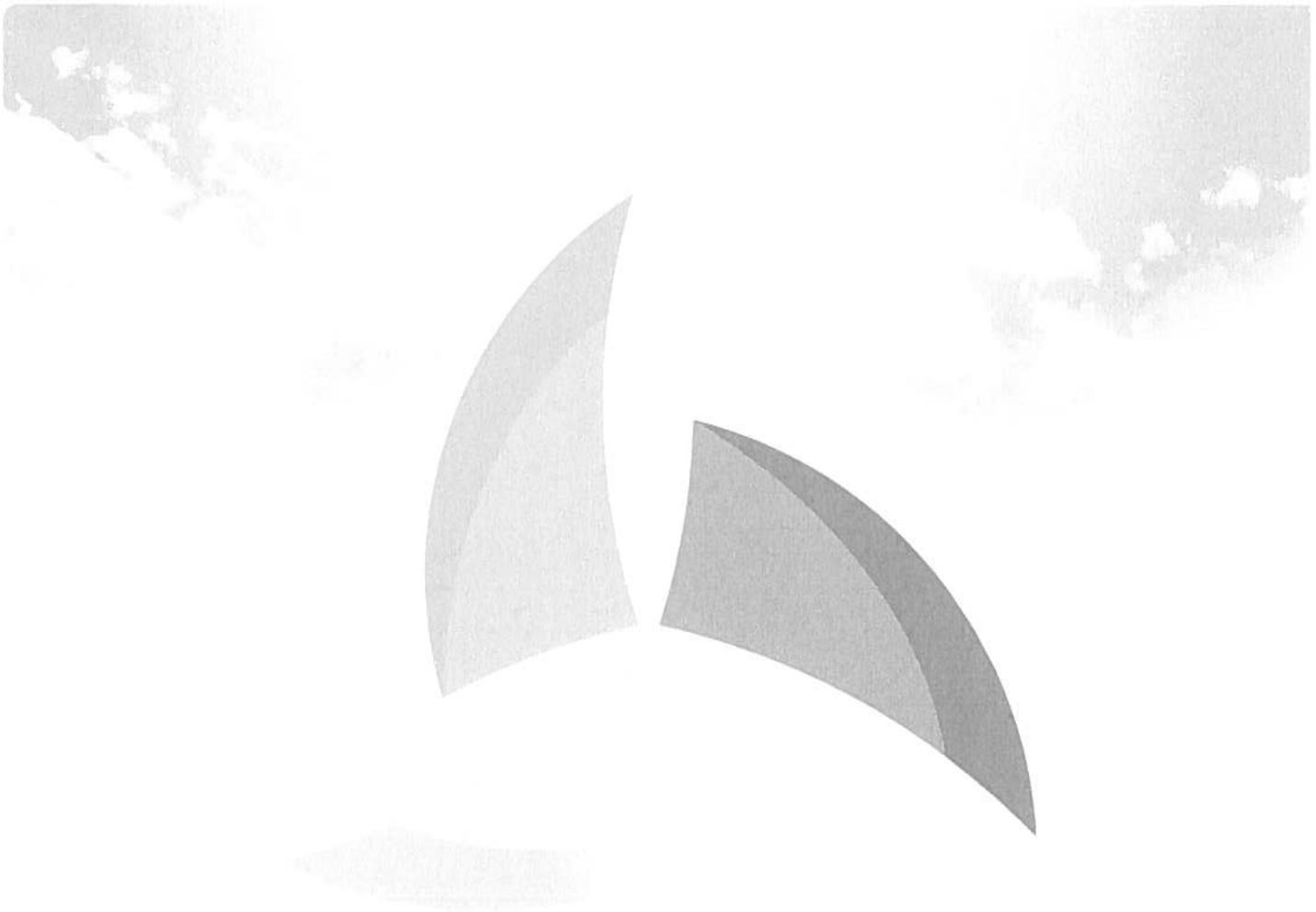

WIND ENERGY IRELAND

Wind Energy Ireland
DECC Electricity Interconnection Policy Consultation Response

2 September 2022

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windenergyireland.com

1. Introduction

Wind Energy Ireland (WEI) would like to thank the Department of Environment, Climate and Communications (DECC) for the opportunity to provide a submission on the *Electricity Interconnection Policy – Technical Consultation.*

WEI is Ireland's largest renewable energy organisation with more than 180 members who have come together to plan, build, operate and support the development of Ireland's onshore and offshore wind generation. We work to promote wind energy as an essential, social, economic, and environmentally friendly part of the country's low-carbon energy future. As a leader in Ireland's fight against climate change, wind energy creates jobs, invests in communities, and reduces CO_2 emissions.

This response from WEI sets out specific and detailed responses to the questions posed by DECC in the consultation paper, drafted and agreed by WEI members.

WEI would like to emphasise the following points that we believe are important to be taken into consideration in the context of revising Ireland's interconnection policy:

- EirGrid's Shaping our Electricity Future (SOEF) will not be sufficient to enable Ireland to meet our 2030 targets, we need to go further to ensure we can reduce our carbon emissions by 51% by 2030. Ireland is still expected to emit over 70 million tonnes of carbon by the end of the decade, even if we achieve all of what has been set out in SOEF
- Given the time it takes to deliver new grid infrastructure projects in Ireland, there are significant challenges for new interconnection to have an impact pre-2030 without rapid acceleration to planning processes which will enable further streamlined development in a timely manner, as proposed via REPowerEU
- The end goal is to decarbonise Ireland's energy system before 2050 – to facilitate this, we must reach a Net-Zero electricity system by 2035 and implement a number of changes now to facilitate the required integration of renewables
- The recent revisions to the TEN-E regulation are welcomed, including the designation of priority offshore grid corridors and the sea-basin approach to coordination of offshore renewables and grid infrastructure with neighbouring countries. This can ensure an adequate and reliable transmission grid and the ability to supply electricity generated offshore to landlocked Member States, providing a significant opportunity to end the isolation of Ireland through export and expanding our route to market. Ireland must ensure that the political agreements – due on 24 January 2023 - on offshore capacity for the two sea basins that we are part of (Northern Seas offshore grid ('NSOG') and Southwestern Europe offshore grid), reflect the 51% reduction target by 2030 and a Net-Zero Irish electricity system by 2035 as well as a fully decarbonised economy by 2050.
- WEI believes the EU's 15% interconnection target by 2030 appears to be limited and unambitious, especially given the fact that a number of EU countries have either met or surpassed this target already.
- A 30% interconnection target would recommend c4GW of interconnection capacity in the near term. Existing and proposed interconnectors from Ireland would give a total of c2.2GW if and when all are operational. The proposed MARES Interconnector may add an additional 750MW to this, however this would still leave Ireland with a shortfall to reach 30%

- WEI would advocate for future interconnection from Ireland to both GB and the EU and would stress that the location of interconnection in Ireland will need to be carefully considered so as not to exacerbate existing network constraints on the system
- WEI believes much of the existing legislation relating to interconnection to be appropriate, but believes it is currently unclear if current legislation would cater for requirements beyond point-to-point interconnection, such as to facilitate and enable hybrid interconnection, meshed offshore grids, as well as enabling the deployment of direct wire solutions in appropriate circumstances and therefore WEI would recommend that this legislation will need to undergo an evaluation to address these points.

We hope that in our response we have comprehensively answered the consultation questions to inform the final DECC policy decisions and are available for further discussion should any clarifications be required.

1.1. Ireland's Increased Energy Ambition

Offshore wind is envisaged as being a vital part of Europe's fight against climate change. 2050 will see at least 400 GW of offshore wind installed in European waters. Ireland also has ambitious plans for offshore wind, with a target of 5 GW set for 2030 – **now set to increase to 7 GW following recent Government announcements on Sectoral Emissions Ceilings**[1] - and the Programme for Government highlighting a potential for at least 30 GW of floating wind in the longer term.

The offshore area does not have an electricity grid yet, and how these huge capacities of offshore wind connect into the energy system is a question now being asked, particularly as we identify levels of offshore potential beyond what individual national grids could accommodate alone. The delivery of a pan-European offshore electricity network will be essential in enabling and accelerating Ireland and the EU's ability to incorporate offshore resources and meet 2050 climate targets.

Ireland has some of the highest average wind speeds in Europe averaging more than 12 m/s at 100m hub height on the west coast. For context, the Scottish North Sea is thought to have some of the best wind resources in Europe which have been developed to date, and average wind speeds there, at the same height, are between 9.5 – 10 m/s. Ireland's significant offshore resource exceeds national demand by several orders of magnitude.

Ireland has set an ambitious target of 80 per cent renewable electricity share by 2030, but the reality of rapidly increasing electricity demand highlights the challenges around the plans to meet the 2030 targets set. The current Irish approach of incrementally changing the grid system to facilitate slowly increasing levels of renewables will not be sufficient as demand increases at a faster rate. Incrementalism does not always suffice. There is no incremental way to reach a Net-Zero electricity system by 2035 and a climate neutral European by 2050. Current grid planning is too slow to react to renewable targets.

This method of grid infrastructure development is not fit for purpose and will result in grid capacity remaining as one of the major roadblocks to delivering our renewable targets. Instead, grid planning should facilitate anticipatory investments, as proposed by the European Parliament in its resolution on a European strategy for offshore renewable energy[2].

[1] https://www.gov.ie/en/press-release/dab6d-government-announces-sectoral-emissions-ceilings-setting-ireland-on-a-pathway-to-turn-the-tide-on-climate-change/

[2] European Parliament resolution of 16 February 2022 on a European strategy for offshore renewable energy (2021/2012(INI))

The case for developing a Pan European SuperGrid is clear in the Irish context. Ireland is a small country with a sea area seven times larger than its land mass. Ireland has the unique opportunity to lead the development of an offshore grid that integrates a high level of offshore renewables and offers us the opportunity to export vast levels of energy. This consultation is welcomed by Wind Energy Ireland and will hopefully lead to more thorough consideration for Ireland's offshore wind future.

1.2. Consultation Questions

Question 1

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?

WEI recently published a report "Bridging the Gap: Towards a zero-carbon power grid[3]" which strongly states that EirGrid's "Shaping Our Electricity Future" plan is not enough. Even with every single project identified in EirGrid's Shaping Our Electricity Future strategy, this will not be sufficient for Ireland to reach its 2030 targets and cut its carbon emissions by 51% (Ireland is still expected to emit more than 70 million tonnes of carbon over the decade). The report, produced jointly by Baringa and TNEI, identifies several additional existing power lines which must be upgraded but there will also need to be rapid deployment of smart grid technologies like 'Dynamic Line Rating' which allows the electricity system to carry more power when the weather is cooler.

Considering the time taken for delivering new grid infrastructure projects, it is difficult to see how new interconnection projects can be brought online to impact pre 2030 without rapid changes to the planning process. REPowerEU is bringing in changes to how renewables permitting could be sped up. Within the WEI Position Paper on REPowerEU, WEI called for the need for enhanced cross-border cooperation on grid infrastructure to drive the transition from a European electricity system based on fossil fuels, to one based on clean renewable energy. Grid infrastructure needs a permitting process that can align with generation. It is imperative that the labelling of renewables projects as "Projects of Overriding Public Interest" within REPowerEU is also applied to associated grid infrastructure projects as well.

However, while the focus has been on 2030 targets, the real end goal is decarbonising Ireland's energy system before 2050. It is easy to focus solely on 2030 and plan for 2030 alone, but when considering the end goal, it is clear that changes need to be implemented now to Ireland's interconnection policy to facilitate the required integration of renewables for 2050. The revision to the TEN-E regulation requires Member States to – before 24 January 2023 - agree on goals for offshore renewable generation to be deployed within each sea basin by 2050, with intermediate steps in 2030 and 2040, defined by the Offshore Grid Corridors, established by Annex 1 of the recently revised Regulation on guidelines for trans-European energy infrastructure[4]. Ireland belongs to two Offshore Grid Corridors: 4) Northern Seas offshore grid ('NSOG') and 8) Atlantic offshore grids. The agreements must reflect the national energy and climate plans, the offshore renewable potential of each sea basin, environmental protection, climate adaptation and other uses of the sea, as well as the Union's decarbonisation targets.

[3] https://windenergyireland.com/images/files/bridging-the-gap-a4-report-final.pdf
[4] Regulation (EU) 2022/869, on guidelines for trans-European energy infrastructure.

This would require Ireland to set out interim targets for 2030, 2040 and 2050 by early Q1 2023. A number of other Member States already have interim targets in place, some of which have been legislated for, Ireland being an exception to this. The Sea-Basin agreements between the Member States themselves are set to be non-binding, however they will form the basis for the "high-level strategic integrated offshore network development plans" for each sea basin that ENTSO-E must make part of its Union-wide ten-year network development plan by 24 January 2024 and all future ten-year network development plans thereafter.

This has an impact on future development of cross-border projects, as only those included in the TYNDP will be eligible for consideration on the PCI list.

The benefits of interconnection are known, with significant system stability benefits, along with integrating the Irish energy system to mainland Europe.

The recent revision to the Trans-European Networks for Energy (TEN-E) includes a Priority Electricity Corridor that concerns Ireland which aims to "integrate electricity from renewable energy sources, reinforce internal grid infrastructures to foster market integration in the region and **to end isolation of Ireland**, and to ensure the necessary onshore prolongations of offshore grids for renewable energy and the domestic grid reinforcements necessary to ensure an a**dequate and reliable transmission grid and to supply electricity generated offshore to landlocked Member States**."

In addition, the aims of the Northern Seas Offshore Offshore Priority Grid Corridor that Ireland is part of are "offshore electricity grid development, integrated offshore electricity, as well as, where appropriate, hydrogen grid development and the related interconnectors in the North Sea, the Irish Sea, the Celtic Sea, the English Channel and neighbouring waters to transport electricity or, where appropriate, hydrogen from renewable offshore energy sources to centres of consumption and storage or to increase cross-border renewable energy exchange."

The second Priority Offshore Grid Corridor that Ireland is part of - "Atlantic Offshore Grids" - has the following objectives: "offshore electricity grid development, integrated offshore electricity grid development and the related interconnectors in the North Atlantic Ocean waters to transport electricity from renewable offshore energy sources to centres of consumption and storage and to increase cross-border electricity exchange."

The three TEN-E Priority Corridors that Ireland is part of mentioned above should be a call to action for Ireland in developing an offshore grid that ends Ireland's isolation from the European Electricity grid and develops a clear route to market for Irish Offshore Energy to the European market.

A commitment on further interconnection would help to incentivise investment in renewable generation in Ireland, particularly in the area of offshore wind. Ireland has a significant offshore wind resource with the potential to export significant levels of power to Europe. However, further interconnection is a key enabler for increased export and a commitment on its delivery would reduce uncertainty for developers.

In addition, and quite significantly, for Ireland to achieve a carbon budget of 66 million tonnes of CO2 in the power sector, will require the build of significant onshore wind and solar PV capacity as early in the decade as possible, as well as proactive investment in enabling technologies, including sources of

system flexibility to manage renewables oversupply, such as interconnection, demand-side response, and energy storage technologies.

The Irish electricity sector can only meet ambitious Government carbon emissions targets by 2030 provided there is "a complete transformation of the planning system and grid policies", according to the WEI Bridging the Gap report. The recent report from the Institute of International and European Affairs[5] also concludes, specifically in relation to interconnection, that " a second electricity interconnector, between Ireland and France, will be necessary as Irelands wind economy grows over the next decade. Such an interconnection would enhance Irelands energy connectivity."

Considering the lifetime of an interconnector project and the considerable increase in electricity demand forecast over the coming decades, we believe future interconnector projects should be developed with significant consideration of future demand scenarios, up to and beyond 2050. Considering future electricity demand and energy security needs, a detailed cost benefit and risk analysis needs to be conducted on all future interconnector projects to determine the optimum capacity for a future proofed design.

Question 2

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?

At an EU level, there has been a target set of achieving 15% interconnection by 2030 via the Regulation 2018/1999 on the Governance of the Energy Union and Climate Action launched in 2018. To give this target context, it was an increase up from a previous target of 10% set in 2014.

This can be seen to be out of date or unambitious when it is noted that there are several countries in the EU that have already exceeded this target. In the context of both an acceleration and increase in renewable ambition, the EU agreement on a climate neutral economy by 2050 and the importance associated with this (as imbued by the content of the European Climate Law, the European Commission's Fit for 55 legislative package and its REPowerEU Communication from May 2018), setting firm, ambitious and relevant targets for interconnection are needed. The Commission, the European Parliament and the European Council have all supported an increase of the current EU 2030 renewable energy target of 32% to between 40 and 50%. For clarity it should also be noted that targets should be calculated with relevance to the purpose of the interconnection – a target of 30% may be more appropriate for some countries, but not for all. However, in all cases integrating the required levels of renewables for 2050, i.e., not just 2030, will not be possible without new grid infrastructure being built, and this will include vital interconnection with neighbouring grids.

In 2019, the 'Second report of the Commission Expert Group on electricity interconnection targets[6]', looked further into the proposed percentage targets (noting again that this report was done before recent increases in renewable targets across Europe), and it stated:

'To operationalise the 15% electricity interconnection target by 2030, the Expert Group proposed the interconnection level to be measured based on two new formulas: the ratio of the nominal

[5] https://www.iiea.com/images/uploads/resources/Escaping_the_Energy_Crisis.pdf

[6] https://ec.europa.eu/energy/sites/ener/files/documents/2nd_report_ic_with_neighbouring_countries_b5.pdf

transmission capacity to the peak load and the ratio of the nominal transmission capacity to the installed renewable generation capacity. ***Therefore, the new interconnection formulas and the relevant thresholds of 30% remain valid for this report.***'

Noting Ireland's 80% 2030 targets will likely require 13-15GW of renewable energy (dependent on technology mix, a 30% Interconnection target on this basis would recommend c. 4GW of Interconnection capacity in the near term (i.e., by 2030), in order to achieve this.

Current interconnectors from Ireland include Moyle (450MW), EWIC (500MW), Greenlink (500MW), & Celtic (750MW), giving a total of 2.2GW when all are in operation. While MARES may add c. 750MW to this total should it be successful, it is clear that a shortfall would exist based on this already outdated 30% RES-E target.

Taking a longer-term view however, Ireland has an ambition to achieve a Net Zero energy system by 2050. Given our isolated nature on an island, this will be simply unachievable without significantly larger interconnection capacity, the main reasons being;

i. the additional export potential provided by interconnection enables a route to market for renewable projects, which also supports high renewable penetration onto the Irish grid, thus avoiding fossil fuel generation,
ii. increased interconnection also provides grid infrastructure to import renewable electricity from neighbouring Member States at times of low wind in Ireland, again avoiding the need for fossil fuel generation), and given the long lead time for interconnection projects to come to fruition, action must be taken now to accelerate and enable the increased development of interconnection between Ireland and neighbouring countries.

WEI has set out a vision for Ireland within our 2022 Strategic Plan (Building a Zero Carbon Ireland[7]) which calls for a Net-Zero electricity system, with wind energy at its heart, by 2035. Fully decarbonising our electricity system by 2035 will further support Ireland towards meeting our carbon budgets (Government commitment for the electricity sector to reduce emissions by 75% by 2030[8]) and enhance our ability to achieve a Net-Zero energy system by 2050. In order to facilitate both Ireland's decarbonisation and the export of our renewable national resources to the EU as members of that community, it is clear that we need to be more ambitious when adopting any new targets.

Question 3

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

WEI would recommend that priority be given to future interconnection between Ireland and both the EU and GB. The EU and GB both have existing strong and stable markets, and we therefore believe it would be prudent to continue to cooperate across all borders to increase interconnection capacity.

Climate change does not recognise borders. Ireland must interact with both the EU and GB. The EU and GB both have an interest in working together in a future energy system. Irelands isolation from

[7] https://windenergyireland.com/about-us/strategic-plan
[8] https://www.gov.ie/en/press-release/dab6d-government-announces-sectoral-emissions-ceilings-setting-ireland-on-a-pathway-to-turn-the-tide-on-climate-change/

the European market should be viewed as concerning, and while the Celtic interconnector is in development, this should not be the only link we develop.

For Ireland to fully reap the environmental benefits, security of supply, and commercial and social benefits of its vast offshore wind resource, it must apply a truly meshed approach to electricity grid infrastructure planning and investments. That means going beyond the assumption that only two markets are involved in cross-border transmission planning. The full benefits of sea basin-wide planning only emerge if power flow to more than two markets – and possibly incorporating renewable production assets and onshore integration.

GB is a world leader in the deployment of offshore wind and continues to develop increasing targets for offshore wind and deploy capacity. The UK shares aspects out into the Irish Sea and Celtic Sea with Ireland. It is impossible to imagine a future where Ireland and the GB energy systems do not interact. Ireland, as current acting president of the North Seas Energy Cooperation, has an urgent need in pushing for cooperation between the UK and the EU in developing interconnection links as well as coordinated grid development for the future. Ireland should also insist that work within the TEN-E Northern Seas Offshore Grids Priority Corridor and the development of the resulting "high-level strategic integrated offshore network development plan" of the Northern Seas is done in close coordination and cooperation with GB.

Ireland's offshore resource has been discussed at length, with emphasis on the vast resource available beyond national demand. Ireland needs to be considering interconnection for the export of power to Mainland Europe and the UK. However, it must not be forgotten that there will be periods during a normal year where power will also be imported into the Irish system. Interconnection needs to be considered as a more flexible asset in the future beyond the rigid uses that exist today where the change from export to import occurs over long-time steps.

It is important further interconnection between Ireland and EU/GB is carefully located at nodes on the Irish transmission network which do not exacerbate existing Irish transmission network constraints. Further market coupling will bring periods of interconnector imports which will benefit the end customer with lower energy prices. The connection points should be designed to take these large MW imports without increasing dispatch balancing costs. Aiming to minimise dispatch down constraints for onshore and offshore RESS projects keep the many solutions viable to achieving the 2030 targets and beyond. The shortest line between neighbouring countries is not necessarily the optimum connection.

Question 4

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?

Benefits of Increased Interconnection

Supporting the Energy Transition

There are a significant number of benefits associated with interconnection that are widely accepted at the highest levels. The European Commission recognises the vital role that interconnection will play in the future energy system stating that "an interconnected European grid will help deliver the ultimate goals of the Energy Union to ensure affordable, secure and sustainable energy to all

Europeans". The report goes on to further state that "well interconnected and integrated trans-European grids are indispensable for making the energy transition a success." (EU Commission: Communication on strengthening Europe's energy networks[9]). There should be no doubting the merits of interconnection, especially for Ireland where it is currently isolated from the European Electricity Market.

Electricity Market Integration

Towards a Sustainable and Integrated Europe[10] was published in November 2017 by the European Commission and outlined five key benefits that greater interconnection would bring to the European energy system. "Firstly, interconnectors integrate the European electricity markets in a number of ways resulting in better prices for consumers. Interconnectors help reveal the investment signals for generation capacity, allow for a better use of the complementarities that exist between the differing renewable resources across Europe and contribute to generation adequacy by lowering the needs for operational security margins and reducing grid losses." These are the wider benefits that would be realised by Europe as a whole. Deeper interconnection towards a larger grid will unlock geographic complementarities for a stable and secure energy system of the future.

Increasing Capacity

Secondly, greater interconnection has the ability to facilitate larger levels of renewables on the grid while also ensuring that curtailment and oversupply levels reduce. Integrating higher levels of renewables with insufficient interconnection or storage results in an increase in the levels of curtailment and oversupply. Increased interconnection also has the ability to reduce constraint levels in the certain parts of the network. These impacts are of particular concern for newer projects, which fall into the non-priority dispatch category and will experience higher levels of curtailment and constraint versus projects in the priority dispatch category. Under the SEM Committee Decision (SEM-022-009) issued on 22nd March 2022 regarding Article 12 and 13 of the EU Clean Energy Package, redispatch of renewable generation (curtailment and constraint) will be based on a merit order, with non-priority generation being dispatched down first. This arrangement is expected to take effect post-2026. Ultimately, increasing the level of interconnection will reduce the risks to project revenue caused by dispatch down, with positive benefits for project financing.

Security of Supply

Thirdly, interconnection increases the security of supply of energy across the European energy system through provision of additional capacity to neighbouring systems. Provision of European energy for European consumption reduces reliance on energy imports from external markets. Europe has agreed to become independent from imported Russian fossil fuels; this cannot be achieved without reinforcing its electricity and energy system through greater interconnection of a power system largely based on solar and wind.

Regional Cooperation

Fourthly, interconnectors, as indispensable elements of the trans-European networks and particularly as developed by Projects of Common Interests, are truly European projects that strengthen regional cooperation between Member States.

[9] https://energy.ec.europa.eu/system/files/2017-11/communication_on_infrastructure_17_0.pdf
[10] https://ec.europa.eu/info/news/moving-10-15-final-report-commission-expert-group-2030-electricity-interconnection-targets-2017-nov-09_en

Additional Opportunities

Finally, investment in interconnectors offer, as a positive spill over, opportunities for uptake of European technologies and thus strengthen employment, industrial competitiveness and global leadership of Europe's clean, low-carbon industries.

"Much of Europe's electricity grid network has been designed in consideration of the locations of conventional generation plants. However, a large share of today's renewables production - notably variable wind and solar – does not correspond to this grid architecture. Interconnectors, in addition to internal infrastructure, are key to creating new electricity routes to connect areas of abundance to areas of scarcity. In this context, the Expert Group recognises that a fundamental role of transmission infrastructure is to enable the integration of areas of high renewable energy potential with main consumption areas[11]".

This is the largest single benefit to Ireland in developing further interconnection capacity. Central Europe is the largest consumer of energy and will require these power corridors to facilitate the efficient movement of power from renewable rich areas (Ireland) to the demand centres.

Cost to Consumers

According to the recent IIEA report, relating to interconnection, there is a significant need to reduce the use of fossil fuels globally. Large scale investment in renewable sources such as wind and solar will help to increase security of supply in Europe and contribute to the EU's geopolitical ambition of developing greater strategic autonomy. Importantly, it will also lower the cost of electricity to consumers.

Modelling from the IEA shows that if developed economies adopt policies aligned with net zero emissions, exposure to price volatility will decrease and average household energy bills will be considerably lower by 2030, and lower still by mid-century. The weather-dependent nature of electricity from wind and solar means that it is not impervious to price volatility, which can contribute to higher and lower consumer bills. To increase predictability, reliability and resilience in the energy system, European policymakers should substantially increase investment in renewable energy infrastructure.

Interconnectors between grids are an important way of both providing flexibility to the European power sector, ensuring security of supply, and removing grid congestion. Interconnection also ensures that electricity can flow to where it is most valued and that consumers benefit from international competition, and, as a result, lower prices. Greater interconnection would also help to remove the need for future price-related interventions in energy markets.

For Ireland, electricity interconnection is a strategically important tool and affects the three pillars of Irish energy policy – sustainability, security of supply, and competitiveness. At present, Ireland currently has an electricity interconnection with Northern Ireland and with GB. In May 2022, An Bord Pleanála approved the Celtic Interconnector – a subsea link which facilitates the exchange of electricity between Ireland and France. This connection is expected to be operational by 2026, and once on-stream it will be Ireland's only electricity interconnection to the EU.

[11] https://ec.europa.eu/info/news/moving-10-15-final-report-commission-expert-group-2030-electricity-interconnection-targets-2017-nov-09_en

Export Opportunities

Electricity interconnectors can flow in both import and export directions. This helps to lower the long-term costs of electricity for the consumer. At times of high prices in Ireland, interconnectors can facilitate the import of cheaper electricity from other markets. Equally, interconnections offer an opportunity for increased energy exports to European markets when necessary. Ireland has a considerable offshore wind potential, one of the largest in Europe.
However, Ireland's relatively small market size and low interconnection capacity is a major constraint to meeting this potential. Without a means of export (either directly via interconnection, or indirectly via products such as green hydrogen or e-fuels), investment will be limited to the level needed to meet domestic requirements. Increased interconnection capacity would be a key enabler to export Irish energy to the wider European market. However, interconnection capacity is just one aspect of the challenge. Creating an environment that attracts significant investment is even more important. Increasing interconnection will create additional market forces, requiring the Irish market to be even more competitive to attract investment.

Ireland currently has no plans to develop further interconnection with France beyond the currently planned Celtic Interconnector. Ireland needs deeper interconnection with France in order to maintain a stable and secure future decarbonised energy system.

Considerations for Increased Interconnection

While interconnectors have the potential to play a key role in delivering a net zero energy system in Ireland, their successful use and deployment will require careful consideration and management of a range of challenges arising. The future role of interconnectors must be assessed in an integrated way, taking account of the overarching policy objectives for the future Irish energy system.

Renewable Energy Integration

Indigenous renewables generation is an essential part of the wider technology mix, of which interconnection plays a part. It's important that interconnection is not viewed as a substitute for increased indigenous generation, but rather as a complementary component of the future system. To meet our 2030 and 2050 targets, we will need both increased indigenous renewable generation and new interconnection to be developed in parallel to deliver an efficient and secure low carbon electricity system.

Grid Reinforcement

The challenge for electricity transmission and distribution is supporting a rapidly evolving generation mix that must be capable of providing secure, reliable power to customers, 24 hours a day, 365 days a year, while decarbonising the power sector. The Irish grid is currently subject to a high level of dispatch down and to reduce this, the grid will need to be reinforced. This can be achieved by 'uprating' the existing transmission system, by constructing interconnectors to link the Irish grid to other electricity systems, and by building new battery storage units that help maintain the system.

Domestic Security of Supply

Interconnectors can strengthen the resilience of a network by transferring energy from other networks, however, this is only possible if there is a surplus on the other network and imported electricity cannot be always relied on. Energy self-reliance is critical at this time, particularly given the current geopolitical climate and global energy crisis. A holistic approach should be taken regarding security of supply. If the aim of further interconnection is to enhance security of supply, then its contribution must be analysed in the context of the steps already taken across the capacity

remuneration market (CRM) market design and the DS3 workstream, both of which aim to enhance security of supply and further facilitate renewable integration. Rapid interconnector development could change the electricity market in ways that may not be immediately obvious and might not be beneficial for Irish customers. Increased imports and less gas-fired generation would reduce system inertia below critical levels more often and to rectify this situation, the system operator at times will have to curtail windfarms - or indeed interconnectors themselves - off the system, raising costs for customers. This increase in customer costs should be captured and factored into any further Government's cost benefit analysis.

Level Playing Field

There are limited opportunities to connect additional sources of electricity supply to an already strained transmission system. A balanced approach should be taken regarding the market conditions and grid connection costs applicable to all technologies, from windfarms to interconnectors. Project of Common Interest (PCI) interconnectors, for example, will be exempt from the standard rules, and will benefit from "improved regulatory conditions". While this additional support and investment facilitates the successful deployment of PCI projects, a level playing field for all technologies would be welcomed.

Market Distortion

Due to Ireland's location at the edge of Europe, further interconnection will enable access to EU energy markets, increase the range of electricity sources available and allow us to take advantage of differences in market prices. It's also important to consider interconnectors in terms of what they deliver, which is transmission infrastructure that connects two markets. This is different from installed generation, which facilitates Ireland in terms of ensuring domestic security of supply. There is a risk that Ireland could become a captive market, given its small scale and its location, as there may be a limited opportunity for generators to compete equally, given the specific system and transmission limitations that the TSO must manage. Large transmission assets bidding into the capacity market, such as the Celtic or Greenlink Interconnectors, with limited exposure to underlying wholesale markets or specific penalties that incentivise performance, may create market distortions. Therefore, a mechanism to prevent market distortions from occurring is recommended. The European Commission's REPowerEU plan, published in May 2022, sets out measures to reduce EU's dependence on Russian fossil fuels by accelerating the clean energy transition and increasing the renewable electricity target in the directive to 45% by 2030. We believe it's critical that Ireland maintains focus on increasing indigenous renewables deployment, in line with this European Plan.

Related to both security of supply and concerns around delivering value for Irish consumers, it is important that future interconnection links are sufficiently scoped to prevent perverse outcomes. One such example WEI is aware of is a recent phenomenon whereby power is flowing from Scotland to Northern Ireland via Moyle while power is flowing to England from Ireland via EWIC. When this happens, the All-Island grid is effectively acting as a congestion management tool for the GB transmission system.

As the Department will be aware, work is progressing under the REMA project in GB to potentially introduce zonal pricing. Typically, power flows from Scotland to England, reflecting the fact that Scotland has a surplus of electricity supply, while England typically has a deficit. A move to zonal pricing in GB, is therefore likely to create a price signal encouraging power flows from Scotland to England, increasing the likelihood that the All-island grid acts as a GB transmission link more often. The concern is that Irish consumers fund the cost of the transmission grid between Belfast and North Dublin, although the benefits of power flowing from Scotland to England via Ireland, accrue to English consumers. It's important therefore that future market dynamics remain a consideration when developing interconnectors to ensure that Irish consumers continue to benefit from their construction

2. National legislation

2.1. Consultation Questions

Question 5

Is the existing legislative framework contained in the 1999 Act appropriate to secure future development of interconnector capacity?

AND

Question 6

What amendments, if any, do you consider necessary to the 1999 Act?

WEI believes the current legislative framework is broadly sufficient for the development of interconnector projects, though would note a review should be undertaken with the potential for hybrid projects/multi-purpose interconnectors (MPIs) in mind.

For example, in the UK the Offshore Network Transmission Review: Multi-Purpose Interconnectors[12] published this year outlined the need for legislative change to facilitate MPI. As part of this paper the UK Government notes the potential need to "introduce a new licensable activity into the Electricity Act 1989 for the operation of a Multipurpose Interconnector and whether an associated definition of an MPI asset is necessary". Government should undertake similar considerations with respect to our legislation in Ireland,

This consideration should also extend to other legislation outside the 1999 Act. For example, evaluation is needed to understand whether MPIs are permitted under the Maritime Area Planning (MAP) Act, and whether the definition of electricity interconnectors contained in the Act is consistent with MPI projects.

In relation to the CRU's ability to grant or refuse the licences required to operate and maintain an interconnector, consideration should be given to Commission Recommendation of 18.5.2022 on speeding up permit-granting procedures for renewable energy projects. This recommendation suggests that clearly defined deadlines which are as short as possible should be required for permits to build and operate renewable energy projects. We would suggest that an amendment to section 14(1)(i) of the 1999 Act should be made to oblige the CRU to meet appropriate and legislatively prescribed timelines. Additionally, the terms and conditions which may be applied by the CRU should be published on an ongoing basis to the extent practicable and this obligation should be included in section 16 of the 1999 Act.

WEI would also like to address the issue of private wires in relation to the existing national legislation. Enabling private ownership of electrical infrastructure will increase the level of renewable electricity on the Irish grid and be a key enabler to further interconnection with other jurisdictions.

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12 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1072801/otnr-multi-purpose-interconnectors-government-response.pdf

This would put Ireland in a much better steed to achieve decarbonisation targets while also increasing security of supply.

It's time critical that Ireland removes the regulatory and legal barriers preventing the use of private wire generation. Enabling private ownership of electrical infrastructure will unlock multiple benefits to the Irish and European grids. The following needs to be completed as soon as possible;

- The relevant government bodies must Implement the EU Electricity Directive (2019/944) Art 7 on direct lines
- Action 115 of the Climate Action Plan needs to be progressed and completed, we're still awaiting the Consultation Paper on policy options on Private Wires which was due in Q1 2022.

There is enormous offshore wind potential off our South & West coasts. If Ireland is to play its role in Europe's decarbonisation, significant quantities of this power will have to be exported to Europe through electricity and hydrogen/e-fuels. The revised Renewable Energy Directive (RED II) sets out minimum criteria for renewable fuels including hydrogen and e-fuels. RED II strongly promotes the use of private wire connections for the production of these fuels.

3. Brexit and future EU-UK Interconnection

3.1. Consultation Questions

Question 7

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

Ireland is one of many EU Member States which are likely to be impacted (positively or negatively) by the outcomes of Brexit. Ireland should work collaboratively with the European Commission to push for a speedy, robust and appropriate resolution to the GB-EU arrangements. Given existing relationships and proximity of Ireland to GB, there may be an opportunity for Ireland to take a leading or mediator role to re-engage with the UK on future grid planning. This could happen within the broader EU context (The European Commission), the North Seas Energy Cooperation (Ireland's current joint presidency which is working on a MoU with the UK) and the TEN-E Northern Seas Offshore Grid Priority Corridor (NSOG), which apart from Ireland, includes Belgium, Denmark, France, Luxembourg, Netherlands and Sweden.

Question 8

To what extent will clarity over the future energy relationship between the EU and UK be necessary in order to provide for future interconnection between Ireland and GB?

- As noted in response to Q1, WEI supports future interconnection between SEM and GB which provided the opportunity for connection to a large market, a relatively short distance away. The UK is also the world's leading offshore wind market, with significant opportunity for joint projects in the Irish and Celtic Seas. The recent Crown Estates seabed auction for sites in Celtic

Sea highlight this potential, and it is important to develop market arrangements under North Seas Cooperation. It would be advantageous for Ireland to have the UK included in this.

Whilst SEM-GB trading has now been limited to intraday, it is important to remember that:

- 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.
- 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 we note political obstacles at present, interconnectors are long-term developments and given Withdrawal Agreement commitment to develop alternative arrangements, we don't believe these short-term issues should be an obstacle to further development.

We also note that other Member States continue to develop interconnector projects with GB (France, Belgium, Germany etc.). Given our geographic location it would be, in our view, perverse for Ireland to erect any additional barriers to SEM-GB interconnectors and/or de-prioritise their development versus those with Continental Europe.

4. The role of the CRU

4.1. Consultation Questions

Question 9

Are the technical criteria (listed below) employed by the CRU in assessing interconnector development applications appropriate?

Please see WEIs response outlined in Table 1 below.

CRU assessment criteria	WEI Comments	Recommended amendments
CRU will assess electricity interconnector applications on basis of a set of technical, economic, and regulatory criteria, including socio-economic impacts across a range of scenarios	This seems reasonable with no need to alter significantly.	Interconnection applications should also be considered in a longer-term system context to ensure that these projects can adapt to the future energy system. Socio-economic impacts should be assessed including reduction in power prices for consumers as well as grid stability and security of supply.
CRU gives particular consideration to socio-economic benefits as well as in terms of costs under a range of scenarios and sensitivities	Consideration to costs must not only consider the CAPEX of the project but also the effects the project will have on the system. Net societal benefit should also be considered re: security of supply, greater renewable penetration.	Interconnection projects can reduce the cost of energy and as such consideration for the effect on the system is important. Non-economic public goods should also be considered.

		Strategic benefit of direct interconnection with EU Grid and strengthening of national network.
Information also to be complemented with qualitative, equity and distributional impacts as well as strategic issues	This is appropriate	
Projects assessed case-by-case with due regard for long term interest of electricity consumers, including any impact on network tariffs	This is mostly appropriate but proposed projects cannot have their effects judged in isolation, there must be consideration for the effect on the system envisioned at the date of commissioning (i.e., including all approved future projects).	It is important that any impact on network tariffs be managed and well understood, but there should be broad consideration of wider impacts. High network tariffs due to congestion at points in the network for example should not be discounting factor to network development.
PCI status is not pre-requisite for submission of applications, but is deemed advantageous in terms of signalling a level of project maturity and providing opportunity for application under either national or EU legislation	This is appropriate	
Applications should be submitted by "sufficiently mature" projects – display sufficient certainty about the costs and benefits being assessed; permitting procedures should have also started in each of the countries where a project will be hosted	This is appropriate	

Table 1: CRU Assessment Criteria

Question 10

What of the 3 regulatory models offers the most viable route for development of future interconnection between Ireland and neighbouring countries?

Under the current regulatory framework in the EU, transmission planning is done at the national level to maximize national welfare, rather than European welfare. The consequence of a lack of coordination is the likelihood that transmission investments will be uneconomic: too much too soon, or too little too late, or in the wrong place, etc. Such mis-investment will be costly to those market participants that pay the immediate costs, and ultimately to taxpayers and/or customers in general.

Please see WEIs response to each of the 3 regulatory models in Table 2 below.

	WEI Comments	
Regulatory models	Pros	Cons
Merchant	Allows markets to develop additional projects to fill a necessary gap, if their appetite for risk is sufficiently strong. May require less interaction with regulators and hence may come to market faster. Merchant interconnectors financed by private funding have strong economic incentives to minimise costs (given they get to keep the upside), build the asset on time and maximise the availability.	Increased risk would lead to a higher cost of capital that would need recouping. Studies[13] have indicated that even when allocation of the capacity is done by auctions, the generator will make a large profit. The generator can also decrease the allocation of capacity to competitors by bidding aggressively.
	No risk of the interconnector earning monopolistic profits as revenue is monitored by Regulatory Authority. Well-established regulatory approach and processes if a similar "building blocks" regime to onshore transmission is used	Potentially less flexibility to respond to changes in circumstances, depending on how long the regime is fixed for. The key issue raised by the regulated model is that, although the regulatory approval of regulated investments is theoretically based on a European scope, the planning of investment in transmission and interconnection capacity is mainly done at the national level and takes into account national welfare. This national focus leads to suboptimal investment in interconnection capacity compared to what would be optimal when considering both countries involved in the interconnection. Electricity consumer bears the full risk imperfect information in the form of overoptimistic estimates of future price differentials can be a significant problem for regulated interconnectors

[13] https://cadmus.eui.eu/bitstream/handle/1814/66184/RSCAS_PB_2020_05.pdf?sequence=1&isAllowed=y

		Bureaucratic processes, interest group capture, political influence and regulatory resource limitations might be serious problems for regulated transmission
Cap and Floor	Provides a balance between merchant and regulation and de-risks the venture for investors/developers. Increases likelihood of project being viable and hence increases security of supply, reduces electricity cost for consumers and increases decarbonisation of the electricity supply The cap provides an investment route that complies with use of revenues requirements set out in EU legislation.	Consumers are ultimately underwriting the risk associated with the project and are therefore exposed to this cost should the project not be profitable. Significant interaction with regulators is required which can create delays in project schedule. Consumers face volume and asset stranding risk up to the level of the floor.
Overall/general comments	Given the above Pros and Cons, and the fact that the CRU has already facilitated the use of the Cap-and-Floor model on the Greenlink interconnector[14], it would appear that this may be the most viable model for adoption of future Interconnector projects.	

Table 2: Regulatory models pros and cons

[14] https://www.cru.ie/wp-content/uploads/2020/03/CRU20042-Greenlink-Electricity-Interconnector-Cap-and-Floor-Request.pdf

5. Hybrid Interconnection

5.1. Consultation Questions

Question 11

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

Dual purpose hybrid interconnectors, also known as Multi-Purpose Interconnectors (MPIs) in the UK, are expected to be a key element of an enduring delivery strategy for offshore wind in Ireland and across Europe. At present, interconnectors and offshore wind projects are developed and connected independently of each another. This requires a separate connection for each project, resulting in numerous transmission cables landing at various locations along the coast. The construction of these onshore grid connections will have an impact on coastal communities, which is amplified by the number of projects trying to connect. In addition to this, each connection needs to be assessed individually by EirGrid to determine its feasibility etc.

Dual purpose hybrid interconnectors would combine the development of offshore wind and interconnection projects to minimise the number of connections required and minimise the environmental footprint of new connections. Due to the reduced number of connections, the utilisation of hybrid interconnectors would speed up connection times and reduce the amount of network reinforcements needed. Other benefits include reductions in development costs by using shared transmission assets. There are significant environmental benefits to a reduction in the amount of cable manufactured and laid along the seabed. With the proliferation of offshore wind farms, it is desirable to try to limit the environmental impact associated with the development. Therefore, a co-ordinated approach, combining and rationalising transmission assets and connections, will be important to minimise the impact of such large-scale development.

National Grid (UK) has identified the important role that MPIs will play in achieving the level of offshore wind generation and interconnection required to meet the UKs 2050 climate objectives. As such, National Grid and TenneT are currently exploring the possibility of building the first MPI in the UK and Netherlands to connect approximately 4 GW of Dutch and British offshore wind generation to both countries.

Interconnection must move beyond point-to-point. Ensuring that interconnection projects are planned and designed to be futureproof is essential for interacting with the future energy system. German and Dutch HVDC projects being prepared for multi-terminal future. TenneT in Germany has deployed offshore HVDC connection points of circa 900MW capacity and is moving to the next generation of the architecture, considering 2GW systems for Dutch and German waters. For example, the Ijmuiden Ver project is expected to be operational by 2028 as a point-to-point connection system back to the Dutch grid. The electrical infrastructure is being designed to be "multi-terminal ready" allowing the project to evolve into a hybrid interconnection with the UK in the early 2030's (WindConnector). Beyond this, the project can then further connect with neighbouring 2GW schemes to form a multi terminal grid in the North Sea.

Considerations for dual purpose hybrid interconnectors

While there are numerous benefits associated with dual purpose hybrid interconnection, the extent to which they can contribute to Ireland's post 2030 climate and energy targets is currently not well understood as there are various issues which would need to be resolved to effectively and efficiently enable hybrid interconnection, including 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.

Should normal rules apply, this would mean that the interconnector and the generation station connected to it would need to be unbundled, i.e., 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 pays for the generated power. This is likely to include any prevailing support mechanism, in the sense that the generator would be selling to the interconnector rather than to a particular market.

To be able to contribute to Ireland's post 2030 climate and energy objectives, WEI would propose that there should be an incentive for a 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.

Question 12

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

It is expected that dual-purpose hybrid interconnectors will ultimately evolve into a pan-European SuperGrid, which will deliver power in large quantities across the EU. Due to the time constraints involved in achieving Net-Zero, it is essential that any policies and regulatory frameworks for dual purpose hybrid interconnectors are co-ordinated at an EU level. In the 2019 report "Our Energy, Our Future[15]", Wind Europe recommended that the EU should establish a regulatory framework for offshore hybrid projects.

It would be sensible to develop policy and regulatory frameworks in a coherent and holistic manner and to avoid any piecemeal development thereby allowing a consistent approach to meshed offshore grids whenever they materialise. This framework will be dependent on 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 overarching objectives. The relevant policy and regulatory framework can then be developed accordingly to support this.

It is envisaged that a European Independent System Operator (EISO) would need to be established, tasked with developing and operating cross border hybrid interconnectors and ultimately planning a meshed, pan-European offshore grid. A similar model is applied to gas infrastructure investments in the North Sea. The EISO would be responsible for developing the SuperGrid from a European

[15] https://windeurope.org/wp-content/uploads/files/about-wind/reports/WindEurope-Our-Energy-Our-Future.pdf

perspective and ensuring that the maximum net benefits are delivered to participating countries. Other responsibilities of the EISO would include granting and managing third party access, collecting Transmission Use of System charges to cover development and operation of the network and co-ordinating with TSOs, developers and asset owners. It is recommended that the EISO does not own any of the infrastructure assets.

Hybrid interconnectors (and ultimately the SuperGrid) could be owned by private companies, pension funds, governments etc. It is recommended that the owners of such infrastructure are not in any way involved with the granting of third-party access. Furthermore, the owners should receive a regulated rate of return. Therefore, a cap and floor approach to the regulation of hybrid interconnectors would be most appropriate.

2GW Hybrid Interconnector Project Example

With currently available technology, the most efficient way to transmit large quantities of electricity between Ireland and another European country will be through large scale interconnection (e.g., a 2GW capacity HVDC cable).

EirGrid's current single infeed loss level is currently 500MW, rising to 700MW once the Celtic Interconnector is operational. Given technical issues associated with larger single infeed's on Ireland's transmission system, to harness Ireland's significant offshore wind potential, we need to develop solutions that amalgamate grid access with other demand opportunities such as the production of hydrogen and e-fuels. WEI would encourage EirGrid to revisit the 700 MW single largest infeed limit in the future to align with Net-Zero targets, and to allow for the appropriate operating reserves to facilitate a higher value import.

Example:

2GW of offshore wind connected to an offshore HVDC platform, which in turn connects to an Onshore Renewable Energy Park located in Ireland **and** a 2GW grid connection to another jurisdiction in Europe.

The Onshore Renewable Energy Park on the Irish side of the Hybrid Interconnector will utilise the bulk of this energy for local demand (e.g., hydrogen and e-fuel production), whilst reserving a grid connection for a limited MEC (e.g., 700MW), so it could provide electricity to the Irish grid when required and provide demand side response. This Hybrid Interconnector solution could be managed by the relevant TSO in Europe.

When the wind isn't blowing in Ireland and the country is struggling to meet demand, the Hybrid Interconnector can import electricity from Europe operating in the same way as a point-to-point interconnector.

Removing the regulatory & legislative barriers to enable private wires and hybrid interconnectors will ensure a project like this can become a reality and add several benefits to Ireland and Europe.

Question 13

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?

Please see response provided by WEI to Q6 above on national legislation

Question 14

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?

WEI would be in support of Wind Europe's position[16] in the relation to existing market barriers and proposed mitigations as set out below:

The electricity grid infrastructure in Europe should anticipate major growth in both offshore and onshore wind energy. It requires the expansion of offshore grids and the reinforcements of onshore grids. Governments should support the development of meshed offshore grids and promote hybrid offshore wind projects, which combine an interconnector with offshore wind farms connected to it. This would reduce the overall space needed for both offshore generation and transmission. Offshore hybrids are also attractive because they would increase the interconnectivity across countries, allowing the electricity to flow where needed, making offshore wind the new baseload generation. The European Commission has found in preliminary assessments that hybrid offshore wind projects would generate environmental and planning benefits as well as potential cost savings.

Today, one hybrid project is operating in Europe. It is called Krieger's Flak and combines numerous Danish and German offshore wind farms with an interconnector. However, there is no regulatory regime with an explicit framework for the development of such projects and numerous barriers to the existing electricity regulation and network codes had to be overcome. These are well described in the European Commission's Decision (EU) 2020/2130, granting the Federal Republic of Germany and the Kingdom of Denmark a derogation of the Kriegers Flak combined grid solution pursuant to Article 64 of Regulation (EU) 2019/943.

The Kriegers Flak Combined Grid Solution was granted a 10-year derogation with possibility of further 15 years of derogation from the legislation which require that at least 70 percent of the capacity of an interconnector always is available to the electricity market. The "70% rule" seemed incompatible with the design of Krieger's Flak project.

Member States have worked for over 10 years to overcome regulatory barriers, but their efforts aim at facilitating coordination and cooperation on a voluntary basis. The North Seas Countries Grid Initiative and the following NSEC political declaration have made important progresses in the understanding of how to operate offshore hybrid assets in an integrated European market of electricity.

[16] https://windeurope.org/wp-content/uploads/files/about-wind/reports/WindEurope-Our-Energy-Our-Future.pdf

Hybrid offshore wind farms with connections to more than one country raise a number of legal issues to which there is currently no clear answer, apart from granting of derogations. An EU regulatory framework for offshore hybrids would help clarify the risks, costs and benefits of investing in hybrid assets and create a mechanism for countries to collaborate in the development of such projects.

Such regulation should comprise:

1. **Compatibility with the EU Electricity Regulation,** clarifying how offshore hybrid assets should comply with the minimum available capacity for cross-zonal trade of 70%
2. **Compliance with capacity allocation and congestion management rules,** ensuring that offshore hybrid projects are last curtailed in the case of interconnector congestion and the definition of bidding zones for the operating asset
3. **The revenue stabilisation mechanisms applicable to offshore hybrid assets,** establishing the mechanisms applicable for renewable cross-border projects that could apply, for example for funding or risk mitigation
4. **Consistency with the Third Energy Package,** regarding ownership rules applicable for offshore hybrid assets