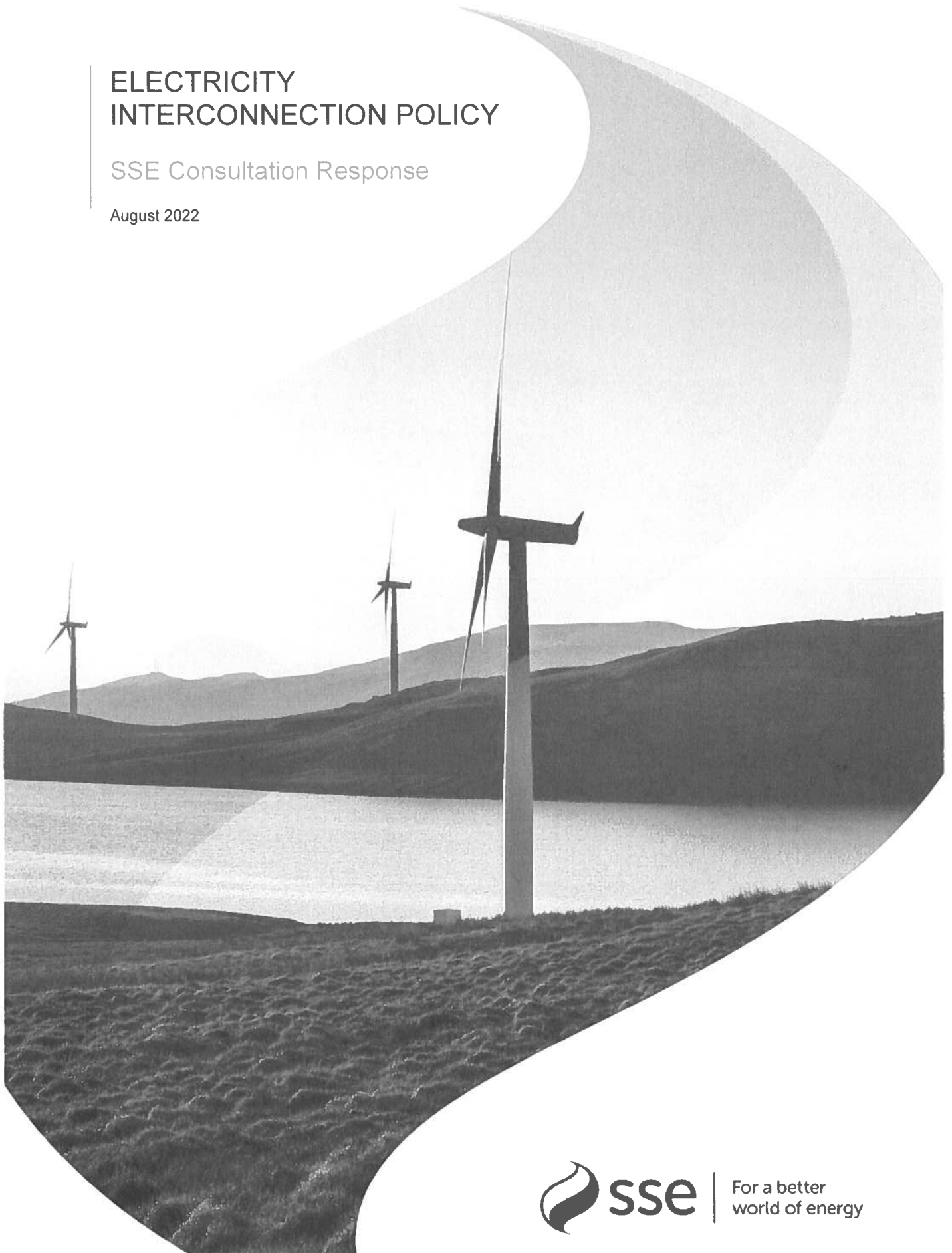


ELECTRICITY INTERCONNECTION POLICY

SSE Consultation Response

August 2022



CONSULTATION ON ELECTRICITY INTERCONNECTION

Introduction

SSE wishes to make this submission for consideration as part of the DECC Electricity Interconnection Policy Consultation.

Who we are

SSE is the largest renewable energy developer, operator, and owner in Ireland's all-island Integrated Single Electricity Market. Since entering the Irish energy market in 2008, SSE Group has invested significantly to grow its business in Ireland, with a total economic contribution of €3.8bn to the State's economy over the past five years. We have also awarded over €9 million to communities in the past 10 years as part of our community benefit programme.

SSE is building more offshore wind energy than any other company in the world right now. We are currently constructing the world's largest offshore wind energy project, the 3.6 GW Dogger Bank Wind Farm in the North Sea, a joint venture with Equinor and Eni. This is in addition to Scotland's largest and the world's deepest fixed bottom offshore site, the 1.1 GW Seagreen Offshore Wind Farm in the Firth of Forth, a joint venture with TotalEnergies, which reach first power in recent weeks. In the most recent Scotwind process, SSE Renewables was awarded the rights, along with partners Marubeni Corporation (Marubeni) and Copenhagen Infrastructure Partners (CIP), to develop what will become one of the world's largest floating offshore wind farms off the east coast of Scotland.

We plan to bring our world-leading expertise in offshore wind energy to here with plans to deliver over 3 GW of offshore wind energy in Irish waters, starting with our Arklow Bank Wind Park Phase 2 project off the coast of Co. Wicklow.

Through our SSE Thermal business we continue to provide important flexible power generation to help ensure the security of the state's electricity supply. SSE's power station Great Island is Ireland's newest combined cycle gas turbine (CCGT) power station and one of the cleanest and most efficient on the system, generating enough electricity to power half a million homes. The acute need for flexible generation in Ireland has been demonstrated over the last twelve months, with EirGrid's most recent generation capacity statement showing that a shortfall in generation capacity was a significant risk this coming winter and for a number of winters to come, resulting in emergency measures being implemented by the CRU and Gov.

While existing power stations continue to play a critical role on the system, SSE view the future of dispatchable thermal generation as being abated thermal, with Carbon Capture and Storage, hydrogen or other low-carbon fuels being the primary options. SSE have over 5 GW of zero and low carbon thermal under active co-development with Equinor in the UK.

We will continue to evaluate opportunities to bring our expertise and investment in decarbonised flexible generation to Ireland, but it is vital that the state, regulator and TSO provides to appropriate investment landscape to unlock such developments.

Executive Summary

SSE welcomes the consultation on Electricity Interconnection Policy in Ireland. Ireland, along with many countries, is currently experiencing significant challenges with respect to our energy system, its security, and affordability. With global energy politics taking centre stage following the invasion of Ukraine, European States are in the process of revising their energy policies. In Ireland, this is a critical moment to promote indigenous energy security whilst accelerating net zero.

In simple terms, if we had already achieved our target of 5 GW of offshore wind by 2030, we would be significantly more independent from Russian gas, closer to net zero, and with less expensive energy. With our wind and natural resources Ireland is better placed than many countries to be broadly self-sufficient, via an electricity-focussed energy system centred around renewable energy.

Beyond 2030, the Government has an ambition to realise 30 GW of offshore wind in Irish waters. To realise this, export opportunities beyond only the Single Electricity Market (SEM) will be needed and interconnection can provide an important piece of this puzzle, along with the production of hydrogen and exportation of the same.

But it is also key that Ireland's security of supply is maintained. The last year has brought unprecedented challenge with respect to meeting Ireland's growing electricity demand. EirGrid's Generation Capacity Statement in Autumn 2021 identified a potential capacity shortfall if no action is taken by this winter and for several following winters.

This shortfall was concluded to be a result of (but not limited to):

- Contracted generation expected to be delivered in 22/23 not being delivered, leaving a significant generation gap in advance of the planned retirement of elements of the existing generator fleet.
- Actual electricity demand continuing to increase.
- A lower-than-expected response from the market to the recent Capacity Auctions, including that targeted at the Winter 24/25 period, leaving a shortfall.

To address the challenge, the CRU has developed a programme of work to be progressed in the coming months and years, including the delivery, through the all-island capacity auctions of over 2000 MW of enduring flexible gas-fired generation capacity by 2030, to provide for growing demand.

In addition, Government issued a new Policy Statement on Security of Electricity Supply which defined the development of new conventional generation (including gas-fired and gasoil/distillate-fired generation) as a national priority which should be permitted and supported in order to ensure security of electricity supply and support the growth of renewable electricity generation.

While interconnectors play an important role, through facilitating both import and export of electricity, it is important that their ability to provide electricity when the system needs is well understood. Interconnectors do not provide firm capacity, and instead respond to the signals in the markets where they participate. This

means there is no guarantee that an interconnector will be importing electricity to Ireland when the system is tight given other markets could be experiencing similar system tightness, particularly where climates and weather patterns may be similar.

It is therefore critical that Ireland's approach to the future of interconnection in Ireland is not only cognisant of the potential benefits for integration of renewable energy, but is done in such a way which does not undermine investment in domestic flexible generation, something for which there will be an acute need for this decade and beyond. As noted above, SSE see the future of flexible generation as being decarbonised, with investment in hydrogen powered generation or other low carbon fuels, and/or Carbon and Capture Storage needed. These technologies will need the appropriate incentives and business cases to come to fruition in Ireland and again, we should be careful to ensure our approach to interconnection does not undermine this aim.

Key recommendations

SSE has the following key recommendations in relation to the topics raised in this consultation:

- Interconnector benefits should be considered in the context of facilitating rollout of offshore wind to provide energy exports and in the further integration of markets, where this unlocks consumer benefit (as demonstrated by a cost benefit analysis).
- We propose that interconnectors are not considered to provide firm capacity and, on that basis, should not be permitted to participate in the capacity market (or should be permitted to participate with a zero or negative de-rating factor).
- Gov should not set a target for future interconnection, noting the careful consideration needed with respect to security of supply and investment in the same.
- We support exploration of further interconnection to both GB and the EU and do not believe that the development of interconnection to GB should be impacted by Brexit.
- We believe the current legislative framework remains suitable for electricity interconnectors, though consideration is needed as to potential legislative changes needed to facilitate hybrid/multi-purpose interconnector projects.
- We support the criteria outlined for assessment of interconnector projects by the CRU, and suggest explicit reference is added in relation to the impact on system security.
- We believe Multi-Purpose Interconnectors can play an important role in delivering Ireland's 30+ GW offshore wind target and support policy and regulation change as needed to facilitate their development.
- Remuneration models for multi-party interconnectors will need careful consideration given their dual purpose and interconnectedness to two or more markets.

Consultation Themes/Questions and other key issues

1. Ireland's Increased Energy Ambition

1.1 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?

To realise Ireland's renewable energy ambitions, including overall decarbonisation of the energy sector and the target for 30 GW of offshore wind, further interconnection could play an important role. At these levels of ambition, renewable power generation output will exceed Ireland's domestic demand and, to be commercially viable, will need routes to export energy. This could include further interconnection or production and export of hydrogen, or both.

A commitment on further interconnection could, therefore, help incentivise investment in renewable generation in Ireland, particularly in the area of offshore wind. We also note that further interconnection could provide an overall benefit to the consumer given the increased market and price integration. This benefit is, however, not a foregone conclusion and will depend on the nature of the interconnected market and the long-term market prices in the same. As we note elsewhere in this response, we support the continued use of a cost benefit analysis by the CRU in the assessment of potential interconnector projects.

Notwithstanding these potential benefits, it should be noted that interconnection cannot play the same role as domestic generation with respect to security of supply, given that:

- Interconnection cannot be relied on to provide firm capacity given their flows are dictated by price differential between the markets at either end.
- Whilst mechanisms such as TSO-TSO trades can be used to reverse or alter flows on an interconnector, the ability to do this is not guaranteed and is dependent on the discretion of the adjoining TSO. TSOs do refuse such requests where they would compromise capacity margins and/or other operational standards in their power system
- It is important, therefore, that interconnectors should not be permitted to participate in Capacity Mechanism or should participate with a zero/negative de-rating factor. Allowing interconnectors to participate with a de-rating factor above zero will mask whether the SEM has the actual capacity required to ensure Ireland's security of supply.
- Interconnectors must be facilitated in a way which ensures fair treatment versus domestic generation, something particularly key given the need to incentivise investment in flexible generation in Ireland given long-term security of supply challenges.

In summary, it is important to acknowledge that Ireland will still need flexible generation to provide security of supply. We strongly welcome the current consultation on a hydrogen strategy for Ireland, which notes the potentially significant role for hydrogen to provide electricity for the power system. This strategy will be critical in the development of hydrogen powered generation in Ireland, something which will be critical in providing low or zero-carbon system flexibility alongside other low carbon fuels and other technologies such as battery storage, carbon capture and storage etc.

It is also important to reiterate that the positive results from further interconnection will only be as good as the rest of Ireland's electricity infrastructure. Investment in Ireland's electricity network itself is, in our view, even more critical than adding interconnection given its role in facilitating indigenous energy including the roll-out of offshore wind. The investment can, in turn, more fully facilitate the benefits interconnectors can provide.

SSE Recommendation: Interconnector benefits should be considered in the context of facilitating rollout of offshore wind beyond Ireland's domestic electricity demand, and in the further coupling of markets where this unlocks consumer benefit (as demonstrated by a cost benefit analysis). We strongly suggest that interconnectors are not considered to provide firm capacity and should not be permitted to participate in the capacity market on that basis (or participate with a zero or negative de-rating factor).

1.2 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?

We note overall EU targets for interconnection of 10% by 2020 and 15% by 2030 but **would not propose the Irish Government set additional arbitrary targets**. Indeed, it is imperative that Government give very careful consideration to the expansion of interconnectors, such that they:

- Facilitate increased development of renewable energy.
- Are not detrimental to Ireland's domestic security of supply.
- Provide a benefit to the consumer (inc. in relation to security of supply).
- Are located strategically to avoid network pinch points.

It is important to note that investment in interconnectors could potentially undermine or make more challenging investment in domestic firm dispatchable capacity. This is because higher levels of interconnection will potentially reduce operational opportunity for flexible generation, moving it from running a peaking profile to running very little as back-up. We note this may not be detrimental if capacity is being invested in on the basis of little contribution from running in the market, something which would require the appropriate market structures and signals. DECC and CRU should give careful consideration as to how investment signals for flexible generation will be provided and the interaction of this with any increasing levels of interconnection.

We also note the role of the Regulator in terms of assessing interconnector projects, to ensure they are appropriate and beneficial. We believe this is the appropriate way forward and that it may undermine this process should arbitrary targets be set.

SSE Recommendation: Gov should not set a target for future interconnection, noting the careful consideration needed with respect to security of supply and investment in the same.

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

We support any further interconnection being considered with both GB and EU IEM, ensuring it is not considered as firm capacity.

With respect to interconnection to GB, the UK is not only a large energy market, a relatively short distance away from Ireland, but is a world leader in the deployment of offshore wind with increasing targets for offshore wind.

- Given this market-leading position and geographic proximity, opportunities for joint projects in Irish and Celtic Sea will be significant.
- Ireland, as current acting president of the North Seas Energy Cooperation, has an urgent need to for enhanced cooperation between the UK and the EU in developing interconnection links as well as the coordinated development of offshore wind and grid for the future.
- We note in our response to Q3 the impact of post-Brexit market coupling, something we do not believe should be a material factor in supporting further interconnection to GB.

We also support consideration of further interconnection to the EU single energy market, something which also could unlock potential for hybrid interconnectors/offshore wind projects with other member states.

Regardless of whether interconnection is developed between Ireland and GB and/or Continental Europe, it should be carefully connected at nodes on the Irish transmission network which least exacerbate existing Irish transmission network constraints. The connection points should facilitate large MW imports without increasing dispatch balancing costs, whilst facilitating export of power from across the grid during times of high wind.

SSE Recommendation: We support exploration of further interconnection to both GB and the EU.

1.4 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?

As noted above in response to Question 1.1, primary benefits will be **facilitation of future renewable development** and (where shown via a cost benefit analysis) a benefit to the consumer as a result of increased coupling of Ireland to other markets.

As also noted in 1.1, we must exercise significant caution with respect to perceived security of supply benefits, highlighting that:

- Interconnection cannot play the same role as domestic generation with respect to security of supply – i.e. it is not dispatchable and it is not directly underwritten by firm generating capacity.
- Interconnection cannot be relied on to provide firm capacity given flows are dictated by price differential between the markets at either end.
- Mechanisms to reverse or alter flows (such as TSO-TSO trades) cannot be guaranteed
- As such, interconnectors should not be able to participate in Capacity Mechanism or should participate with a zero/negative de-rating factor.
- Interconnectors must be facilitated in a way which ensures fair treatment versus domestic generation, something particularly key given the need to incentivise investment in flexible generation in Ireland.

We would highlight that not all perceived benefits at a European level may will be applicable in Ireland, given the fundamentally different nature of our power system/market.

For example, “Towards a sustainable and integrated Europe”¹ was published in November 2017 by the European Commission and outlined five key benefits that greater interconnection would bring to the European energy system including that they would “contribute to generation adequacy by lowering the needs for operational security margins.” We suggest that Irish Government, Regulators and TSO exercise extreme caution in taking the approach of lowering security margins. The SEM operates as a single market area and small synchronous area, versus significantly bigger synchronous areas comprising multiple markets/bidding areas such as Continental Europe and the Nordic Area. As such, the operation of our IE/NI synchronous area has fundamentally different characteristics and security criteria, as acknowledged and accounted for under the EU System Operation Guideline as developed under the Third Energy Package.

We believe it is fundamental to Ireland’s security of supply that our generation capacity requirement is covered by domestic generation/technologies, and that interconnectors are not relied upon to meet this demand (given the potential that they will export at times of need).

SSE Recommendation: As stated in response to Q1.1, interconnector benefits should be considered in the context of facilitating the rollout of offshore wind and delivering consumer benefit (where demonstrated by a cost benefit analysis). We propose that interconnectors are not considered to provide firm capacity and should not be permitted to participate in the capacity market on that basis, and that Ireland’s generation capacity requirement should be met by domestic flexible generation.

2. National Legislation

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?

We note the following key provisions of Act relating to interconnection:

- Section 14 – CRU may grant or refuse a license to operate & maintain an interconnector.
- Section 16 – CRU may grant or refuse any application to construct an interconnector, any authorisation is subject to T&Cs specified by CRU.
- Section 2A – only an interconnector owned by ESB shall constitute part of the Irish electricity transmission system; non-ESB owned interconnectors may be considered part of the transmission system for the purposes of calculating and imposing charges for the use of the transmission system.
- Section 16A – CRU may secure interconnection capacity via competitive tender; authorisation granted to a person without a prior competitive tender where the CRU considers this to be in the interest of final electricity customers; or by requesting EirGrid to provide for the construction of an interconnector in TSO development plans.

SSE believe the current legislative framework is 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.

¹“Towards a sustainable and integrated Europe”
https://ec.europa.eu/energy/sites/ener/files/documents/report_of_the_commission_expert_group_on_electricity_interconnection_targets.pdf

For example, in the UK the Offshore Network Transmission Review: Multi-Purpose Interconnectors² paper published this year outlined the need for legislative change to facilitate MPIs. 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) Bill 2021, and whether the definition of electricity interconnectors contained in the bill is consistent with MPI projects.

SSE Recommendation: We believe the legislative framework remains suitable for electricity interconnectors, but consideration is needed as to potential legislative changes needed to facilitate MPI projects.

3. Brexit and future EU-UK interconnection

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?

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 Great Britain?

As noted in response to Q1.3, SSE supports exploration of further interconnection between SEM and GB. This provides the opportunity for connection to a significantly larger 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 the Celtic Sea highlights this potential. It is important to develop market arrangements under North Seas Cooperation to facilitate this, something for which it would be advantageous to have the UK included in the cooperation.

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 means 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 with ‘Title VIII, Article 14: Electricity trading arrangements at all timeframes’, noting “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 the withdrawal agreement commitment to develop alternative arrangements, we do not believe these short-term issues should be an obstacle to further development.

² ‘Offshore Network Transmission Review: Multi-Purpose Interconnectors’
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1072801/otnr-multi-purpose-interconnectors-government-response.pdf

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

SSE Recommendation: We do not believe development of interconnection between GB and the SEM should be impacted by Brexit.

4. The role of the CRU

4.1 Are the technical criteria employed by the CRU in assessing interconnector development applications appropriate?

We note the following CRU assessment criteria:

- 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.
- CRU gives particular consideration to socio-economic benefits as well as in terms of costs under a range of scenarios and sensitivities.
- Info also to be complemented with qualitative, equity and distributional impacts as well as strategic issues.
- Projects assessed case-by-case with due regard for long term interest of electricity consumers, including any impact on network tariffs.
- 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.
- Applications should be submitted by “sufficiently mature” projects – meaning a project which is able to 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.

SSE supports the assessment criteria utilised by CRU when considering an interconnector application. Whilst SSE support exploration of further interconnection for Ireland, it is key that consideration continues to be given as to the socio-economic benefits the applicant project provides the Irish consumer.

We note that included in this assessment, certain issues such as “impact on network tariffs” and “distributional impacts” are explicitly called out in relation to consumer benefit. As stated elsewhere in this response, it is of significant importance that the impact of an interconnector project on system security is considered given challenges currently being seen and expected for many years to come with respect to generation capacity. **This should be explicitly referenced in the CRU assessment criteria** (i.e. impact on system security), with an assessment required of the overall potential impact on generation capacity to meet demand, the potential impact on system issues (e.g. single largest loss of load and ability and cost of holding reserve to cover), and local network issues (e.g. constraints).

SSE Recommendation: We support the criteria outlined for assessment of interconnector projects by the CRU, and suggest explicit reference is added in relation to the impact on system security.

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

We note the three proposed models as follows:

1. Merchant
2. Fully Regulated
3. Cap and Floor

SSE's view is that different models may be suitable for different interconnector projects and it will be up to each project to assess financial models and agree the most appropriate way forward with the Regulator.

As we move towards hybrid interconnector projects/multi-purpose interconnectors, we may need a different model and in this context, fully regulated could be more appropriate given the requirement for such a project to offer 3rd party access (with the interconnector acting partly as an interconnector and partly as a network).

More work is needed to consider the right approach for hybrid/multi-purpose interconnection in Ireland, as outlined in our response to Q5 below.

5. Hybrid Interconnection

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

Hybrid/Multi-Purpose Interconnectors (MPIs) could play a key role in delivering Government's strategy for offshore wind in Ireland. MPIs would combine the development of offshore wind and interconnection, via projects that can fulfil Ireland's needs when required, whilst also exporting to another larger market. By combining offshore wind generation with interconnector capacity there is also the opportunity to reduce the amount of infrastructure required to meet both renewable power and interconnector objectives. This type of project could be extremely beneficial in meeting Ireland's 30 GW offshore wind target.

We can see a number of examples of MPI projects internationally. For example, the National Grid Nautilus project is a multi-party interconnector which is intended to connect UK and Belgium with offshore wind projects. Already operational, the Kriegus Flak Combined Grid Solution connects Germany and Denmark with two offshore wind projects.

SSE Recommendation: We believe Multi-Purpose Interconnectors can play an important role in delivering Ireland's 30GW offshore wind target and support policy and regulation to facilitate their development.

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

5.3 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?

5.4 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?

The move to a Government-led approach to offshore wind development in Phase 3, as outlined in the Government's offshore grid policy framework, could be conducive to MPIs. Under this model Gov could decide on areas for offshore wind projects which will connect into an MPI, and work with EirGrid and/or another interconnector operator to deliver the infrastructure and offer the development of offshore wind to a 3rd party developer.

As we note in response to Question 2, certain national legislation may need to evolve to facilitate multi-purpose interconnectors.

Importantly, the Clean Energy Package provides for 3rd party access to interconnectors and is therefore conducive to MPIs. The market design for MPIs would need careful consideration, in terms of how they will be remunerated given interaction with interconnector flows and contribution to two or more markets.

SSE Recommendation: The development of multi-purpose interconnectors is consistent with Ireland's proposed phased approach to offshore wind and can be facilitated via EU and national legislation. Remuneration models for multi-party interconnectors will need careful consideration given the interconnectedness to two or more markets and their dual purpose.