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Electricity Interconnection Policy Technical Consultation
International and Offshore Energy Division
Department of the Environment, Climate and Communications
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Dear Electricity Interconnection Policy Team

Consultation on Electricity Interconnection policy

1 INTRODUCTION

Codling Wind Park (CWP) is a proposed offshore wind farm in the Irish Sea, set in an area called the Codling Bank, approximately 13-22 kilometres off the County Wicklow coast, between Greystones and Wicklow Town.

CWP is a 50:50 joint venture between EDF Renewables and Fred. Olsen Seawind, two leading developers, owners and operators of renewable energy assets, with many years of global experience in the renewable energy and offshore wind sector.

CWP has been designated as one of the Phase 1 projects and, with an expected capacity of between 900 and 1,500 megawatts (MW), it will make a significant contribution to the Government's recently increased target of 7GW of offshore wind by 2030. The expected output of the wind park would be enough to supply the equivalent of up to 1.2 million Irish homes – 70% of all Irish households – with low-carbon, locally-produced, low-cost electricity, and to save almost 2 million tonnes of carbon emissions every year.

Representing one of the largest energy infrastructure investments in Ireland this decade, the project will deliver substantial benefits to the regional and national economy, including more than 1,000 construction jobs and around 75 long-term, locally based jobs.

2 OVERVIEW OF CODLING POSITIONS

CWP welcomes the opportunity to respond to this consultation. The case for interconnection is complex and should only be considered as part of an overall energy strategy. CWP believes that the key points below are important in that regard.

- CWP believes that interconnection of electricity networks between jurisdictions is a necessary part of ensuring security of supply, while also giving the opportunity to export electricity when supply exceeds demand.
- CWP believes that maintaining and expanding interconnection with GB is very important as a near neighbour and one with established interconnection with the EU. However, the trading issues which have developed

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- since Brexit must be resolved and Irish Government must work closely with other EU Member States which operate interconnectors with GB to develop satisfactory and sustainable solutions,
- Increased interconnection should be part of a suite of actions being taken to ensure security of supply, affordability and emission reduction. This suite must include increased domestic low carbon generation and increased onshore grid access to reduce constraints and curtailment, including reinforcements to improve system stability. Interconnection in and of itself will not meet these goals, in particular leaving Ireland at a security of supply and energy cost risk.
 - Hybrid interconnectors could bring complexities particularly in relation to markets, regulation, maintaining unbundled entities, which would need to be resolved to enable viable projects

In answering the consultation questions, CWP will expand on and explain these points.

In conclusion, we would like to thank the Department for the opportunity to engage on this matter. Should you wish to discuss this further, please contact [REDACTED] or myself.

Yours faithfully

[REDACTED]

[REDACTED]



3 CODLING WIND PARK RESPONSE TO CONSULTATION QUESTIONS

Ireland's increased energy ambition

Questions:

- To what extent would a commitment by Government on delivery of further interconnection capacity, beyond the proposed Celtic and Greenlink interconnectors, impact achievement of Ireland's 2030 and post 2030 energy objectives?

2030 energy objectives.

Responding specifically in terms of electricity related energy objectives, it is arguable that given the likely time to commission new interconnectors, that there would be little or no impact on the achievement of 2030 energy objectives. The main constraint in grid terms to achieving the 2030 energy objectives is in relation to onshore grid, both in terms of where the network is situated and in terms of the level of upgrade required to increase the system's capacity and capability. Also, while a commitment to further interconnection will encourage new generation projects to be established in Ireland, it is also unlikely that these would be commissioned by 2030 in any substantial capacity. It is also unlikely that developers would commit to build new generation capacity before there is clear evidence of such interconnection projects starting, such is the extent of potential curtailment and oversupply on the system. In the time left until 2030, it is likely that only projects which have already commenced in development might be able to complete by 2030, it is therefore unlikely that there would be much new additional generation in operation by 2030 as a result of further interconnection.

Post 2030 energy objectives.

Allowing for the limited detail of the post 2030 energy objectives, a commitment by the Irish government to pursue new interconnection with the EU and GB, as suggested above is likely to encourage expansion of Ireland's generation capacity post 2030, as interconnection could reduce the likely occurrence of curtailment / oversupply and potentially help to smooth the relationship of consumer demand versus generation by effectively increasing the capacity of both through the interconnector links to other jurisdictions. However, interconnection should not be seen as an alternative to onshore network upgrades, which are required to manage existing constraints, but should be seen as an additional upside alongside the onshore system upgrades. Having both the onshore upgrades and an interconnector network could enable maximum usage of deployed renewable generation, both reducing the Irish electricity emissions and improving the cost of operation of renewable generation.

Specifically in terms of offshore wind, alongside any proposals for interconnectors and their subsequent development, the offshore Enduring Regime for development of wind farms will need to be established as well as the offshore wind farm grid connection policy.

- In the context of Ireland's increased climate and energy ambition, should Government establish future minimum interconnection targets, with capacity to be delivered by a specific point in time? If so, what should these targets be?

Having targets is useful as they give both those who might provide the interconnectors and those who may use them – whether generators or those managing the market – an understanding of the potential for expansion. More important than the targets are a commitment and a realisable method to achieve the targets, combined with real progress. The risks associated with achieving the targets will have to be assigned, and there will have to be incentives to participate either through favourable market design or support mechanisms. Any targets must be set as part of a wider Irish electricity roadmap, supported by detailed analysis, to a zero-carbon energy system.

Also, the EU already has set targets for a minimum level of interconnection that each member state should have. Currently this is 15% for each member state by 2030¹. However the existing operational interconnectors, along with Greenlink and Celtic already amount to approximately 15% for Ireland of current demand. The EU's latest

¹ Regulation 2018/1999 on the Governance of the Energy Union and Climate Action published in 2018



proposed method for assessing required interconnection suggests the target should be 30%, which along with increased demand in coming years would significantly increase the amount of interconnection required. As such Codling supports setting interconnector targets to assist in the growth of renewables in the years to come.

- Regarding the location of future interconnection, should priority be given to developing further interconnection with Great Britain or the EU IEM, or both?

It is reasonable to assume both interconnection with Great Britain and the EU IEM would be appropriate, and that some care should be taken to analyse in detail the extent to which Great Britain (following Brexit) will be aligned or misaligned with the EU-IEM in terms of market pricing, system charging and electricity flow direction. However, the proximity of Great Britain in terms of Ireland's existing demand and Phase 1 offshore projects (the east coast of Ireland) and pre-existing interconnectors between jurisdictions is such that CWP would advocate for continued support for continued and increased interconnection to Great Britain, although not exclusively, as expanding access to EU countries will further open up potential export markets. Detailed analysis is required to establish the best interconnector opportunities and if and how these can evolve to a super grid arrangement. There is an urgency now to ensure that this route for interconnection can still be accessed post Brexit and for the State, EU and the UK to resolve these issues.

- What are the primary benefits associated with increased interconnector capacity? For instance, would the primary benefit relate to enhanced security of electricity supply or de-risking future renewables development?

The primary benefits associated with increased interconnector capacity are well established – security of electricity supply, helping with future renewable development and opening of markets for export.

In order to meet its 2030 and future renewable electricity generation targets, Ireland will need a significant increase in offshore generation. To be economically viable, the offshore projects will need to be of a scale at least a magnitude greater than existing onshore projects. At times of high demand and high generation, a good generation-demand balance could be achieved, giving a very efficient system. Having increased interconnection will help maintain system security and efficient system operation at times when there is a generation-demand mismatch, by supporting either continued operation of high-capacity renewable generation or security of supply depending on the generation-demand relationship.

It is likely that as renewable generation capacity increases, supporting more renewable deployment will not be feasible, or become very expensive, without more access to interconnectors to facilitate export when generation exceeds demand.

The first generation of offshore wind farms will generally be concentrated on the east coast of Ireland close to centres of demand. This is useful in terms of the onshore transmission network as it will minimise the extent that reinforcements are required to take power to the high proportion of end users. However, should there be high generation coinciding with low demand, closely located interconnection to other jurisdictions will support continued generation, supporting security of supply and export generation.

Interconnection will play an increasingly important role as we build more renewables, from helping to facilitate renewables, to making high RES-E levels viability to ultimately an export opportunity.

National Legislation

Question:

- Is the existing legislative framework contained in the 1999 Act appropriate to secure future development of interconnector capacity?
- What amendments, if any, do you consider necessary to the 1999 Act?



CWP supports the WEI position on this question.

Brexit and future EU-UK Interconnection

Question:

- To what extent will the development of future interconnection between Ireland and Great Britain be impacted by the removal of Great Britain from European Market Coupling?

Although there are some issues about the future relationship between Ireland and Great Britain with respect to interconnection, Ireland should continue to pursue the potential for further interconnection with Great Britain.

Great Britain is open to maintaining and increasing interconnection both to import and export electricity so could become both a useful source of power as well as a market for excess power.

Great Britain should be an attractive option for Ireland to consider due to its location as nearest neighbour as well as its demand and market is considerably larger than Ireland's. Being considerably closer to Ireland than the EU, interconnection from Ireland to Great Britain could be more cost effective than with other jurisdictions.

Also, Ireland establishing an interconnector with Great Britain will be the same as for any EU member state establishing interconnectors with a third country, so should not be considered as necessarily any more problematic.

The planning and development for an interconnector project is in excess of 10 years, and so is likely to take longer than the establishment of any new market rules that may be required for a new GB-EU relationship. This would suggest that even in the absence of a firm relationship, advanced planning would be time well spent.

- To what extent will clarity over the future energy relationship between the EU and the UK be necessary to provide for future interconnection between Ireland and Great Britain?

Ireland should not lose sight of the fact that it will not need to establish the rules with Great Britain as this is an EU-UK relationship, and that as well as Ireland there are other member states which already have interconnectors with Great Britain. The EU will lead and manage this; however, Ireland should push the EU to ensure that this is treated as a matter of urgency.

This urgency could be characterised in the impact trading on the East-West Interconnector, has had, leaving limited trading options and some unintended or unexpected consequences. Since the Withdrawal agreement SEM-GB trading has now been limited to intraday, however the Day Ahead market is operating between GB and other EU Member States, and it is specific to the way I-SEM was set up which meant that rolling back to previous arrangements was not feasible (or not efficient for a temporary need). The withdrawal agreement includes commitment to develop alternative day ahead arrangements, which must be pursued.

Withdrawal agreement Title VIII, Article 14: Electricity trading arrangements at all timeframes, notes "For capacity allocation and congestion management at the day ahead stage, the Specialised Committee on Energy, as a matter of priority, shall take the necessary steps in accordance with Article ENER.19 [Cooperation between transmission system operators] to ensure that transmission system operators develop arrangements setting out technical procedures in accordance with Annex ENER-4 within a specific timeline". Whilst political obstacles are noted at present, interconnectors are long-term developments and given Withdrawal Agreement commitment to develop alternative arrangements, CWP doesn't believe these short-term issues should be an obstacle to further development.

While the UK develops trading agreements with the EU there will be issues to consider such as energy pricing, system charging, taxation and electricity flow based on demand and pricing.

The Role of the CRU

Question:



- Regarding Are the technical criteria employed by the CRU in assessing interconnector development applications appropriate?
- What of the above three regulatory models offers the most viable route for development of future interconnection between Ireland and neighbouring countries?

Of the three regulatory models described in the consultation document – merchant, fully regulated and cap and floor – cap and floor is probably the most favourable at this time as it gives the interconnector operator a clear revenue offer.

However, as interconnection and its development become more established, and also bearing in mind the overall energy objectives, it may be that the other models will become more appropriate.

Hybrid Interconnection

Questions:

- To what extent can dual-purpose hybrid interconnectors contribute to Ireland's post 2030 climate and energy objectives?

The extent to which hybrid interconnectors can contribute to Ireland's post 2030 climate and energy targets is quite difficult to assess as there are many issues with a dual-purpose interconnector which would have to be resolved. These issues include ownership of the different elements of infrastructure, their relationship to the connected national networks and the support mechanisms open to the wind farm and the interconnector.

Normal rules being applied would mean that the interconnector and the generation station connected to it would have to be unbundled – that is be in distinct ownership and operation.

How electricity would be bought and sold across the interconnector would have to meet the normal interconnector policies, so any generation station connected onto the interconnector may have to take the prevailing market conditions. The relationship of the markets at either end of the interconnector would determine flow direction, and therefore how and who paid for the generated power. This is likely to include any prevailing support mechanism. In this sense the generator would be selling to the interconnector rather than to a particular market.

To expand on this point, if a generator was supported through PSO payments, then there would be a question of who (or if) supports the "CfD" for the energy when the power is being sent to another jurisdiction. Would the PSO only cover power metered into the Irish grid? – possibly yes. So, the incentive for the generator would be to send as much power as possible to the Irish grid. In that case there may be limited incentive for generator to be connected to the other jurisdiction. The benefit would be that if the Irish grid was constrained, the generator may get some payment for what might otherwise be constrained off energy.

To be able to contribute to Ireland's post 2030 climate and energy objectives, it needs to make sense (incentivise) to the generator-interconnector combination.

Dual purpose hybrid interconnectors may be able to enable overcapacity of offshore renewables such that there is (often) at least sufficient energy available to meet Irish needs. However, there would need to be some policy or incentive or both to encourage the generator to send power to Ireland when required. However, if the interconnector is, for example 500MW and the wind farm is also 500MW, then in times of high demand, there is no advantage in having the full jurisdiction to jurisdiction interconnector – raising the question of whether it provides any additionality, and if not, then the value is questionable.

- What is the appropriate policy and regulatory framework to provide for development and operation of dual-purpose hybrid interconnectors?



This will come down to the objective that is being sought. It is important that the objective is not just to have hybrid interconnectors, but that the hybrid interconnectors are a solution contributing to the objectives. The policy and regulatory framework can then be developed to support the objective.

Also it should be considered whether this is an interconnector which a generator can connect to, or is it a dual-purpose hybrid, which can also supply power to meet demand at either end.

In relation to this, a means to establish the capacity of the interconnector will need to be established. Is Ireland looking for a 1GW interconnector, or is the generator looking for a 500MW grid connection in two directions?

The regulation of the infrastructure ownership and connection policy could be quite complex. Already for offshore wind the proposal is that the offshore connection will have a distinct TAO to the onshore network, which introduces an additional (TAO to TAO) interface compared to onshore connections. Such arrangements would be necessary and probably developed further. For offshore wind the offshore connection TAO will be EirGrid, however EU rules may exclude national TAOs from owning interconnectors.

Given what is (above) possibly only a short analysis of the types of issue which could be based, an in-depth study of how interconnectors will need to work and how unintended consequences are avoided should be carried out.

- What if any amendments to national legislation may be necessary to provide for the above? Should hybrid interconnectors be considered as new electricity market infrastructure, separate from conventional point to point interconnectors?

This will really depend on what the driver is – interconnection or efficient use of the wind farm, as above. Efficiency in terms of increasing demand versus availability.

- What are the principal barriers in existing EU electricity market rules, most notably the Electricity Market Directive and Electricity Market Regulation, to development and operation of hybrid interconnectors?

Specifically, CWP is not able to answer this point, however to CWP's knowledge a hybrid interconnector has not been set up within the EU, although there are examples of this being investigated. It is understood it was not possible to find a viable financial model to support the project.