CLOGHERHEAD
Offshore Wind Farm

Offshore Wind Phase Two Consultation Response

09/03/2022

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1. INTRODUCTION TO THE CLOGHERHEAD PROJECT

Clogherhead Offshore Wind DAC welcomes the opportunity to make a submission to the Offshore Wind Phase Two Consultation.

ESB and the Parkwind have partnered to capitalise on the combined experience of our two organisations to deliver offshore wind projects off the Irish Coast. Clogherhead Offshore Wind Farm will be the second project co-developed by this partnership, following on from the nearby Oriel Wind Farm Project.

ESB is a leading developer of renewable power projects in Ireland and the UK. In 2018, it acquired a stake in the now operational Galloper offshore wind farm off the Suffolk coast. ESB is currently developing Neart na Gaoithe and Inch Cape projects in Scotland as well as a number of early-stage projects around the Irish Coast.

Parkwind, established in 2012, is a full life-cycle business that develops, finances, and operates offshore wind farms. With 771 MW under operational management spread across four wind farms in the North Sea and 577 MW under development, it has steadily become one of Europe's leading independent offshore industry companies.

Over the past four years we have progressed the Clogherhead Offshore Wind project to an advanced stage of development. The work completed to date will enable us to prepare a MAC application, which has included significant design, stakeholder engagement, environmental assessment, and landowner agreements for onshore infrastructure. We are also well advanced on the necessary engineering design, and site surveying in anticipation of a MAC application submission in 2023 and ORESS Auction Bid Submission early in 2024.

The Clogherhead Offshore Windfarm is a project that can be realistically delivered well in advance of the 2030 target for Phase 2 Projects. We believe the project can produce 800MW of Irelands currently envisaged 5GW target.

2. SUMMARY OF KEY POINTS IN OUR RESPONSE

This consultation explores how Phase 2 offshore development should be led and sets out the process for how a significant proportion of offshore wind will be delivered to meet the 2030 target. We recommend that a competitive process to determine how projects obtain seabed exclusivity (via Maritime Area Consents is the most suitable approach as proposed in option B in the consultation.

We have summarised our response to the questions in the consultation in the following key points. We believe the approach summarised below will deliver the most successful Phase 2 development and maximise the likelihood of reaching the 2030 targets.

Consultation Response Key Points	
Grid capacity availability	The grid capacity identified in the EirGrid Shaping our Electricity Future report does demonstrate a singular view on how the 5GW target will be reached by 2030. We believe that there is additional capacity available from electrically close nodes that should be identified in the next iteration to reduce deliverability risk and increase the increase the likelihood of reaching the 2030 targets
Preferred Option for MAC process	Option B – the competitive process is the most appropriate and will deliver the best results for both the State and the developer. In broad terms we support the criteria set out under Option B in the consultation paper. We recommend capped auction levy in line with Phase 1 to ensure a level playing field.
Criteria demonstrating 2030 delivery	A strong weighting should be given to criteria such as 'Site Investigation works, project design or other preparatory works undertaken,' and 'Efficient use of grid' to preference projects which have the strongest deliverability for 2030.
Retention of MACs between phase 1 and phase 2	We support the retention of MAC between Phase 1 and Phase 2. Requiring unsuccessful projects to reapply for a MAC would undermine investor confidence, increase the pressure on scarce MARA resources and decrease the attractiveness of the Irish offshore market.
Remediation mechanism for projects with evidence of progress to retain MACs	We recommend that the MAC has a default period of 10 years to cover the development phase with opportunity to extend this as appropriate where the developer can demonstrate legitimate reasons for delay. A similar approach is used in the UK market.
Grid allocation	We believe that the most competitive project at any given node in the ORESS auction should obtain a full grid connection offer. This will mean that projects lower in the overall ORESS merit order will proceed in preference to projects higher up the merit order but ultimately grid capacity is a scare resource and therefore it should be the best performing project at any given node that should be given a full grid offer.

3. RESPONSE TO CONSULTATION QUESTIONS

3.1 WHICH IS YOUR PREFERRED OPTION AND WHY OF:

a. The above options?

Our preferred option is Option B.

b. The above options, variations of same, and other possible options within the parameters outlined in this paper, particularly sections 3 and 4?

We are of the view that Option B represents the only viable proposal. This option is more closely aligned with processes that have operated successfully in other jurisdictions, including the recently concluded Scotwind process. This proposed auction system, if supported by appropriately weighted criteria, will give confidence to DECC and to developers. Providing early visibility of the intended assessment criteria is a key measure. This will enable all prospective competing parties to plan effectively in relation to development activities and strategy and it will also help to generate transparency in the process.

The MAC award process should be progressed as soon as possible after MARA is established to give the projects the opportunity to carry out site survey work and other development work as early as possible in advance of the ORESS 2 auction, which will be important to enable higher quality bids.

Under option B, project must align with the Shaping Our Electricity Future (SOEF) report. We would have concerns impact of this criteria could have on Ireland's ability to meet its 2030 renewable target. The Shaping Our Electricity Future (SOEF) is not a true assessment of the available capacity for offshore wind around the coast of Ireland. It is a single view on how a 70% renewable generation target could be met in terms of grid delivery. This constrained view of grid availability gives no room for flexibility and substantially increases risk of failure, cutting out all other scenarios in the event this view cannot be realised. The realisation of this singular scenario is heavily dependent on the delivery of a series of large-scale grid reinforcements. Based on the track record of delivering these types of projects in Ireland, it would be unlikely that all these reinforcements could be completed within the 2030 timeframe. This greatly highlights the need for a more flexible approach to give the highest change of success in delivering the 2030 target. The assessment in its current form effectively gives no allowance for a plan B to meet our 2030 targets.

The 5GW capacity could be connected at other locations around Ireland without driving any additional reinforcements than which are proposed in the SOEF. Many 'electrically close' nodes are available across the coast which require little to no further reinforcement which could be identified in the next iteration of SOEF (expected later this year) to improve competition and reduced deliverability risk. We recommend that these "electrically close" nodes be included in the next iteration to increase the likelihood of reaching the 2030 targets.

As part of the development of the Clogherhead project we have identified a suitable connection with available capacity, which requires minimal grid reinforcement allowing for the connection of the Clogherhead project in advance of 2030. This view is supported by 'EirGrid's East Coast Generation Opportunity Assessment 2019' and by independent grid connection assessments. Our preferred connection method is however outside of the geographical region illustrated on the SOEF report but located in close proximity to the Dublin region. A large percentage of the 2.9GW proposed to connect into the Dublin area could also be connected to other "electrically close" nodes which also still feed the large demand in the Dublin Area. The availability of such nodes is particularly critical given that significant reinforcements are required to deliver 2.9GW into the Dublin area and there is a high probability that these will not be delivered by 2030.

The Dublin-centric strategy of the assessment also compounds planning risk by forcing developers to develop a large volume of offshore wind projects in a single area. This will greatly increase the cumulative impact of project development in this area and will make it even more challenging for projects to progress through an untested offshore planning regime. The next iteration of SOEF must be carried out immediately and include these "electrically close" nodes to help mitigate against these risks and thereby increase the likelihood of reaching the 2030 targets.

We have significant concerns in relation to the workability of each of the alternative options. The proposal outlined in Option A is considered unreasonable as some of the main risks to delivering a project by 2030 are outside the control of the developer and it would not be proportionate to draw down a deployment security in these circumstances. In addition, it appears that MACs would potentially be awarded on a first come, first serve basis and this kind of solution will never deliver the best outcome.

Options C and D are not considered to be workable as it not appropriate to use the ORESS auction as a means of choosing winners at such an early stage of the development process. These options are more consistent with a plan-led approach where detailed survey work is available to underpin the evaluation of all potential development sites.

3.2 OPTION A PROPOSES THAT A DEPLOYMENT SECURITY IS REQUIRED FOR TO APPLY FOR A MAC IN PHASE TWO.

We understand the driver for DECC to ensure that applications for MACs are made for projects that have the best pre-2030 deliverability prospects. We do not, however, believe that deployment securities are the best way to achieve this objective. Considering development costs, an assumed development levy and performance bonds, the cost of obtaining consent for a typical offshore wind project is likely to be €60m-€90m. This level of expenditure should be sufficient to demonstrate the project developer's commitment.

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?

We are conscious of (and fully support) the setting of at least a 5GW target for deployment of offshore wind capacity by 2030. However, on receipt of a MAC a project developer is still exposed to several risks attached to delivery of an offshore wind farm. A project developer will still need to go through an untested planning

permission approval process, will not yet have received an indication of grid connection cost and will still need to complete a significant amount of further development and analysis before they can robustly assess the likely competitiveness of their project in a ORESS auction. Given this level of risk outstanding on MAC award we do not believe the project developer should be exposed to a cost for non-delivery. Such a security structure may be more appropriate at the time of ORESS contract award, possibly mirroring the structure of the Performance Bond under the RESS regime whereby the security would be drawn down if Commercial Operation Date is not achieved by a certain date. With regard to a disincentive for projects with possible delivery post 2030, we believe the features set out in the "Advantages" section of Option A, combined with the scale of development expenditure already incurred and lack of a likely alternative route to market outside of ORESS 2 are sufficient to discourage project developers from applying for a MAC unless they are comfortable (based on the variables they can control) that their project can reach commercial operations by 2030. Certainly, we would not view a Deployment Security in combination with a Development Stage Levy as being appropriate. Should any security be required this should be constructed so as to cover variables that are reasonably within the control of the project developer, such as payment of levies or proper maintenance and protection of the seabed area covered by the MAC.

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?

We are clear in our view that the obligation of deployment securities in relation to the award of MACs is inappropriate for the reasons set out above. The payment of an annual development levy is a proven structure and one which places sufficient incentive on a developer to commit investment and resources in the project.

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

We do not support the use of a deployment security.

d. The security, as proposed, expires with the 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 be managed?

The security as proposed (i.e. implying a delivery obligation) would be difficult to put in place as funders (e.g. in the case of a Letter of Credit) would be asked at the time of MAC award to take a risk on a project delivering capacity by a certain date. Given the risks outstanding at this time it is likely that the cost of any security that may be put in place would be quite high, which would have to be factored into the bid of that project in a ORESS auction. This is quite a different proposition to the Performance Security currently required under the RESS regime whereby the only substantive risk outstanding on the signing of the Implementation Agreement is construction risk, which is largely well understood in the context of onshore wind and solar energy projects.

e. What other terms should apply to this security?

We do not support the use of a deployment security

3.3 OPTION B PROPOSES A COMPETITIVE MAC PROCESS.

a. What assessment criteria should be used in this process? What should the weighting of this criteria be?

As noted in the response to Question 1, the proposal set out in option B is the most favourable, subject to certain amendments being made. The challenging delivery timeframe to 2030 means that the allocation of Phase Two MACs can only be achieved through the implementation of a robust and efficient process with a focus on prioritising those projects which have materially progressed a programme of development work. In broad terms we support both the criteria set out under Option B in the consultation paper and those established under Schedule 5 of the MAP Act.

The proposed criteria for the competitive MAC process are set out below.

Criteria	Competitive MAC Assessment
Consistency with the National Marine Planning Framework	Pass/Fail
Consistency with EirGrid's latest plans, e.g. Shaping Our Electricity Future	Pass/Fail
Financial Capability	Pass/Fail
Fit and Proper Person	Pass/Fail
Technical capability	Weighted
Site Investigation works, project design or other preparatory undertaken,	Weighted – development progression to be scored in the context of ability to deliver for 2030
Nature of stakeholder engagement	Weighted
An auction for the seabed levies to be paid by MAC holders	Capped development levy applied - in line with Phase One MAC development criteria
Efficient use of grid (less need for new infrastructure and making better use of current system)	Weighted
Whether the proposal is in the public interest[1]	Weighted

b. Should a seabed levy auction be included in this assessment? What weighting should the auction result have?

Our preference is for a capped seabed development levy to be included as part of the Phase Two MAC Competitive process similar to that utilised in the recent ScotWind Process. It is important that projects are

[1] Any sustainability, electricity system operational advantage, equality or inclusivity practices that are currently in place, and demonstrate how they will incorporate these principles throughout the lifetime of the MAC.

on a level playing field in relation to levies paid as part of a MAC process as Phase One and Phase Two projects will most likely be competing in ORESS 2.

c. Should a deployment bond be maintained under this option? Why, or why not?

As per our answers to Question 2, we do not believe a Deployment Security is appropriate given the outstanding risks to delivery at the time of MAC award. The purpose of the deployment bond as set out within the consultation document is to discourage speculative bidding for projects which do not have a credible programme for 2030 delivery. Deployment securities are proposed as a method to ensure the bona fides of the applicant under a number of the options. We believe that, with the use of an appropriate development option fee, the case for an additional development security is not justified and, in addition, would impose additional burdens on both MARA and the developer for limited, if any, benefit.

3.4 ALL OF THE ABOVE OPTIONS ASSUME THAT PHASE ONE PROJECTS RETAIN THEIR MACS FOR PHASE TWO.

a. Is this the correct approach? Why?

We support the retention of MACs for Phase One projects to ensure that any project which did not clear within the ORESS1 auction can continue through the planning consent process. Failure to secure a winning bid within ORESS1 does not necessarily mean that the project is immature or financially unviable, but simply that another project bid lower. Requiring unsuccessful projects to reapply for a MAC would undermine investor confidence, increase the pressure on scarce MARA resources and decrease the attractiveness of the Irish offshore market. To ensure a level playing field it is critical that Phase One projects should be subject to the same terms and conditions as Phase Two projects.

b. Would requiring Phase One projects that are unsuccessful in securing a route to market, within a specified timeframe, to re-apply for MACs result in a better outcome for the sector, the State and consumers? Why?

As noted in the response to the question above, we do not agree that requiring Phase One projects that are unsuccessful in securing a route to market to reapply for a MAC would provide a better outcome for any of the main stakeholders involved. This is because it would unnecessarily increase developer costs, add extra risk and uncertainty which serve only to increase bid prices, without any providing any additional benefit. In addition, it would increase the demand for resources within MARA, which is an undesirable outcome given the priority associated with awarding Phase Two MACs.

c. If Option D was selected would this require unsuccessful Phase One projects to relinquish their MAC before ORESS 2? If so, should these projects be given any preference such as a right of first refusal if they match a winning bidder's terms for their MAC area?

Option D is unworkable and should not be progressed, so we have nothing more to add in relation to this question.

3.5 TO INCENTIVISE SWIFT DEPLOYMENT, DISCOURAGE SPECULATIVE HOARDING OF THE MARINE SPACE, DISCOURAGE MAC APPLICATIONS BY PROJECTS INCAPABLE OF DELIVERING BY 2030, AND FACILITATE THE COHERENT TRANSITION TO A PLAN-LED ENDURING REGIME, IT IS PROPOSED THAT ALL MACS AWARDED IN PHASE ONE AND PHASE TWO WILL EXPIRE PRIOR TO THE ENDURING REGIME, SHOULD THE HOLDERS OF THESE CONSENTS BE UNSUCCESSFUL IN SECURING A ROUTE TO MARKET.

a. Is this the correct approach? Why?

The transition to the Enduring Regime is a fundamental aspect of the overall design and a proportionate approach to the treatment of projects endeavouring to reach COD by 2030 is required. We recognise the difficulties associated with planning for the Enduring Regime when there is a level of uncertainty around project delivery by 2030. However, considering the major investment demanded in the development phase, a project which successfully secures an ORESS contract must have certainty that the MAC will remain in place sufficiently long to enable energisation. It is not clear from the consultation document what milestone would need to be reached by 2030 to continue to hold a MAC. If there is a risk that a project could lose a MAC for not reaching a Commercial Operations Date milestone within a relatively short time (3-4yrs) post success in an auction and post grant of development consent, this will hinder a projects ability to reach financial close, when capital expenditure must be committed. If there is a risk that the MAC could be lost in an abrupt transition to the Enduring Regime, then it would not be possible to successfully finance the project in the first instance. Clearly, there are risks outside the control of the developer such as legal challenges to planning consent which may result in a project not being able to deliver for 2030. This is a very real scenario, and it is only reasonable that a developer should have a time extension beyond 2030 to enable project completion if these circumstances arise. A very clear distinction should be drawn between a developer undertaking every reasonable measure to ensure that a project is completed by 2030 and one is who is not committing the appropriate level of resources or financial investment to ensure project realisation. In the latter scenario, MARA should be able to terminate the MAC. Considering the foregoing, we propose that the MAC has a default period of 10 years to cover the development phase with opportunity to extend this as appropriate where the developer can demonstrate legitimate reasons for delay. While we recognise the need to have an incentive for delivery by 2030 there needs to be a mechanism for the extension of MAC milestone dates where projects have been delayed due to circumstances outside of their control. This type of remedy has been used in the UK contracts for difference scheme to enable project delay risk to be mitigated. We believe that this proposal fairly addresses both the interests and concerns of the State and the developer.

b. Would this approach incentivise deployment and/or discourage hoarding of the maritime space?

We suggest that, in order to demonstrate their commitment to projects, developers should lose their entitlement to MACs if they do not meet mutually agreed development milestones throughout the process, subject to an ongoing review mechanism. Our preference is to allow for sufficient flexibility within the system so that projects can proceed with confidence through the development process. While hoarding of valuable

maritime space is clearly something which needs to be avoided, there is careful balance to be struck between penalising developers who haven't committed the appropriate level of funding and resources to a project and imposing onerous completion conditions on genuine market participants. It is critical that projects which have secured a clear route to market, but which may have experienced delays outside of their control, due to for instance access to grid or judicial review, should have options to extend their MAC development period and be permitted to proceed into the early 2030s.

c. Would this approach discourage MAC applications in Phase Two from projects with poor pre-2030 deliverability?

This approach is unlikely to discourage MAC applications in Phase Two from projects with poor pre-2030 deliverability. Developers by their nature will take an optimistic approach to project delivery and the proposal to terminate the MAC prior to the Enduring Regime may not achieve the desired outcome. It is important therefore that the capacity of a developer to deliver a project by 2030 should be a key consideration for MARA in determining a MAC application and that there is a series of milestones which the developer must meet on an ongoing basis in order to retain a MAC.

3.6 WHAT ARE YOUR VIEWS ON PROVIDING PROVISIONAL GRID OFFERS TO PROJECTS IN THE CASE WHERE ALL PROJECTS RECEIVING SUCH AN OFFER WILL NOT BE ABLE TO OBTAIN A FULL GRID OFFER?

a. How can and should the award of full grid offers be tied to the auction results?

Projects will only have a reasonable degree of certainty of delivery if they hold access rights to the seabed, consent, and a route to market. Notwithstanding our preference for the ORESS auction to follow consent, we believe that the most competitive project in any ORESS auction should obtain a full grid connection offer at any given node. This will mean that projects lower in the overall ORESS merit order will proceed in preference to projects higher up the merit order but ultimately grid capacity is a scare resource and therefore it should be the best performing project at any given node that should be given a full grid offer.

b. Should allowance be made for projects that do not effectively compete in the auction but share a preliminary connection offer with projects that do to remain eligible for a CPPA route to market?

We do not support this approach as grid capacity is limited. The available grid capacity will have already been awarded. A CPPA could be considered in the event that an awarded project at a given node failed to secure planning.

3.7 WHAT ARE YOUR VIEWS ON AUCTIONING CAPACITY AT PARTICULAR GRID NODES OR REGIONS IN ORESS 2?

How should this operate? Should successful projects be required to submit ORESS 2 offers that clear both the overall auction and the auction for a given grid node or region?

We believe that there is no need to auction grid capacity at individual nodes or regions as per our answer to Question 6.

a. Should any nodes or regions be reserved for non-ORESS routes to market?

No, grid capacity is in short supply. No sense in sterilising a node for a route to market that is very immature in the Irish market.

3.8 IN ORDER TO UTILISE GRID CAPACITY REALISABLE BY 2030 IN TOTALITY, MOST OPTIONS REQUIRE THE AWARD OF GREATER CAPACITY IN ORESS 2 THAN IS REALISABLE BY 2030, AND ESTABLISHING RESERVE PROJECTS ON GRID ORDERS OF MERIT, POSSIBLY GRID REGION.

a. What are your views on grid orders of merit? How best could reserve lists be established in a robust manner that does not give rise to legitimate expectations by reserve projects?

Clogherhead believes that it would be unwise to offer ORESS contracts that exceed the grid connection capacity in any given region or at any given node. As an example, if two projects proposing to connect at a given node (each using the full capacity at that node) are both awarded ORESS contracts there is no other way to separate them other than by ORESS bid. In that circumstance, it would be unlikely that the project that came second in the ORESS auction would continue to develop given the reduced likelihood of the project reaching FID. The only way not to give rise to legitimate expectations is to award an ORESS contract to the highest ranked project in the ORESS auction and to provide a full grid connection offer to that project.

b. How should grid orders of merit be established? Is using ORESS 2 bidding order, possibly by grid node/region, an appropriate methodology?

ORESS2 bidding order matched to the availability of grid capacity at any particular node should be used to award full grid capacity.

c. What obligations should be placed on reserve projects and what, if any, compensation should be provided?

We believe that the concept of reserve projects is not workable due to a combination of developer risk and project timelines. The only way a reserve project would consider the continuation of development would be if its development costs were to be underwritten. This would cost tens of millions for every individual reserve project contract.

d. How should reserve projects be serviced so that they can readily progress if required?

Aside from the costs involved, reserve projects would have to be managed in exactly the same way as the successful projects if they are to have any hope of meeting the target timelines. This would place a significant additional resource burden on the organisations required to process consent applications, etc.

e. How should reserve projects be held to the terms of their ORESS 2 offer

If reserve projects are processed in the same way as successful projects and if their costs are underwritten then it should be possible for them to meet the terms of their ORESS 2 offer.

3.9 OPTION D OUTLINES AN AUCTION WITH MUTUALLY EXCLUSIVE OFFERS AND MULTIPLE BIDDERS SPECIFYING THE SAME MAC AREA AND/OR CONNECTION POINT ALLOWING MULTIPLE BIDDERS TO SPECIFY THE SAME MAC AREA AND/OR GRID NODE/REGION AND USING ORESS 2 RESULTS TO ALLOCATE THE MAC AREA AND/OR GRID NODE/REGION CAPACITY.

a. What are your views on the feasibility of this option? What are your views on the feasibility of solving the auction using an optimisation approach?

This option is not feasible for the phase two development of offshore wind due to the overheads imposed on both projects and officials to achieve successful outcomes. Far greater groundwork would be required to enable this type of process which is not conducive to early deployment of offshore wind projects.

3.10 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.

We do not believe there is a requirement to have a separate definition for hybrid grid connection between a thermal generation plant and a proposed offshore wind project. There has been much work previously carried out in both Ireland and other international markets to explore the concept of hybrid units, hybrid sites and hybrid connections and this work does not differentiate between the technologies that form a hybrid grid connection when determining the applicable policy. Hybrid connections of all types of generation should be treated in the same manner.

We therefore recommend the following definition should be adopted for hybrid grid connection.

A hybrid grid connection should be defined as two or more generation units under the same connection agreement, with a combined installed capacity greater than the connection agreement MEC, dynamically sharing the MEC at the point of connection to the grid.

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

We support the facilitation of such connections along with the facilitation of all hybrid connections as define above within the broader definition provided. The facilitation of hybrids has been a clear policy objective for some time that has been included in the CAP annex of actions but progress to date has been slow. Action is required to enable all hybrids, including offshore hybrids and to ensure that all regulatory hurdles are removed to allow these projects to progress.

These hybrid grid connections provide a range of benefits as set out below:

- More efficient use of grid infrastructure
- Allows renewable generation to utilise existing connections which would expedite their connection to the grid rather than having to wait on timely grid reinforcements
- Reduction in carbon emissions by allowing the accelerated increased penetration of renewable generation
- Greater sustainability by avoiding the building of new assets to provide the same service
- Greater social acceptance as less investment in new grid infrastructure required.

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.

We are not aware of other jurisdictions that have facilitated the connection of both an existing or proposed thermal generation plant and a proposed offshore wind project. This is perhaps unsurprising as the Irish system has been at the forefront of developing solutions to integrating higher levels of renewable penetration given that it's a relatively small electricity system with limited interconnection. These connections are simply the next step in allowing better integration of renewable generation on the system.

Hybrid grid connections in a broader sense e.g., co-located renewable energy sources and/or battery storage sharing a single grid connection, are operational and under development in several jurisdictions such as GB, Netherlands, USA, India & Australia.

In September 2021 National Grid ESO in GB published its Guidance Notes for Co-Location of Different Technologies, wherein it describes how the grid code compliance process applies to various configurations of co-location installations of different technologies for the assistance of prospective customers planning connected their projects directly to the National Electricity Transmission System. The guidance notes describe two distinct categories of co-located sites: supplementary (components are not independently controlled) and independently operated (the operation of different technology units is independent from each other).

c. Are there potentially unintended consequences associated with permitting hybrid grid connections, such as potential impact on grid system services provided by the associated thermal plant or potential impacts on the reliability of the thermal plant?

Further analysis is required to determine the potential impacts on System Services and Reliability. From a technical perspective, connecting offshore wind projects to the system via a thermal power station should have no additional impacts on the system beyond what would occur if an offshore wind farm was connected to a similar location using a standalone connection. In other words, the technical implications are driven by locational issues rather than use of hybrid/non hybrid methodologies. The offshore connection at the thermal plant should have no implications for the reliability of the thermal plant in its own right.

It is difficult to envisage the nature of the system services provision by 2030 given the predicted fundamental change in the overall system. The services required in 2030 and who will be in the market to provide them is still to be decided and heavily dependent on the SEMC's System Services Future Arrangements

d. 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?

Offshore hybrid connections do not distort competition but rather opens the use of additional grid capacity to allow a greater number of projects to be eligible to enter the auction. These projects would still need to be connected offshore but would simply connect in behind these thermal connections onshore rather than the grid nodes identified in the SOEF.

It should also be noted that both the thermal and the offshore wind farm would be hindered by the nature of the connection. In the case of the thermal plant, it is possible that it could lose system service or capacity market revenue as a consequence of making space for the offshore wind project. Similarly, given that the TSO could use the thermal project in the balancing market, the offshore wind project is likely to suffer more dispatch down as a consequence of system services requirements than an offshore wind farm with a standalone connection would. These are factors that would also have to be considered when formulating a bid in the auction and would not be considered competitively advantageous.

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 set out in the response to the start of this question, we believe all hybrid connections should be treated in the same manner irrespective of the technology used. For onshore assets, these types of connection are currently facilitated through connection optimisation provided for under ECP (combination, hybrid and technology change). It would appear discriminatory to adopt a different approach for a subset of hybrid connections.

3.11 SHOULD ANY SPECIAL ALLOWANCES FOR INNOVATION TECHNOLOGIES BE INCLUDED IN THE PHASE TWO PROCESS?

In principle, it is important to support all forms of innovation in parallel to the mainstream technologies that will deliver the majority of the 2030 target. It is equally important to recognise that not all innovative technologies are at the same point on the journey to commercial operation. Floating offshore wind, for example, is already in commercial operation in a number of global locations and deployment in the next decade will comprise multiple gigawatts while wave technology has not reached the same level of commercial advancement. As such, approaches to the support of innovation in its widest sense should not be based on a "one size fits all" basis.

a. What technologies should be provided with special allowances and why?

Floating offshore wind should not be considered an innovation project and should therefore be supported through a separate ORESS auction or pot within ORESS 2. A separate pot of 1GW should be considered in addition to the 5GW to support this technology. Such an approach is in line with that adopted by other nations

such as the UK. In that specific example, early recognition of the potential for floating offshore wind in the UK CfD auction process has led to a burgeoning sector with large scale commercial deployment planned for the Atlantic, the North Sea and the Celtic Sea.

It would not be appropriate for other projects with less mature technology to compete at auction. Again, experience from elsewhere has demonstrated that early-stage technologies should be supported through some type of feed in tariff so as to provide a higher degree of certainty for the technology providers.

Innovative technologies such as hydrogen, storage, wave and tidal will be crucial to the future success of Ireland's energy economy, and it is critically important that the Government signals early support to these technologies so that they can move towards full commercial deployment as soon as possible. Waiting for other nations to do the "heavy lifting" risks losing the potential benefits that can accrue to the wider economy.

b. What allowances should be made? At what stage(s) of the Phase Two process? Should capacity be reserved in the MAC and ORESS processes for any of these technologies?

As outlined elsewhere in this response, the SOEF does not provide sufficient headroom to make sure that the 5GW target is achieved. To allow for attrition, delays to consent, difficult network upgrades etc., That all 'electrically close' nodes are identified in the SOEF at more geographically diverse locations as set out in response to question1. This additional capacity would allow floating offshore wind projects to compete for MACs either as part of the general Phase Two process or in a specific MAC allocation process. The allocation for floating offshore projects in MACs needs to be replicated in the ORESS auction process.

c. Should these types of projects also be required to deliver by 2030?

Floating offshore wind can be deployed by 2030 but delivery in that timeframe will be heavily influenced by the actions taken by the Government and MARA. Delivery by 2030 is therefore a decision for the Government rather than the developers.

Regardless whether delivery is pre or post 2030, the most important point is that development of floating offshore wind should commence as soon as possible for a number of reasons. The Climate Action Plan references both a target of at least 5GW of offshore wind by 2030 to the potential of at least another 30GW. It will be floating offshore wind that will deliver the vast majority of the additional 30GW and the development of the 5GW and the 30GW should not be sequential – commencement of floating deployment now will help avoid a hiatus in the 2030s.

Unliked fixed offshore wind, floating has the potential to create a bespoke supply chain in Ireland with all of the associated economic benefits There is a real risk that, if Ireland delays the deployment of floating offshore, the supply chain opportunities will be lost to other markets that are pushing ahead such as Scotland, England and France.

As regards innovative technologies such as hydrogen, storage, wave and tidal, etc., none will make a significant contribution to 2030 targets. The most important aspect regarding innovation technologies is to

ensure that support is provided as soon as possible as part of the pathway to full scale commercialisation post 2030. It is therefore not essential that innovation projects should deliver by 2030.

d. What level of offshore wind capacity could be deployed before and after 2030 that does not depend on the Irish grid for offtake? i.e. generation that is instead utilised for non-grid offtakes such as green fuel generation or export by cable to another jurisdiction?

Experience in other mature offshore wind markets has demonstrated that little, if any, capacity thus far has not been grid connected. There are a number of projects in Europe and elsewhere that are being developed which do not depend on grid connectivity. These tend to fall into two categories – those designed to decarbonise the oil and gas sector and those designed to generate hydrogen. An example of the former is the under construction Hywind Tampen project comprising 11 turbines not connected to the grid but to a number of oil and gas platforms in the North Sea so as to provide the majority of their electrical power. In terms of hydrogen, a Danish project is under development which hopes to use the output from a 1GW offshore wind project to generate hydrogen using electrolysers. A similar project nearby intends to use a similar offshore wind project to produce green ammonia.

While it is possible and even likely that these and similar European "grid alternative" offshore wind projects will be operational by 2030, it is unlikely that there would be similar projects of scale available in Ireland by 2030. It is also true however that such projects are likely to be the mainstay of the Irish energy system beyond 2030 given the disconnect between energy resource availability and conventional electricity demand. It is therefore important that work commences now to help develop initial pilot projects to demonstrate and test the technology and operation of offshore projects not connected to the grid infrastructure.