

Bord na Móna

Review of the Security of Energy Supply of Ireland's Electricity and Natural Gas Systems Consultation

Consultation Response

28 October 2022



1. Introduction

Bord na Móna (BnM) welcomes the opportunity to respond to Department of the Environment, Climate and Communications review of the security of energy supply of Ireland's electricity and natural gas systems consultation. This consultation is timely with current events having highlighted the necessity for countries to treat security of supply as a long-term strategic priority. With the huge transition under way in Ireland's energy system it can be difficult to effectively tackle the energy trilemma balancing decarbonisation, cost, and security of supply concerns.

The security of supply technical report accompanying the consultation provides a comprehensive review of the security of supply of Ireland's electricity and natural gas systems. The report highlights several areas where Ireland faces challenges with respect to our security of supply requiring increased focus and resources to address. Resolving these issues will require investment in the medium and long-term in Ireland's security of supply. BnM has responded to the consultation questions below but would like to mention some key reflections from reviewing the Security of Supply reports and consultation paper:

- Increased domestic renewable electricity production helps Ireland across all facets of the energy trilemma. Achieving our 2030 Climate Action Plan targets is a key security of supply mitigation and should be treated as such. BnM believes the ambitious targets for RES-E deployment can be reached by increased development of onshore wind in the early part of the decade and offshore wind towards 2030. But, barriers to achieving these targets such as grid investment requirements and delays in the planning process need to be addressed.
- At this point it seems clear that Green Hydrogen will play a large role in Europe and Ireland's energy future. Ireland has a potential competitive advantage in the production of green hydrogen due to our massive renewable energy resources. Domestically produced green hydrogen is the only option that ensures Ireland's security of supply over the long-term and the development of the industry should be a national priority.
- Low or zero carbon dispatchable generation will be needed in the coming years to ensure we have sufficient capacity to manage periods of low renewable generation but also to abide by the sectoral carbon budgets. Further diversifying our sources of dispatchable generation will help mitigate any interruption to our natural gas supply. Given the need for new dispatchable generation over the coming decade identified by EirGrid, consideration should be given to how these projects can be supported and contribute to security of supply.
- Finally, at a high level, there must be recognition by policy makers and legislators that the boundaries around the state's electricity and natural gas *systems* do not end at the gate of the power generation asset or the gas storage unit. These energy *systems* are based on physical networks owned and operated by monopolies, controlled by regulators (with competing objectives) and are subject to the vagaries of the planning regime which again and again proves that it is not fit for purpose. While not privy to the scope or terms of reference supplied to the consultants who prepared the accompanying technical report, there are lacunae in this long-awaited consultation as the opportunity was missed to take a holistic or system view of security of supply. In short, a coherent and realisable security of supply system must also address policy issues that cuts across delivery of grid infrastructure to support generation / storage assets, competition rules that reflect the reality of market

conditions, and a planning consenting process which is timely and affords reasonable foreseeability to developers.

2. Response to Consultation Questions

Risks

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

The assessment of security of supply risks is comprehensive. BnM would like to raise two other potential risks to the overall assessment done by CEPA. The first being the failure of Ireland to achieve targets with respect to the delivery of onshore and offshore RES assets and supporting technologies to achieve an overall RES proportion of 80% of electricity generation by 2030¹. While not modelled explicitly the CEPA report acknowledges the impact that failing to meet the CAP 2021 targets would have on the overall analysis and predict that it would increase the level of unserved demand substantially.

This emphasises the importance of Ireland reaching its 2030 targets for deployment of RES-E from both an environmental perspective but also as a core part of our future energy security. It is necessary to view meeting these targets as a critical security of supply mitigation. It is BnM's expectation that the recently announced carbon budgets will lead to an increase in the level of ambition for RES-E deployment in the forthcoming CAP 2023. Based on CEPA's assessment this should translate into increased resilience and security of electricity supply by 2030.

Given development timelines BnM believes onshore wind will be critical to reaching these increased targets and abiding by the sectoral carbon budget. Given the cumulative nature of the carbon budget Ireland will need projects delivered sooner than offshore renewable developments can. The supply chain for onshore wind is well-established and in our view is the reason why onshore wind will play a major part in the decarbonisation story between now and 2030. Once offshore supply chains and industry are established in the 2030s, this will take over from onshore wind in helping Ireland attain 2040 and 2050 goals but the impact of offshore renewables this decade will be minor.

BnM believes up to 10 GW of onshore wind will be required. We have over 2 GW of onshore wind projects in development which are infinitely deliverable with relatively modest grid upgrades. The other major barrier to onshore wind is community acceptance but in BNM's experience public acceptance of projects is improving as communities are seeing the benefits of these projects in their areas via community benefit funds. There will also be investment required in supporting technologies such as batteries that will allow us to operate a high SNSP electricity system. We need policy measures that enable these targets, ensuring a robust grid, streamlined planning process and fast-functioning route to market that delivers change quickly.

The second concern BnM has relates to the performance of the Capacity Remuneration Mechanism (CRM). The CEPA report acknowledges the capacity deficit that Ireland is facing but does not seem to believe that the "market risk" posed by failure of the CRM to incentivise new capacity to be of particular concern. In contrast BnM's believes that serious assessment and reform of the Capacity Remuneration Mechanism (CRM) is required. Under supply of generation capacity to support our

¹ We acknowledge the increased ambitions for these targets announced XX but are using the assumptions stated by CEPA in the technical report that they used to create their baselines. The increase to targets does nothing to alleviate the supply risk concerned.

electricity system is a current security of supply issue and given EirGrid's estimates² will remain so for the coming decade.

The current capacity deficit is proof that the CRM is not fulfilling its purpose as a route-to-market for dispatchable generation. There are a finite number of new gas generation projects in Ireland, most if not all of these projects will need to be delivered to meet a rising year on year demand of at least 3% on the power system. It is BnM's view that presently the balance of risk in CRM is too heavily skewed towards generation developers. As part of the ongoing engagement on the CRM BnM have stated out our position on the BNE, Delay Modification and Indexation modification as 3 things that are needed to be able to deliver on the capacity generation that is urgently required. Without this, we will see the same pattern as we have seen for the last 5 years where plant pulls their investment plans and cancels capacity contracts.

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

We have responded to this question in our response to question 1.

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

BnM views the shock scenarios as adequate. Effectively predicting low risk and high impact events is difficult but the possibilities modelled by CEPA are sufficiently broad.

Mitigation Options

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

BnM would like to suggest two other potential mitigation options. Firstly, we believe that the construction of new hydrogen ready CCGT capacity should be considered as a potential mitigation option to both electricity and gas supply interruption. This is similar to the short-listed mitigation option of retrofitting an existing CCGT to run on hydrogen. However, given other system needs we believe that construction of new CCGT capacity should be considered. If the electricity sector is to abide by the sectoral carbon budget zero or low carbon dispatchable generation will need to be constructed in the coming years. In parallel EirGrid³ have recently stated that they see a need for up to 1GW of new CCGT generation by 2030. The costs and ability to retrofit an existing CCGT to run on 100% hydrogen are uncertain. Construction of a new hydrogen ready CCGT would have the same security of supply impacts as the retrofitting option but also aligns with broader system requirements and should be considered as a mitigation option.

Secondly, we believe further supports and incentives should be introduced to encourage the usage of renewable biomass in the electricity generation sector. Dispatchable renewable electricity generation will be needed to operate an electricity system that is predominantly intermittent renewables and operating at 95 % SNSP, and renewable biomass is the most commercially viable

² EirGrid - Ireland Capacity Outlook 2022-2031 – October 2022

³ Performance of the SEM Capacity Remuneration Mechanism - SEM-22-054A pg. 50

option at present. We see two policy changes that could be made to encourage further usage of renewable biomass for electricity generation.

Firstly, standard biomass fuelled generation plants should be allowed to participate in the RESS auctions. Currently high efficiency combined heat and power plants are the only biomass fuelled plants allowed to participate⁴ which has stymied the deployment of secure dispatchable biomass generation onto the power system. Secondly, biomass plants require some certainty around the running regime they will operate under, as these units are zero carbon, constraining these units to agreed dispatch profiles is fully aligned with the states renewable energy targets and contributes positively towards the impending carbon budget ceilings for the electricity sector. Sourcing sustainable biomass requires committing to long-term contracts with fuel suppliers and by its nature biomass is subject to degradation over time meaning long-term storage is difficult. These two issues create a large risk for the plant operator, which could be reduced if there was agreement about how it will be dispatched and ran.

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

In assessing the gas supply mitigations, it is important to consider security of supply over the medium and long term. The CEPA analysis highlights that Ireland's energy security is heavily dependent on the Moffet gas interconnector and in turn on the UK gas supply for our natural gas and electricity supplies. In the medium-term mitigation options to reduce the impact of any issue with the Moffett IC seems prudent. But, in BnM's view reducing dependence on imported energy entirely should be the long-term goal to ensure Ireland's energy security.

We see the development of indigenous fuels to replace natural gas as the only pathway to long-term energy security that aligns with Ireland's climate policies. Considering the sectoral carbon budgets production and utilisation of carbon neutral gasses will be needed within this decade. BnM estimates the Irish electricity system will require approximately 8 TWhr of predominantly gas fired generation in 2030. This assumes 40 TWhr total system demand and achieving the 80% RES E target. With a sectoral carbon budget of 2-3 million tonnes of CO₂ some of this gas fired generation will need to be decarbonised. There is huge potential for the development of green hydrogen and biomethane production in Ireland to help decarbonise this gas fired generation while contributing to security of supply and achieving our climate targets.

With these points in mind BnM see the "Gas mitigation option package" as the most important gas mitigation option for Ireland to implement. Given the nascent state of Ireland's biomethane and hydrogen industries this mitigation option will take time to develop making this a long-term solution to security of supply issues. Acknowledging that we believe their development needs to be treated as a national priority and supported so that they can fulfil their potential in the future.

Between the other short-listed options, the strategic LNG FSRU and strategic gas storage, BnM does not have a strong preference. The impact of both mitigations options is similar in helping to manage disruption to the Moffet gas IC flows. The floating LNG option would give Ireland additional benefits and options, such as diversifying our supplies of natural gas and would allow for gas generation plants to move from using distillate to LNG as a secondary fuel. Using Kinsale for offshore storage seems to have greater questions around costs and practicality as there are significant unknowns.

⁴ It is also important to note that no HECHP plant has secured a RESS contract in the two RESS auctions held to date.

Both share a risk of being stranded investments as Ireland transitions away from reliance on natural gas.

Further investigation into GNI's proposed onshore gas storage facility would be worthwhile. Particularly if this asset could in turn be used for storage of green hydrogen or biomethane. When Ireland develops production of renewable gases at scale, seasonal storage will be required.

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

BnM see value in many of the electricity supply mitigation options. Below we list the mitigation options in order of preference:

1. Conversion of a gas fired power plant to hydrogen – to meet the binding carbon emissions ceiling for the electricity sector BnM believes zero carbon dispatchable generation will need to be developed before 2030. While there will be challenges in developing the hydrogen production required to supply a CCGT it is necessary, and we believe a no regrets policy to pursue. As expressed in our response to question 4 we believe that development of a new hydrogen ready CCGT should be considered alongside this mitigation option.
2. Electricity Mitigation Package – this package of options will support our energy system across a number of areas and as such should be pursued. As the proportion of variable generation in the electricity system increases demand side flexibility and short-term storage become increasingly important. We view this as a no-regrets mitigation option to pursue as it supports numerous policy objectives. One concern we would raise is the nature of demand response operating in Ireland, primarily demand response in Ireland is based on backup diesel generators which does not align with decarbonisation objectives. Incentivising low or zero carbon DSR will be required.
3. Additional generation capacity – dispatchable low carbon – development of further low or zero carbon dispatchable generation is something BnM believe to be necessary and should be supported by government policy. However, given our experience of operating a partly biomass fuelled thermal generator in Ireland we believe it would be difficult to operate a biomass plant of 450 MW in Ireland. We discuss some of the policy challenges that a project like this would encounter in our response to question 4.
4. Additional electricity storage – pumped hydro – BnM fully support further pumped hydro capacity being developed in Ireland. As a medium-term mitigation option however we are unsure if it would be deliverable. Developing a site suitable project like this before 2030 would be challenging in our view given the planning and environmental issues it would likely encounter.
5. Additional electricity interconnection – further electricity interconnectors between Ireland and France would be beneficial. Especially as it helps to mitigate against the more extreme shock scenarios that limit gas interconnector flows to Ireland. We do not rank it higher however as interconnectors are expensive to develop and as electricity flows are dependent on electricity prices across the broader European market may not deliver security of supply when required.
6. Increased secondary fuel storage at gas fired power stations – BnM are unsure of the practicalities and costs of implementing this option as presented. Increasing national reserves of secondary fuel at a central location to be dispersed if needed may be more cost effective than construction of increased storage capacity at each generation site within the country. If LNG were available within Ireland either via a potential floating terminal or the

proposed onshore storage site, new or existing plants could move to using LNG as their secondary fuel. This would have a few major benefits. Firstly, it would contribute to the reliability of generation equipment, having to maintain duplicate systems to run on natural gas and distillate increases the complexity of the generator and introduces more points of failure. Secondly, in the event of a plant needing to use its “secondary fuel” LNG would have lower emissions than distillate. Lastly, onsite gas storage could in the future be used to store hydrogen as its production increases.

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

BnM has no views on this question.

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

In considering how the mitigation options should be implemented we see two important issues to be decided, firstly what mechanism will be used to deliver the mitigation options and secondly how will they be funded. There are a number of different government supports and market constructs (RESS contracts, Capacity Remuneration Mechanism, System Services revenues etc.) that provide a route-to-market for new energy investments. In general, each serve a policy goal, but none are specifically designed to incentivise investment in security of supply.

We think as part of the security of supply review that there is some consideration given to how the department intends to procure the chosen mitigation options? Whether certain existing route-to-markets may be modified or whether is a new mechanism created to fund them. Given the current market structures we believe that an out of market solution may be required to deliver some of these mitigation options. Particularly for capital intensive options such as new or retrofitted large thermal plant or pumped storage.

There is also a question of how investment in security of supply is to be funded. The National Oil Reserve Agency could provide a model to imitate in terms of a levy per volume sold by the wholesale suppliers to fund a strategic reserve. Natural gas shippers could have a levy placed on sales to fund the necessary gas mitigation options. Similarly, a levy could be placed on electricity sales to pay for the delivery of the electricity mitigation options. We believe separation of the funding mechanisms based on sector is appropriate to avoid cross-subsidisation.

Policy Measures

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

BnM supports the policy measures proposed in section 8. We would see the regular energy security reviews as particularly important. One essential take away from this security of supply review is the requirement for forward planning and the length of time it takes to introduce effective measures to improve security of supply. BnM would hope that following this review that there will be list of actions to be implemented and a timetable for delivering them. The biennial review would be a good forum to assess the progress of these actions and ensure they are being delivered efficiently.

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

BnM has two suggestions on additional policy measures that could facilitate the development of Ireland's energy system and ensure security of supply. Firstly, we believe it is an urgent priority to address factors that delay and add risk to the development of energy infrastructure in Ireland. Given Ireland's chosen pathway to decarbonisation via deployment of RES-E and electrification of much of the economy the electricity system grid will be the backbone of Ireland's society and economy for the coming decades. Extensive investment in our electricity grid is a no regrets policy that will allow Ireland to increase RES-E penetration and fully utilise the investments made to date.

Secondly, BnM believe that certain areas should be designated as strategic energy zones to allow faster delivery of energy projects in line with the RePower EU proposals. Doing so would reduce the planning delays that stall projects development and would minimise the need for investment in the electricity and natural gas grids. The BnM landbank contains a number of sites with access to key energy infrastructure and located close to the centre of energy demand on the east coast that would be suitable locations for energy zones. The government should progress with designating strategic energy zones as a priority to enable the delivery of renewable energy targets.