Commission for Regulation of Utilities

By email: electricityinterconnectors@crui.ie

10 August 2018

Public Consultation on Policy for Electricity Interconnectors

Dear Sir, Madam,

Greenlink welcomes the CRU’s consultation (the “Consultation”) on the assessment criteria for electricity interconnector applications (CRU reference CRU/18/131). As a developer of one of Ireland’s PCI interconnectors we are fully supportive of further interconnection with Ireland’s neighbours and the benefits that the exchange of electricity between them can bring to Ireland and society as a whole.

The Consultation invited any comments or queries on the CRU’s proposed assessment approach and criteria. Greenlink is supportive of CRU’s proposed and criteria. In particular, Greenlink welcomes the CRU’s proposal to assess electricity interconnector applications on a case by case basis and the CRU’s approach to use a set of high level assessment criteria to ensure consistency between the assessments of all electricity interconnectors while allowing CRU to address the project-specific elements of the particular electricity interconnector.

Greenlink provided a response¹ to the Department of Communication, Climate Action and Environment’s (“DCCAE”) consultation on its draft National Policy on Electricity Interconnection in Ireland published on 30 January 2018 (“DCCAE Consultation”). The DCCAE subsequently published its National Policy Statement on Electricity Interconnection on 6 July 2018. CRU notes in section 2.3 of the Consultation that it is mindful of this policy when assessing interconnectors and that CRU has been informed by the responses to the DCCAE Consultation. A number of Greenlink’s responses to the DCCAE Consultation are relevant to the CRU’s assessment of electricity interconnectors.

interconnectors and specific criteria set out by CRU. We have built on these responses and set these out for CRU's consideration in finalising its assessment criteria and approach to assessing electricity interconnector applications.

1. Security of supply

CRU has included security of supply and capacity benefits of the project as one of the assessment criteria to be considered (criteria 4.2.2 (9)). Greenlink considers the security of supply to be a pillar of Irish energy policy due to the fundamental importance that it represents to any developed economy for economic prosperity, minimising power costs, and particularly so to an island nation. Greenlink believes the CRU should attribute a high weighting to security of supply benefits in its assessment of electricity interconnector applications.

It is widely recognised that interconnectors can make a positive contribution to security of supply and system reliability. Further interconnection is expected to increase the competitiveness and sustainability of the electricity markets in Ireland and its neighbours:

- Interconnectors will enable Ireland and its neighbours to pool reserve capacity, reducing the future peaking plant requirement. Interconnectors will enhance security of supply by enabling system balancing arrangements to respond to different weather conditions between Ireland and North West Europe against the background of high intermittent renewable energy generation. For example, during particularly windy days, surplus power from Ireland could be exported to the UK, the Nordics and Continental European markets via Great Britain ("GB"). Conversely, low wind in Ireland allows interconnectors to import lower-cost power from the same European neighbours.

- Supply shocks can be offset by output in the neighbouring interconnected markets, improving security of supply. In real operational timescales, if there is an unplanned power station outage or fault at peak demand in either Ireland or its neighbours that results in voltage reductions and emergency demand controls or even partial blackout, interconnectors can be used by transmission system operators to mitigate these impacts and reduce the risks of further cascade tripping events. HVDC interconnectors using Voltage Source Technology can modify and reverse power flows within sub second timescales to assist in managing system emergencies.

- Ireland's Capacity Market exists to ensure there is adequate supply or load-management capacity on the grid to cope with times of system stress. Interconnectors are well placed to participate in the Capacity Market auctions (after applying an appropriate de-rating factor) to provide security of supply for SEM electricity consumers at a lower cost with reduced investments in power generation capacity.
Ireland’s location on the north west edge of Europe limits its options for economic interconnection. Geographically GB lies between Ireland and continental Europe representing a cost-effective stepping stone to European and Nordic energy markets. Further interconnection with GB provides the option to connect to European markets reducing the need for longer and more costly direct cable routes. Connecting via GB allows decreased capital costs for similar transmission capacity thereby providing additional security of supply to Irish consumers at lower cost.

Ireland continues to attract significant inward investment, especially from data centre construction by the main global technology companies. Given the nature of this energy demand, secure and reliable electricity supply is critical. These important investments for the benefit of Ireland’s economy may not be directly relevant to the CRU’s criteria in assessing the merits of additional interconnection. However, the significant additional strain that data centres would put onto the country’s network, from what could be an additional 1.2GW of demand, brings into much sharper focus the potential negative impact on security of supply and upward pressure on electricity prices in the absence of additional interconnection.

ENTSO-E has recently assessed, on a project specific basis, the security of supply contribution of interconnectors at a pan-European level. The analysis is also based on probabilistic modelling, but the focus is on the reduction in expected unserved energy from the introduction of the relevant interconnector in 4 different scenarios: their Best Estimate scenario for 2025, a Slow Transition scenario for 2030, a Distributed Generation scenario for 2030, and a scenario used as part of the European Commission’s impact assessment work and which also refers to year 2034. The results show the benefits by way of reduction of expected unserved energy in Europe on a project-specific analysis and quantifies these benefits.

2. Diversity of supply

Maintaining a diverse supply of electricity sources protects consumers from overreliance on one energy source and the resulting risk of price volatility. Additional interconnection to GB provides an alternative means of electricity supply to Ireland, thereby increasing diversity and encouraging further diversity in indigenous sources of power as noted below.

Diversity of supply is addressed by the CRU in two assessment criteria:
1. 4.2.2 (1): Rationale behind the need for the project, such as price arbitrage opportunities, expected evolution of the generation mixes in each hosting country, e.g. development of wind energy in Ireland
2. 4.2.2 (8): Avoided curtailment of RES generation (primarily wind and solar) resulting from the project (RES integration)
Interconnectors are fuel agnostic and rely on generators and suppliers contracting capacity under the European Single Electricity Market ("SEM") to transmit power across borders to link pools of supply and demand to deliver the lowest cost electricity. The prospect of further interconnection capacity will provide external pricing signals to inform a power developer’s investment decision on their selection of future generation technologies.

Ireland has successfully adopted fiscal measures to stimulate the development of numerous low-carbon technologies to meet the country’s environmental targets and grow the low carbon economy. This has seen a significant transition in Ireland’s energy mix over the last ten years which is forecast to continue. Interconnection plays an important role in reducing the fiscal cost of renewable support schemes and can contribute to the diversity of supply through:

- Reducing curtailment
- Providing access to higher priced markets for surplus renewables
- Increasing the addressable market size

Interconnection therefore has clear cost benefits for Irish consumers, as well as the wider economic benefits of inward investment in electricity infrastructure. In this context additional interconnection is expected in particular to provide stimulus to Ireland’s nascent offshore wind industry. Offshore wind has the potential to materially increase the renewable generation base and further diversify Ireland’s supply.

Greenlink considers the diversity of supply an important component of Irish energy policy and believes the CRU should attribute a medium to high weighting to the relevant criteria in its decision-making process.

3. EU Policy and the EU’s Clean Energy Package for all Europeans

Ireland’s legally binding renewable energy share (“RES”) target of 16% for 2020 does not appear achievable. SEAI and the EPA estimate a shortfall of 2.8 p.p. leaving Ireland with a possible multimillion-euro bill for ‘credits’ or statistical transfers it will need to buy to make up the difference.

Further interconnection can address this issue by providing developers of renewable energy sources the potential to export their surplus production to larger pools of demand and potentially at a higher price rather than being curtailed. This incremental revenue stream can provide the return required for developers to invest in new renewable technologies. Ireland’s significant offshore wind represents an untapped resource of great potential to Ireland’s broader economy and would provide a step-change to achieving Ireland’s RES targets. Further interconnection could provide the transition
to the development of affordable offshore wind consistent with the EU’s North Seas Countries’ Offshore Grid Initiative in 2009\(^2\).

Whilst new interconnectors would not be operational by 2020, a decision to build them would provide confidence that renewable energy investments can be made which would contribute to the 2020 target, knowing that the issue of potential renewable generation constraints will be better managed by the time the interconnectors are operational in the early 2020s.

The EU renewable energy target for 2030 is between 27\% and 35\%, a large increase from the 2020 target which would require levels of renewable electricity as set out in EirGrid’s Low Carbon Living scenario. Such a level of renewable electricity will only be technically and economically achievable with more interconnection to Ireland.

Similarly, Ireland has made commitments under the Paris Agreement, including contributing to the mitigation aspects of the Agreement via the EU commitment to a 40\% reduction in EU-wide emissions by 2030 compared to 1990.\(^3\) A reduction in emissions will require investment in renewable technologies and the stimulation of this investment by further interconnection (as described above) will be key to this.

CRU has not specifically addressed these issues in its proposed assessment criteria and Greenlink is of the view that CRU should take these factors into consideration when assessing applications under the following assessment criteria:

1. 4.2.2 (1): Rationale behind the need for the project, such as price arbitrage opportunities, expected evolution of the generation mixes in each hosting country, e.g. development of wind energy in Ireland. Specifically, where the relevant project has an impact on the above factors, this should be taken into account when assessing the rationale for the project.

2. 4.2.2 (8): Avoided curtailment of RES generation (primarily wind and solar) resulting from the project (RES integration). Specifically, the potential impact on Ireland’s ability to comply with the EU RES targets should be taken into account when assessing the avoided curtailment of RES generation.

4. Stimulus to the broader economy

The Irish economy benefits significantly from inward investment in the digital economy including the construction and operation of new data centres and associated internet related business activities. Decisions on data centre siting are based increasingly on the availability of clean energy. With additional interconnection Ireland will further decrease the carbon intensity of its electricity generation as interconnectors allow (i) an increased penetration of renewables by reducing the time that the System Non-Synchronous Penetration (“SNSP”) limit applies allowing more wind (and in the future


\(^3\)https://www.dccag.gov.ie/en-ie/climate-action/topics/eu-and-international-climate-action/paris-agreement/Pages/default.aspx
Solar) generation and (ii) peak demand to be met during low renewables periods with low carbon imports as opposed to higher carbon local generation.

Greenlink is of the view that the stimulation of investment in the digital economy in Ireland as a result of the relevant project should be considered by CRU as one of the relevant impacts considered under assessment criteria 4.2.3 (6): Any other relevant impacts, e.g. relating to innovation, solidarity, market integration.

5. Impact on the electricity system’s technical requirements in Ireland

In relation to assessment criteria 4.2.3 (1): Impact on the electricity system’s technical requirements in Ireland, e.g. if the project constitutes the largest single in-feed, Greenlink makes the following comments:

- The maximum Irish power system in-feed loss is currently 500MW. It is proposed to develop the 700MW Celtic Interconnector, in which case the maximum infeed loss would need to be increased. The additional costs of operating the system with a 700MW infeed loss is the same regardless of the number of interconnectors (or other generation in-feeds) connected to the Irish grid. If this additional system operation cost is to be incurred, it is imperative that the decision process and timing is transparent so that other projects can make informed investment decisions based on this policy decision and have the option to design and build to a higher rating, thereby improving the overall economic benefits of further interconnection to Irish consumers.

- New technology adopted by the major providers of HVDC systems used by interconnectors allows for rapid ramping of power levels to grid networks and the fast switching of direction of power flows. This technical capability is above the current observed levels and would allow Irish energy generators to increase their export of surplus power generation and potentially reduce curtailment costs to Irish consumers. Rapid ramping rates also increase an interconnector’s ability to provide ancillary services to grid operators in times of system stress for no increased cost and therefore improve security of supply.

Please do not hesitate to get in touch should you wish to discuss any aspect of this response.