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DCU

Offshore Wind – Phase Two Consultation - 05/03/2022

My name is [redacted] in Dublin City University [redacted]

As a [redacted] student, I am interested in understanding and analyzing the research and development works involved in the latest technologies of renewable energy generating projects. Energy storage and efficient utilization of renewable farms is my major attentiveness and also functioning on some projects of pumped hydro, Li-ion batteries, hydrogen and compressed air.

I am also good at designing the solar panels used for household energy requirement that involves calculation of square feet utilization with respect to the distance between the house and energy grid location with minimum losses. My main objective is to determine all the possible pathways for renewable energy technologies and give my contribution of work for the climate change and environment security. So, I take this opportunity to share my views on the offshore wind energy phase II to meet the 5GWH capacity proposed by the DECC (Department of the Environment, Climate and Communications).

<u>My comments to this consultation:</u>

Based on the capacity energized in base line scenario 2020 – 2030 [1], the phase one offshore cannot meet the target of 3 GW due to unfavorable factors. In order to achieve the ambition to produce 5GW by 2030, the phase two of offshore wind deployment is proposed by the government. Its execution is planned in 4 different pathways provided in the consultation document. Among the four options mentioned in the consultation document I would prefer option D because, in phase one target of 3GW by offshore wind farms could be achieved by the small changes to polices. It got delayed due to the longlisted policies of MACs and some other circumstances.

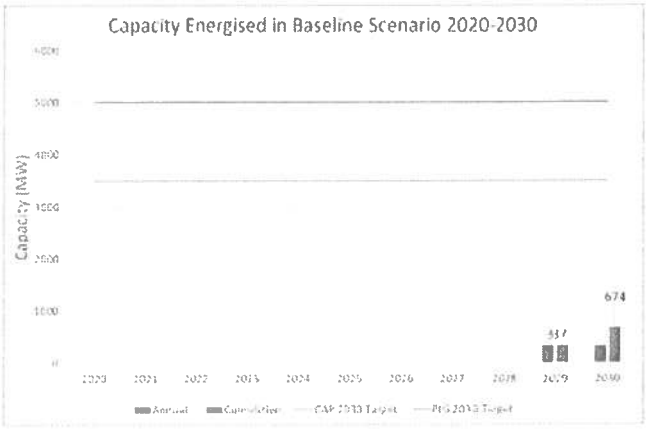

Fig 1. Offshore wind capacity energized in baseline scenario 2020-2030

So, Early ORESS 2 plan will work on reversing the sequences of phase one by rearranging the auction that projects would need to explain alignment with grid capacity identified by Shaping our Electricity Future or Eir Grid's latest roadmap ahead of MAC application.

This option gives lot of scope to innovation and efficient investment with in the allotted MAC area for offshore wind capacity and supply to energy grid. In addition to offshore wind energy alternate ways of renewable energy creation and storage methods also need to be focused to reach the goal of 5 GW.

Alternative way which is storage technologies are not mentioned at all in any of the documents. After major development in the renewable energy storage technologies, pump hydro, compressed air, flywheel and molten thermal storage techniques came in to vision. Among all technologies, molten salt Thermal energy storage which is suitable to Ireland maritime location is the best option with the available resources and less carbon emission rate compared to other options. But the major renewable energy contribution could be expected from only offshore wind farms.

Realizing the maximum potential

Fact that, Ireland geography has the better potential for offshore wind in Europe and it should be utilized with maximum potential to become totally energy secure using indigenous resources. To achieve that option D approach demonstrate the clear picture and confidence of the projects that pass through to be delivered and get clearance from the MAC for further activities.

Additional research and development activities are need to safeguard the projects action plan for the futuristic views through the storage technologies. Molten salt thermal energy storage is highly economical and efficient technique which 33 times better than the Lithium ion battery storage.

Complete dependency on the renewable energy generation is not much recommended, parallel to that sufficient storage technologies is also important. Because some unpredictable situation need to be faced and sustain with backup plans. It should be developed as a way to receive the grid energy as well as solar plate's turbines energy.

Early-Stage Assessment

Assessment of the auction offers play important role in the executing proposed projects in the expected project pipeline. These assessment results data is used to pick the best auction offers. Phase one projects retain their MACs for phase two will be definitely an advantage in securing route to market. Because, everything is established and made small changes in plan execution to meet the pipeline with in the timeframe and make better path for route to market. Retained MACs to be crosschecked with attributes like project location, planning application submission year, Area feasibility and capacity of turbines expected to be deployed at site.

Similar assessment is need to the storage projects and maintain the balance and ratio between the renewable energy generation and storage tank capacity fixation. Decent plant size and suitable location which is nearer to offshore with minimum distance is recommended to avoid the energy loses caused in the energy transmission.

Planning Process:

Planning is the first major step for any project to execute and implement it to the real world and below are indicative steps that may change when consenting process get finalized.

1. License for the plan: Actually, getting license itself currently takes minimum 1 year and one more year for surveys. Considering the phase 1 MACs structure, appropriate changes are need to be done to finish those works as soon as possible. A foreshore license is needed to allow developers to investigate the suitability of foreshore locations for the development of offshore renewable energy. Without a license, a developer cannot carry out these investigations, which are an essential the first step towards a subsequent planning application [1].

   The solution to this is additional resources, either directly in the foreshore unit of DHLGH or by using external resources and DECC to issue foreshore licenses. The recent EirWind20 report, Blueprint for Offshore Wind in Ireland 2020-2050, estimated that up to 30 new personnel need to be recruited to various Government departments and State agencies over the next 18-24 months to support the development of offshore renewables.

2. It is very easy to get conditional MAC that ensures exclusivity for the phase 2 projects in that particular area since that process have already been finished in the phase one. If incase any changes required, it takes less time to finish and get the conditional MAC license.

3. Submitting planning application for development consent to the board with the clear data of energy capacity of each project and life time of individual. Segregate appropriate operation and maintenance requirements of each project to meet the requirements.

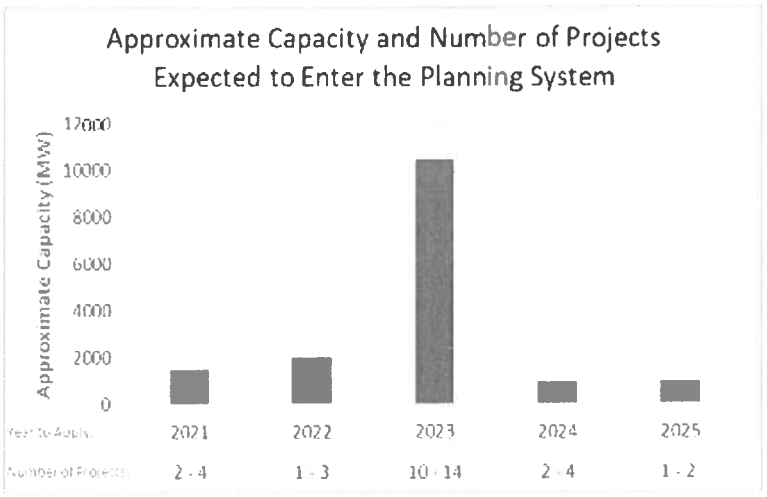

Fig 2. Number of projects and associated capacity expected to enter the planning system over the next 5 years, using data from IWEA's Offshore Pipeline Survey

4. Aim for decision making process within 18 weeks, but based on old experience of that deadline for phase 1 offshore wind energy and try to avoid the extension of delay not more than an year

5. Advanced technology to be adopted from the project initial stage and building the project as per the robust design with latest innovation concepts and other futuristic advantaged models.

Collaboration of Grid Offer:

A grid offer readiness also a challenging task that allows various kind of projects to connect to the electricity grid at a particular location. The initial step to obtain one typically includes application for a grid offer from EirGrid to be ensured with minimum complexity and clear network layer to be recommended to connect to the electricity grid. It should pre resolve the problems like power losses and location feasibilities. The grid delivery model is base to the overall project and important designation of the entire methodology. Risk assessment model to be made and simulate it for the ambition target need.

Parallel Grid Development: In addition to the grid connection to the wind farm itself, it is vital that the SOs reinforce the wider grid in parallel. There must be sufficient grid capacity on the network at the point of connection to bring the electricity from the offshore wind farm to where it is needed in Ireland. This is currently the single biggest challenge facing Ireland's 2030 targets for both offshore and onshore wind.

Ensure the grid offer has the feature to accept the stored energy of the renewable energy sources. This also helps during emergence situation and reduces the complete dependency on the direct renewable resources like the offshore wind and other sources. Review the grid connections based on the offshore wind capacity can supply to the nearest power grid with minimum energy losses.

Find a Route to Market

Deployment of offshore wind farm involve high investment in the initial stage, therefore pre enquire the demand of the energy and build a secured revenue stream through it can be financed. Once the projects develops its strength, the government of Ireland supports the offshore wind farm for 2030. Besides that, backup renewable energy sources also need to be focused make possible to run and generate revenue stream by its own.

This step is highly depends on the success rate of the project selected in the MAC, which outlines the relevant financial arrangements for the developer to build the project.

Financial Investment Decision (FID) and construction of the wind farm and the developer's share of the grid connection:

The project developer builds only the wind farm, but the grid connection is partly constructed by the developer and the System Operators (SOs). Construction of the wind farm itself mainly includes foundations, internal cables, and wind turbines. Basically the offshore wind turbines are manufactured on the land and installation of the working model is transported using a special jack up barge. This involves lot of planning for the smooth execution in terms of financial aspect to withstand the weather condition fluctuation during the installation period. To achieve the ambition, the developer will also need to build the offshore substation and grid connection network to the onshore substation, despite the fact this decision is still an important

factor for the result.

These are my comments, I am available to be contacted to clarify any topic or answer any questions you may have.

Kind Regards,

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Option A proposes that a deployment security is required for to apply for a MAC in phase 2

a. **How should the security be calculated and what rate should apply? If the security was to be calculated on the basis of planned capacity, what rate should apply?**

   Security can be calculated based on planned capacity and quality expected of the energy delivered. It is important to measure the total amount of energy delivered in order to meet customers needs and peaks of demands. A project would be secure towards market when meeting these requirements. Rates for planned capacity and energy quality will be determined accordingly GCA respectively.

b. **Should the security be required to be in place prior to application for a MAC or post-issuing of a MAC? If post-issuing, what is a reasonable timeframe?**

   Ideally would be that security is deployed before the application for a MAC, to ensure the route to market of the application. However, as this task might take long time it could be post-issuing of a MAC, and it would be mandatory to deploy the security before the application for development permission at ABP.

c. **Under what terms should this security be drawn down?**

   As mentioned previously, it should be drawn down the planned capacity and the total energy delivered to customers due losses; and the quality of energy delivered for meeting customers' needs and ensure continuity of the source.

d. **The security, as proposed, expires with securing by a project of a route to market. For projects successful at ORESS 2, this is also the stage when the auction performance security is due be put in place. Would it beneficial for the deployment security to be rolled over towards the RESS performance security? How best this managed?**

   This would be beneficial to extend it to RESS projects in order to guarantee the deployment of security towards the route to market. This would be best managed from project applicants to accomplish CRU requirements, respecting DMAP after application to MAC.

e. **What other terms should apply to this security?**

   This security should prove the reliability of the projects proposed, by considering the quality of the energy required and the continuity of energy managed for satisfying customer demands, due to the intermittency that wind turbines might have.

Hybrid grid connections are defined in this paper as single grid connections which facilitate the connection of both an existing or proposed thermal generation plant and a proposed offshore wind project.

a. **Do you support the facilitation of such connections, as defined? Why?**

   The fact that electricity can be generated from other sources, it is interesting for all the parties involved such as customers and companies to meet the energy demand. If with hybrid grid connections it can ensure a continuous flow of electricity, then I support the hybrid grid connections. Therefore, as mentioned previously, the intermittency issue of the wind turbines can be sorted out by developing hybrid grid connections.

b. **Are you aware of any other jurisdictions where such connections are permitted? Describe how hybrid connections are treated from a technical and regulatory perspective in these jurisdictions.**

   The CRU developed the Enduring Connection Policy (ECP-2) for those onshore projects for electricity generation from renewable energy sources. Therefore, this policy launched by CRU allows the hybrid grid connections, but it will be mandatory to apply for planning permission after the assessment of this energy source (connection method and cost). From a technical perspective, these regulations should contemplate the kind of technology in use to provide electricity to the hybrid grid connection. Depending on the type, different assessments should apply, also meeting the criteria of the DMAP.

c. **Are there potentially unintended consequences associated with permitting hybrid grid connections, such as potential impact on grid systems services provided by the associated thermal plant or potential impacts on the reliability of the thermal plant?**
   The potential unintended consequences of permitting hybrid connections are the mandatory auctions that this hybrid connection should accomplish, therefore project applicants must follow an extra process to meet the requirements of DMAP. Also, these projects must ensure the continuity of the energy provided as well as a high quality of energy to meet customer demands.

d. **How should proposed projects with hybrid connections be treated so as not to distort competition or afford undue competitive advantage to the incumbent owners and operators of the associated thermal generators?**

In my opinion, these projects with hybrid connections will be auctioned separately to the main objective of the wind offshore projects, to avoid disadvantages to the projects that do not propose a hybrid connection. It will bring more work to be done from CRU, but it will be beneficial to also consider these hybrid connections projects in order to meet the demand expected with the continuity of the energy delivered.

e. **Do you support the facilitation of such connections, if the definition was adjusted to, e.g. an existing or proposed onshore battery, solar or other generator?**

As mentioned before, I do support these facilitations due the drawback that wind turbines have in those days without wind. Hybrid connections working with any extra energy source, will allow to overcome the issue of intermittency that wind turbines have. Therefore, finding support to meet peak and customer demands at any time, will provide reliability the renewable energies.

Alignment with the consultation

The goal of this consultation is to ensure the deployment of 5GW offshore wind capacity by 2030 depending on around 80% in renewable energies, bringing potential candidates to apply for this project. There are different strategies to ensure the route to market of those successful projects, and there is also the possibility to combine those strategies proposed. The process for a successful project is hard in terms of regulations, consents and etcetera, posing also economic and time costs. Therefore, the entities responsible for this ORESS might ease the process for project applicants in order to meet the goal of 5GW by 2030. We are all aware that bureaucracy is vital to ensure the respect towards the environment and the society. A strategy that could apply would be to do a first check that a project accomplishes with the most important requirements, so we avoid the discard of potential suitable projects. Hence, it would be more feasible to accomplish the goals and there would be no further need for an extra energy consultation.

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