‘Review of the security of energy supply of Ireland’s electricity and natural gas systems’ consultation response

27 October 2022

Introduction

The Ørsted vision is a world that runs entirely on green energy.

Ørsted develops, constructs, and operates offshore and onshore wind farms, solar farms, energy storage facilities, renewable hydrogen and green fuels facilities, and bioenergy plants. Ørsted provides energy products to its customers. It is the only energy company in the world with a science-based net-zero emissions target as validated by the Science Based Targets initiative (SBTi), and Ørsted aims to deliver a net-positive biodiversity impact from all new renewable energy projects it commissions from 2030 at the latest.

Ørsted ranks as the world’s most sustainable energy company in Corporate Knights' 2022 index of the Global 100 most sustainable corporations in the world and is recognised on the CDP Climate Change A List as a global leader on climate action. Headquartered in Denmark, Ørsted employs over 7,300 people.

In Ireland, Ørsted employs over 90 people and owns and operates a 360MW portfolio of onshore wind farms. Our ambition is for our Irish operations to significantly grow our asset base across wind, solar and storage in the coming decade to play a significant role in delivering Ørsted’s goal of 50MW by 2030.

We welcome the opportunity to respond to this review of Ireland’s energy security of supply. As we are a developer of renewable energy, we have primarily focused our answers on the security of supply of electricity.

1. Are there any other security of supply risks that you can identify in addition to those set out in section 6

- While low availability of wind generation is specifically mentioned as a supply side risk in section 6, the application of dispatch down in Ireland by Eirgrid, as well as the overall capacity of the grid to absorb additional renewable energy generation, should also be considered a supply risk to our electricity system.

- Current dispatch down levels and the lack of connection options deeply inhibits the viability and delivery of renewable projects. It is our view that open competition across all renewable technologies should be accommodated by the TSO to deliver on climate targets and well as improve Ireland’s indigenous energy supply.

- To facilitate a power system capable of accommodating greater than 80% renewable electricity by 2030 and achieving the power sector ambitions of the Climate Action Plan 2021, a thorough increase in capacity is required throughout the grid including new and significantly enhanced assets. It is not sufficient for the grid to technically be able to handle 80% renewables. The grid must be future proofed to provide the headroom and information on suitable grid connection locations that enable developers to deliver on the national targets in a way that guarantees energy security. To date, renewable energy projects in areas such as the North-West are unable to connect due to insufficient grid capacity leading to a situation where renewable energy projects in highly constrained areas cannot progress, and in this way renewable developers are limited in their ability to grow indigenous energy supply.

- In relation to the increased demand from large energy users identified as a demand side risk in section 6, we highlight that Corporate Power Purchase Agreements (CPPA) and private wires present opportunities to meet the growing demand from this sector. The Climate Action Plan 2019 set a target of 15% of electricity consumption from CPPA's by 2030. This equates to 6 TWh of additional electricity generation i.e. c.35% of all new generation capacity. On the supply side, larger onshore wind projects are more 'primed' for CPPAs than other technologies as they are currently more cost competitive. However, it is not clear that there is sufficient pipeline in onshore wind to meet the required deployment, once build under RESS has been accounted for. Offshore wind and solar may become more competitive later in the 2020s, leading to more deployment in the latter half of the window. However, there are challenges to make CPPAs appeal beyond large multinational technology firms, namely: Credit risk of smaller energy users; Unwillingness to contract fixed-price for energy at 15-year tenors among users whose business cycle is shorter term (e.g., agrifood); Limited current incentives for public bodies to prioritise decarbonisation targets over cost efficiencies. Policy measures that would broaden the appeal of CCPAs to smaller companies would be a welcome measure to meet the 2030 target.

- In addition, competing policy objectives (for example biodiversity, revised planning regulations) may make repowering of existing renewable assets difficult, thus decreasing Ireland's indigenous supply of energy. In the context of protecting our security of supply, and indeed support the EU's objectives of reducing our reliance on imported fossil fuels, a careful balancing of competing policy objectives must be considered so that our existing renewable energy assets can continue to generate electricity for the Irish grid.

- Lastly, as Ireland reduces its reliance on imported fossil fuels and their associated geopolitical risks though a build-out of renewable indigenous energy, a net zero world will instead rely heavily on technology and IT infrastructure. In other words, our security of energy supply will be replaced with a security of supply chains in these sectors. Policy measures that stimulate the development of European supply chains in renewable technologies such as wind and solar should be supported and encouraged by the Irish Government.

2. If there are other risks that you have identified, could you outline some mitigation options to address the risk(s)?

- We wish to take this opportunity to highlight the potential which Dynamic Line Rating (DLR) technology presents to minimise dispatch down. Ørsted has recently installed DLR technology on the overhead line between Lisheen wind farm and the nearest grid node in Thurles. This project is the first commercial application of this technology in Ireland, which allows Ørsted to export our full installed capacity to the grid. By using neuron clamps on the overhead line, temperature, tension and vibration is measured to dynamically increase the allowed load on the line beyond its rates capacity in times of high wind, for example. While the TSO has identified 5 other locations in Ireland to use this technology by 2030, we recommended that

accelerated roll out and a revised dispatch down methodology can make a difference in reducing security of supply risks by facilitating windfarms to export their full capacity.

- Ireland needs both short and long term storage. Future arrangements for system services need to be clarified and brought on stream. Currently storage cannot participate in RESS, and certainty of revenue streams are unsupportive to battery deployment. We take this opportunity to highlight the need to expand the RESS to enable sufficient levels of storage and encourage co-location.

3. Are the five shock scenarios that were considered, and the additional scenarios related to the Russian invasion of Ukraine, sufficiently broad?

N/A

4. Do you have any additional mitigation options that you think should be considered?

- Multipurpose interconnectors will have an essential role for offshore wind, and it is essential that the private sector is enabled to envisage and deliver on multi-purpose interconnection solutions, or the sector could abruptly grind to a halt.

- A similar premise applies to Power-to-X solutions which must also be facilitated. The TSO must plan to facilitate and mobilise the private developer-led sector in this space and to align a progressive approach with forthcoming Government policy on interconnection and Power-to-X.

- For storage projects, the current ECP process is limiting the opportunities to obtain grid connection offers. The current rule of no more than 10 'primarily storage' projects being included in the batch is resulting in hybrid projects receiving grid offers in place of 100% storage projects. This system is limiting the opportunity to get more storage connected to the grid and the opportunity for congestion management and reduction of dispatch down that BESS can offer to the already congested grid in the near term. As concluded in Wind Energy Ireland's 'Bridging the Gap' report, "renewable capacity needs to urgently connect to the transmission system. To enable this, zero carbon solutions to DS3 limits, and the connection of STATCOMs and synchronous compensation technologies throughout the system is vital."

5. Which gas supply mitigation options, if any, should be considered for implementation?

- N/A

6. Which electricity supply mitigation options, if any, should be considered for implementation?

- The Russian invasion of Ukraine has had an obvious impact on the stability of the cost of energy throughout Ireland, Europe and the globe. The final macro compounding issue is the tightening of the availability of power in Ireland as the deployment of new generation is not keeping pace with demand increases. The well documented bottlenecks in planning, connection, support mechanisms and grid capacity all significantly hinder the pace with which this can be addressed. In this context policy should incentivise investment in system services. As concluded in Wind Energy Ireland's 'Bridging the Gap' report, "renewable capacity needs to urgently connect to the transmission system. To enable this, zero carbon solutions to DS3 limits, and the connection of STATCOMs and synchronous compensation technologies throughout the system is vital."

- Since inception the capacity market has not sourced capacity of desired quality from the market. More large-scale baseload is needed to replace an aging fleet, provide the security of supply to the island, and support generation from variable generation sources. A recent proposal to consult on "De-rating for Annual Run Hours Limits" could help this. Greater incentives are also required for long duration storage, and the capacity market could also address this.

- We also note the potential of using renewable electricity generators to create green hydrogen for storage, as a renewable baseload. This will require an appropriate system design in support.

- For generation assets, whether in operation or development stages, the TSO must encourage the colocation of different technologies such as storage, through streamlining and enhancement of regulation, and commercial viability in the market.

- It is important that forthcoming policy and legislation is progressive and supports innovative ideas and market solutions delivering on multipurpose interconnection. We use the example of the North Sea Energy Island (in which Ørsted is a partner) as an example of the level of innovation currently being pioneered in multipurpose interconnection. Denmark will build an energy island in the North Sea to link the surrounding offshore wind farms and countries in a network. This island will become an epicentre for renewable energy and the development of new green technologies. Climate change requires new and ambitious solutions – like the world's first artificial energy island, which will soon be established in the North Sea, approximately 100km off the coast of Denmark. Surrounded by 10 offshore wind farms, the energy island will use the strong North Sea winds to collect and distribute huge amounts of green energy to Denmark, and into Europe. The energy island will play a key role in helping Europe phase out fossil fuels, accelerating the green transformation. The first phase will involve the connection of 3 GW of wind power from wind farms. This is subsequently expected to be extended to a capacity of 10 GW of wind power, equal to the power consumption of approximately 10 million households. For future offshore wind project an approach such as this can considerably de-risk the investment associated with transmission, reducing cost of capital and delivery, and avoiding long term issues such as multiple landfall points and the sector develops and grows. In short, the development of policy and legislation must look to the future, and not just to long established models.

7. What measures should be considered on the demand side to support security of supply for electricty and gas?

N/A

8. Do you have any views on how the mitigation options should be implemented?

N/A

9. Do you support the policy measures proposed in section 8 of the consultation paper?

- Ørsted welcomes initiatives that may help reduce the length of planning timelines for renewable projects in Ireland and support an integrated energy system. As such, we support the proposal for joint planning between Eirgrid, GNI and the ESB.

- We note that a net zero system will require a colourful mosaic of different technologies. Transparency of data, collaborative approaches to planning, policy, public private partnerships, and regulatory oversight will be central to reducing Ireland's reliance on imported fossil fuels.

10. What further tools and measures do you think would contribute the most to Ireland's energy security of supply?

- We suggest that the developers are enabled to connect to the national grid biannually, up from the current annual window.

- Many onshore wind projects are moving towards repowering and can offer potential for much higher generational capacity, often with less turbines. However, it is unclear whether the grid capacity will facilitate this latent potential or lead older generating assets to operate as is, without reaching their modern-day potential. Repowering and life extension of existing assets must equally be supported in policy to avoid erosion of the existing renewable energy capacity at a time when it needs to be expanded rapidly.

- Green hydrogen is one of the renewable solutions that can help Ireland meet a greater share of its energy requirements using indigenous renewables. This can reduce imports, increase energy security, and reduce reliance on complex and often sensitive supply chains. We welcome the European Union's target of 10mt domestic hydrogen production by 2030 as a critical part in reducing reliance on imported oil and gas (REPowerEU, 2022). This objective alone will require an electrolysis capacity of 90-100GW installed by 2030. From a renewable perspective, it is clear that to reach a position of energy security, a variety of assets from solar, to onshore and offshore wind, battery, hydrogen and low carbon inertia systems will be required. Grid infrastructure, regulation and markets must facilitate this multi-technology approach.

- Finally, and critically, we suggest that reducing the cost of connection and radically enhancing grid connection timelines should be a priority workstream to ensure greater competition and enable as many projects as possible to deliver with the urgency required by national targets, climate change and energy cost to consumer and security. We highlight the British Energy Security Strategy, which committed to cut the approval times for new offshore wind farms from 4 years to 1 year, as well as the EU Commission recommendation on speeding up permit-granting procedures for renewable energy projects and facilitating Power Purchase Agreements as policy examples for Ireland to follow.