consider that until last year, Europe was working towards 220GW of offshore wind, and now has a target of 450GW. More ambitious scenarios are crucial to appropriate planning.

The transition to fully renewable electricity generation requires changes to grid development, which for so long could function with small steps in upgrading grid infrastructure and operation. Decarbonisation requires a vast change in grid architecture and design and cannot allow for these minor iterative changes to continue. Longer term planning will facilitate the development of large-scale offshore grids which complement the existing grid infrastructure and bring power from the areas of best renewable resource straight to Ireland's, and Europe's, demand centres.

If planning and development for this begins today, there may not be cost savings seen today, or next year, or maybe even 2030 for every consumer. Generation savings and transmission subsidies may need to be part of the overall system for longer than the general public may prefer however, the overall system savings will be realised once a decarbonised energy system is achieved.

- 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?

Yes, this should be within the powers of the newly established state body. We believe that a consultation on the interface between the newly established body (SOREB) and the current

permitting state body. A single entity should be responsible for all aspects of permitting and zone identification.

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

As was discussed above, higher levels of electrification in our energy systems will result in a higher electricity demand from our grid. If this is not considered in planning and modelling today, then there will be issues with integrating the required capacity of renewables to meet future demand in 10, and 20 years' time. Electrification is the key to achieving decarbonisation but can also be the downfall of a stable grid if the increase in electricity demand is not appropriately prepared for.

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

Option 5, using the current and future planned German models offer the best long-term strategic advantages to achieving decarbonisation in a cost efficient and effective manner. It opens up the possibility of establishing a market for export of offshore wind power from Irish waters.

- 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?

One step which should be common to both roadmaps is the establishment of new body/agency (SOREB) responsible for Offshore Renewable Energy development is vital regardless of the grid model chosen.