Response to Department of the Environment, Climate and Communications

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

28 October 2022

1 Introduction

Energia welcomes the opportunity to respond to this consultation. A review of Ireland's Security of Supply is particularly timely given both recent geopolitical events and the electricity generation adequacy forecast for the coming winters.

As an operator of a gas CCGT station, Energia has the benefit of considerable technical expertise that informs our response to the mitigation option to increase secondary fuel requirements electricity mitigation options (Option xx). In addition to having considerable experience delivering large scale electricity generation projects on the island of Ireland. Even so, based on the information available in the consultation paper and associated technical reports, we find it difficult to rigorously assess the cost versus benefit of many of the measures proposed

While Energia recognise the depth of the analysis that has gone into modelling the six scenarios that have been used to inform this review, we believe this consultation process would benefit from additional information in relation to:

a) The probabilistic likelihood of any of these scenarios occurring in any given year, to inform a more detailed cost benefit
b) Greater detail into the costs of pursuing each of the mitigation options provided, including, where possible, opportunity costs and other potential indirect costs associated with each option.
c) More detailed analysis into the likely development times of each option, cognisant of the current timespan for relevant planning permission, and the likelihood of appeals to any grant of permission.

The executive summary section outlines the key principles of this response, in addition to briefly commentating on each of the mitigation options proposed. We respond in greater detail to the specific consultation questions in section 3.

2 Executive Summary

As we have discussed in the introduction section, in the absence of more detailed information, specifically points a) – c) above, it is challenging to make definitive decisions on the mitigation options proposed in this paper. Energia has therefore assessed each of the options proposed on the basis of how they meet the four principles outlined below.

1. Future Proof: Options must not result in carbon lock in or the potential for future stranded assets.
2. CAP Complimentary: Options should not divert key state resources or infrastructure (e.g., planning and consenting) away from where it is required in order to achieve 2030 Climate Action targets,
3. Feasibility: Options must be implementable in the necessary timeframes (accounting for the potential for planning challenges and appeals), and
4. Proportionate: The cost of each option should be proportionate to the likelihood of a given scenario arising,

CEPA's analysis indicates that a greater potential for security of supply shocks exists in winter 2025 than 2030. According to the consultation paper however only one of the mitigation options proposed is more than likely achievable in that timeframe, an increased secondary

fuel obligation for CCGT generators. As Energia discuss in greater detail in section 2.7.4, we have a number of reservations about this option, not just in relation to the proportionality of such an option but also the feasibility of delivering this option in time for winter 2025.

2.1 Gas Options

Five gas mitigation options were shortlisted in the CEPA summary and thus appeared in the consultation paper:

1. Gas storage facility
2. A Floating LNG regassification and storage unit
3. A package of gas Mitigation measures
4. An Onshore gas storage project
5. A natural gas demand management

Energia believe that only Options 4 & 5, are sufficiently future proof and thus adhere to principle 1. In the case of option 4, this would be conditional upon the onshore gas storage facility being capable of storing hydrogen in the future, however. The inclusion of an offshore gas storage facility within option 3, does not adhere to principle 1. Energia would be interested to understand whether the remaining Elements of option 3 (Renewable gas, DSR and Hydrogen), could potentially be combined with option 4 in such a way as to adhere to all four principles

The same two options arguably satisfy the second principle of complimenting the achievement of Climate Action Plan related targets, in spite of the fact that both options will likely draw on state resources in relation to the planning and consenting process. Ultimately however the delivery of the infrastructure outlined in options 3 and 4 would complement the achievement of the climate action plan targets, unlike options 1 and 2 which will require foreshore licences and thus divert key consenting resources away from reviewing offshore wind applications.

With regard to the third principle of being deliverable within the necessary timeframes, it is clear that only elements of option 3, and option 5 are realistically achievable by 2025. Note however that Energia are basing our assessment of the deliverability of the onshore gas storage facility on the basis of the evidence outlined within this report alone.

Lastly, it is difficult to assess the extent to which the cost of option 4 is justified on the basis of the mitigation it could potentially provide to supply shocks, discussed further in section xx. A combination of option 4, combined with aspects of option 3 (Renewable gas, DSR and Hydrogen) might alleviate the effects of certain shocks and would therefore merit further consideration. In relation to option 5, while there is no direct cost implications associated with pursuing such an option, there is a risk that such a policy would either stifle inward investment or result in switching to more carbon intensive processes in the short term.

In summary Energia would only support the following aspects of option 3: Renewable gas, DSR and Hydrogen. Absent detailed information in relation to the cost and likely delivery timeframe for option 4, it is difficult to make informed decisions about whether such a project would adhere to the principles we have outlined. The extent to which pursuing option 4, has the potential expedite hydrogen production would also be a key factor in deciding whether or not option 4 has potential.

2.2 Electricity Options

Six electricity mitigation options were shortlisted in the CEPA summary and thus appeared in the consultation paper:

1. Additional electricity interconnection
2. Additional electricity storage – pumped hydro
3. Additional generation capacity – dispatchable low carbon
4. Increased secondary fuel storage at gas fired power station
5. Conversion of a gas fired power plant to hydrogen
6. Electricity Mitigation Package (DSR and Batteries)

Energia did not believe option 4 adhered to the principle of avoiding the lock in of carbon emissions and/or stranding assets on the basis that additional secondary fuel storage facilities might be required to house the increased fuel stocks envisioned. Based on CEPA's analysis, these facilitates would not be required to the same extent post 2030, and would not be capable of serving an alternative purpose at a future point in time. The remaining options 1-2, 5&6 would also meet the second principle of complimenting the delivery of 2030 CAP targets.

When it came to assessing the feasibility of the remaining options however, Energia did not feel options 2 and 3 could be progressed. Option 2 by virtue of the scale of the project and the complexity involved in the planning process for such a unit. Option 3, on the basis of our understanding that no existing unit is capable of operating sustainably using biomass on the scale required, in addition to the difficulties associated with procuring the feedstock required by such a unit. While CEPA questions the feasibility of option 5, particularly in relation to the cost and quantity of available hydrogen, Ireland's CAP commits to delivering 2GWs of hydrogen production facilities by 2030 some of which could be used to power such a unit.

Lastly, when it came to evaluating whether the mitigation provided by each option was justified on the basis of their cost. It was difficult to make a case for any option but option 6 at present. Energia ruled out option 1 on the basis that interconnectors are not a reliable mitigant at times of system scarcity (discussed further in section xx) and by 2030, Ireland is expected to have an additional interconnector with France anyway. We also viewed the cost of pursuing option 5 as currently prohibitive, noting this may change in the near future if hydrogen production costs decrease.

In summary therefore, option 6 is the only electricity option that Energia felt presently adhered to all 4 principles outlined above and thus should move forward for further consideration.

2.3 Future Engagement with Industry

Delivering the ambition of Ireland's Climate Action Targets by the end of the decade represents a sizeable challenge and will require a step change in the speed at which policy and regulatory decisions are both made and implemented. The market framework is also growing in complexity, to the extent that decisions affecting one component such as the wholesale market, is likely to have material impacts on other revenue streams such as DS3 and market based supports like the CRM and RESS. In such an environment it is difficult for investors to make informed decisions.

For this reason, Energia believe it is important that industry engagement happens at an earlier stage of the consultation process than has previously been the case. Market participants can offer a real world perspective on issues that can often be overlooked in the early stages. If

industry input could instead be collated at an earlier stage of the process, it is likely that proposals put out for subsequent consultation will require less refinement and thus be resolved quicker. A more open approach to engagement between the government, regulatory authorities, and market participants (including market operators), would also ensure that all participants at least have sight of the issues within a consultation that need to be overcome. Which can only lead to a more collaborative process.

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

2.1.1 Reform of the Planning System pertaining to Electricity infrastructure

While Energia acknowledge that recent geopolitical events are the driving force behind the increased public scrutiny on long term Energy Security, prior to this year, a common issue affecting the delivery of all electricity infrastructure pertained to acquiring planning permission. While Energia welcomes the ongoing Government review of the wider planning legislation, we believe specific measures are needed to reform the planning process for large electricity infrastructure projects, particularly in the case of transmission and large scale generation projects.

While we are aware of the legal debate in relation to whether or not the grounds for appealing planning decisions via judicial review are too broad, what is clear to Energia is that a prudent developer must anticipate that an appeal to any planning decision is likely. It is therefore important that the process for hearing appeals and refining planning decisions where necessary runs as efficiently as possible. It is likewise important that the milestones outlined in policy/market mechanisms such as the Renewable Electricity Support Schemes (RESS) and the Capacity Remuneration Mechanism (CRM) are designed on the basis of the likelihood of planning

As a general point, developers are experiencing mixed responses from statutory bodies involved in the various elements of developing and consenting a wind farm. Feedback from our members suggests that various elements are very silo-driven, and often a lack of understanding of how their role and actions fit into the process, particularly on the offshore wind development side. Resourcing is and will continue to be a crucial deciding factor around whether or not we deliver on our 2030 ambition.

Additional resources and expertise are urgently needed in An Bord Pleanála to ensure a robust and fair planning system. A shorter administrative processing time for applications is also urgently required overall, which would entail reducing the timelines for Inspector and Board Level assessments. Similar resources and reforms must likewise be delivered in key state and semi state bodies, such as EirGrid, ESB Networks and the Commission for the Regulation of Utilities to ensure that each rung on the ladder of the development process operates more efficiently whilst retaining the same rigour.

2.1.2 Reform of the CRM

Many of the challenges associated with delivering capacity in Ireland – of any kind – have been well documented. As it currently functions the CRM does not seem to be fulfilling its function as can be seen by the alarming capacity situation Ireland faces in the coming winter 2022/23 in addition to the necessity of acquiring emergency generation capacity for winter

2023/24. Of equal concern is the predicted generation capacity shortfall highlighted in EirGrid's GCS over the coming winters.

To address the ongoing concerns with regards to security of electricity supply (predating those raised in the latest version of the GCS), in September 2021 the CRU published an information paper CRU211156. Updates to this programme of actions were published in the CRU2022647. This programme of actions was designed to mitigate against the risk of a supply-demand deficit. The paper contained actions, most notably a direction for procurement and delivery of 2,000 MW of additional flexible gas generation by 2030.

The timelines of the T-4 auctions are challenging to deliver projects within. Especially given the delays projects can face with respect to the planning process and grid connections. Reform and streamlining of these processes would reduce the risk of projects not delivering while also having ancillary benefits for development of the wider electricity system.

Appropriate market and pricing signals that apportion risk in a balanced way that incentivises investment are needed. Adopting an overly penal approach will not deliver the capacity required.

Beyond the immediate issue of capacity shortfall in the market, need to ensure that the new developments securing capacity contracts compliment the low carbon electricity system being created. Investments made now will remain a part of the electricity system for the next decade at least and must align with Ireland's decarbonisation ambitions. In summary, the following key principles need to be considered in any effort to procure new dispatchable plant:

Investment in zero and low carbon capacity needs to be encouraged and facilitated. New gas thermal plants need to have a pathway to decarbonisation for example by being able to transition to green hydrogen. Restrictions on how energy storage projects can engage in the energy markets need to be removed to ensure they have a viable route-to-market.

2.1.3 Delivering Renewable Capacity

Rapid deployment of renewable energy capacity will require coordinated development of the electricity grid and infrastructure along with continued integration of renewable energies. It is clear that the benefits of deploying renewable energy in Ireland as fast as possible are two-fold. Not only will the rapid deployment of renewable energies in Ireland increase the security of supply of energy, but doing so effectively will also cut Ireland's carbon emissions.

The following are all major policy/regulatory obstacles that need to be resolved as a matter of urgency if the quantity of investment needed is to materialise in time for 2030.

- Implementation of the CEP Articles 12 & 13 in a manner consistent with the intention of the regulation
- Clear definition of the subsequent offshore RESS development phases, to provide certainty over expected future volumes.
- Clarity on the supports available for CPPAs and a clear policy on the use of private wires
- A Firm Access policy that delivers certainty for new and existing developers
- Certainty on future ECP batches via the continuation of annual ECP-2 batches beyond ECP 2.3
- Developing a framework for storage, potentially including new supports
- Facilitating hybrid connections

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2.1.4 Changes to EU Electricity Market Design

Well-functioning EU electricity markets are crucial to providing revenue certainty and investor confidence for renewable generators. We look forward to engaging with this process and encourage DECC to work with the Commission to ensure a wide range of stakeholders at individual Member State level are given the opportunity to participate and provide their relevant evidence, expertise, and experience. However, and as outlined above, we believe that certainty and predictability in the market will be vital for the achievement of our 2030 ambition, and we urge Government and the Commission to keep this in mind during the upcoming work.

The energy market was designed to achieve allocative efficiency on the basis of short-term marginal cost of production. The fact that commodity prices have been affected by major geopolitical events is therefore not a reason to admonish the design of the current market. Any discussion on market design needs to be forward looking given the time it will likely take to implement. The benefit of improving the market design must also outweigh any negative impact associated with changing the entire market in terms of investment certainty, which might not be an insignificant bar to overcome.

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

Please see our response to the prior question (section 2.1). Mitigation to these scenarios could be broadly summarised as the need to deliver the policy and regulatory clarity needed to increase investment certainty and reduce the risk associated with planning and grid delivery.

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

The scenarios modelled cover adequately cover the effects of a range of scenarios. For example, a cyber-attack may not be considered as a potential shock, but a cyber-attack that disrupts flow along an interconnector is sufficiently modelled in scenarios 2a and 2b.

One suggestion Energia has for an alternative scenario, is one in which the delivery of major infrastructure projects needed to achieve the 2030 Climate Action Plan targets, begins to lag significantly behind schedule. Such a scenario would particularly amplify the shock scenarios already modelled for 2030. In terms of mitigating the potential for this to occur Energia believe the following are necessary and require immediate attention to remedy/rectify.

2.4 Q4: Do you have any additional mitigation options that you think should be considered?

2.4.1 Delivering Offshore capacity

The following actions must be prioritised if Ireland is to achieve it’s 2030 targets in relation to delivering offshore wind capacity

1. **Foreshore Licence applications must be processed as quickly as possible.** Delays create the risk of a cascading effect on other project timelines and thus cannot be allowed to continue.
2. Planning and consenting bodies need to be adequately resourced

   Developing 5,000 MW of offshore wind energy by the end of 2030 will place an enormous burden on the relevant Government departments, An Bord Pleanála, NPWS, EirGrid, ESB Networks and the CRU. A significant increase in terms of both financial and human resources within these bodies is therefore necessary in order to prevent bottlenecks arising in the development process.

3. Firm dates for future ORESS auctions are needed as a matter of urgency

   The nascent offshore industry in Ireland needs certainty in relation to future routes to market, otherwise there is a risk that critical resources: such as equipment, materials and turbines are not available in the requisite quantity to meet 2030 targets. The rest of Europe and to a lesser extent the world, is engaged in delivering ambitious capacity targets for offshore wind. Turbines, vessels, and other components are therefore in short supply and are already unavailable until the later part of this decade. Absent certainty in relation to routes to market, Irish development timelines are in danger of appearing speculative by comparison to other jurisdictions, with the implication being that manufacturers of scarce resources will contract only in jurisdictions with greater certainty.

   A direction on Phase 2 criteria is urgently required, to demonstrate the longevity, despite it being a full 6 months since it was consulted on, and no firm date for auctions beyond 2023.

2.4.2 Hydrogen

Energia responded to the Department's Hydrogen Strategy at the start of September highlighting the need for urgent action to accelerate the development of hydrogen infrastructure on the island. Fossil fuels displaced by domestically produced hydrogen will not only diversify Ireland's energy sources but reduce our exposure to international commodity market fluctuations. Green Hydrogen and Electrofuels can therefore play a vital role in diversifying energy supply sources on the island of Ireland.

Small scale investments into hydrogen production are already being made and policy measures designed at the European level show promise. It is becoming apparent however that a missing piece of the puzzle are policy interventions aimed at increasing the future demand hydrogen. In the US, the Inflation Reduction Act introduced subsidies for large energy users in return for committing to sources a certain % of their future energy needs from hydrogen. Improving the certainty of future demand, increases the routes to market for hydrogen producers and the likelihood that they will receive a price for the hydrogen they produce that recoups the cost of constructing production facilities (electrolysers). A similar policy instrument deployed in Ireland, would not only reduce the future dependency of industry on natural gas, but also catalyse renewable electricity deployment rates.

Energia would however caution against Hydrogen production being lauded as a panacea for all challenges associated with decarbonisation. At present the economics of hydrogen production dictate that hydrogen should be preserved as a solution to the use cases (power, industrial heat, transport etc.) that represent the greatest challenge to decarbonise. Ongoing

research into specific use cases is therefore needed to inform and as necessary, the optimal trajectory for hydrogen development in Ireland.

Reducing dispatch down and the quantity of available electricity not produced

Hydrogen can play a pivotal role in harnessing Ireland's extensive renewable energy resources. As the, 2021 Annual Dispatch Down report published recently by EirGrid shows, a significant quantity of electricity is prevented from being generated by virtue of the inability of the electricity grid to accommodate it. The 2021 report indicated that a combined total of 941GWh of power from renewables on the island of Ireland was dispatched down last year in a low wind year. The figure for 2020 was almost exactly twice as high at 1,908 GWh even though demand was reduced due to COVID-19. The quantity of available electricity that is not capable of being dispatched is all the more galling, when the cost of procuring emergency generation is considered to mitigant against potential supply shortfalls.

Maximising the output from existing generation stations minimises the amount of new capacity that needs to be constructed in order to ensure system adequacy and deliver CAP targets. The use of electricity that would otherwise not have been generated for hydrogen production could therefore be pivotal means of reducing the overall cost of the energy transition.

While a centralised roll out of a small number of large electrolysers may be more capital efficient, it is unlikely to be feasible given the present level of constraints on the electricity network. In fact, a centralised hydrogen hub could potentially exacerbate current network issues, contrary to the principle of complimenting renewable deployment. In the short to medium term, hydrogen production could therefore be located behind network constraints until such time as the electricity grid can be upgraded to facilitate a more centralised hydrogen.

In our response to the Department's Hydrogen strategy consultation Energia advocated for a hub and spoke type model that would prioritise locating electrolysers in areas of the grid that are constrained in terms of the amount of power that can be exported, rather than at individual generation sites. By locating in such areas, the electrolyser can operate as a demand sink, absorbing what was previously excess power. The additional benefit of such an arrangement is that the electrolyser is connected to a number of renewable generation assets and can therefore obtain power more reliably than would be the case if it was connected to a single generation source. Connecting to multiple sites, would thus allow the electrolyser to operate at a higher load factor, reducing the time horizon over which the investment cost is recovered.

It is important however that a policy to attract hydrogen production to be located within constrained network areas, is not perceived as a long term alternative to reinforcing the electricity network. Whilst hydrogen production infrastructure can be used as a means of consuming power that would otherwise not have been produced, electrolysers should only be the solution to resolving constraints in the absence of less costly network reinforcement projects. Otherwise, hydrogen infrastructure is not being efficiently deployed.

A strong electrical grid must remain the backbone of a renewables powered energy system where the renewable power can be moved efficiently and effectively from the point of production to the point of consumption. This need increases significantly as society places more reliance on the electricity system to decarbonise heating and transport. Hydrogen should be viewed as an integrator of renewables into the wider energy system by harnessing curtailment and market oversupply, not as an enduring solution to localised network constraints.

2.4.3 Battery Energy Storage Solutions

Energy storage will play an essential role in facilitating higher levels of renewable generation on the power system. Increasing the capacity of batteries and other forms of storage, will also improve the resilience of the electricity system with regard to supply side shocks – enhancing security of supply. Storage systems will also be capable of providing a wide range of benefits to end consumers such as wholesale energy price reductions, reduced CO2 emissions and flexible system support services to help manage the grid.

At present however issues like the lack of firm access for batteries and a fit for purpose solution to dispatching batteries via central market systems (allowing batteries to be optimally scheduled to both charge and discharge, present sizeable barriers to greater adoption of battery storage. An additional bottleneck for the majority of energy storage projects at present is the ability to obtain a grid connection. Energia recognise that progress is being made to resolve these issues, but the faster batteries can be facilitated, the sooner benefits will accrue to system security, system management and ultimately final customers.

In the short term market mechanisms such as DS3 need to progress in such a way as to be recognised and remunerated in line with the multi-layered value energy storage provides. A coordinated strategy for energy storage that addresses the issues that confer additional risks on battery investments would also be welcome. There is a large pipeline of energy storage projects in Ireland today with planning permission that could be deployed quickly to help meet our supply needs. In keeping with our principle of avoiding stranded assets, zero-carbon energy storage solutions should be prioritised if we are to avoid carbon lock in.

2.4.4 Hybrid Connection Policy and Development

Grid infrastructure in Ireland is a relatively scarce and thus valuable resources. Facilitating the co-location of complementary technologies such as wind, solar & storage, maximises the utility of existing connections and improves connection times at significantly lower costs. Indeed, the benefits of facilitating hybrid connections have been identified in policy objectives for some time now, what is therefore required is an exercise to remove the barriers that exist to co-locating new assets at existing connections.

At present barriers to greater adoption range from technical issues (such as the maximum capacity that can be located behind an MEC), policy related issues (interaction with support schemes) to market and legal issues (surrender of priority dispatch and restrictions on multiple legal entities accessing a single connection). Reforms to private wires regulations would also promote the development of not only new low carbon generation, but also hydrogen production in tandem with large energy users.

In light of the timeframes for constructing new grid infrastructure, reforms that would enable quick deployment of energy storage units on existing wind and solar sites represent low hanging fruit. These grid connections have already been constructed and thus the barriers to co-location that remain are not physical. To date however the pace of progress has been slow. Efforts must be redoubled therefore to be realise the benefits of co-location in time to have a meaningful impact on delivering 2030 targets.

2.5 Q5: Which gas supply mitigation options, if any, should be considered for implementation?

The following section contains our response to each of the options proposed. Each section contains a table outlining Energia's evaluation of each option, with some additional text in the case of options where perhaps more consideration, information might be required.

2.5.1 Gas Storage Facility (Offshore)

Principles	Commentary
1. Future Proof	Unlikely to be used beyond 2030, presumably not capable of storing Hydrogen in the future.
2. CAP Complimentary	Likely to absorb key planning and consenting resources away from focusing on key CAP related infrastructure, particularly offshore wind developments.
3. Feasibility	Challenging to deliver by 2025, when it's need is greatest
4. Proportionality	Significant cost involved, especially in relation to procuring sufficient cushion gas quantities, does not mitigate against long term gas supply shock scenarios.
Summary	**Energia do not believe this option is worth pursuing**

As outlined in the table above, reopening, or investing in an offshore gas storage asset contravenes all of the principles we have laid out in this response. Energia's understanding is that such a facility could not overhauled at a future point in time to store hydrogen and would thus have a finite lifespan. The report also highlights that obtaining a foreshore licence for such a facility would not be guaranteed. Reading into this further, Energia would therefore have concerns that such an application would displace other foreshore licence applications in the queue to the detriment of offshore wind projects and related infrastructure.

In light of the challenge associated with obtaining the requisite licences, it's clear this facility would not be operational in time for winter 2025, which according to CEPA's analysis is when it would be most needed. The report also casts doubt over the ability of such a facility to act as a long term storage option (as opposed to a seasonal one). Finally, as the report rightly notes, the cost of developing this facility is likely to be sizeable, due to both capital costs and the need to procure cushion gas. Given this facility would not be a mitigant to all of the potential scenarios outlined, it is difficult to make the case that the benefit justifies the cost. For all of these reasons therefore, Energia do not believe this option is worth considering further.

2.5.2 Floating LNG Terminal

Principles	Commentary
1. Future Proof	Unlikely to be used beyond 2030, unless it can be used to important and store hydrogen.
2. CAP Complimentary	Likely to divert planning and consenting resources away from focusing on key CAP related infrastructure
3. Feasibility	Challenging to deliver by 2025, when it's need is greatest

4. Proportionality	Costly option, given the extent to which it mitigates shortfalls in gas supply.
Summary	**Energia do not believe this option is worth pursuing**

While Energia recognise the potential for such a facility to provide a significant quantity of gas in scenarios where security of supply is under threat, this seems an expensive solution to an eventually that is relatively unlikely. The fact that such a facility would not be operational on a commercial basis, undermines any benefit this investment would provide in terms of reducing the cost of gas to final consumers. CEPA analysis also states that the

"feasibility of the FSRU to hold LNG for extended periods of time in a pressurised state would need to be determined."

indicating there is a level of uncertainty as to whether such a unit could operate as required. Similar to option 1 above, Energia would have concerns that in order to acquire the requisite licence and permissions in time, this project would need to relegate other projects to a lower rung on the development ladder. To the detriment of achieving Ireland's CAP targets.

2.6 Gas Mitigation Package (gas storage, renewable gas, green hydrogen, and gas demand side)

Principles	Commentary
1. Future Proof	Yes, apart from offshore gas storage
2. CAP Complimentary	Offshore gas storage would draw heavily on state resources required to grant foreshore and related licences, to the potential detriment of offshore wind. Other aspects would complement the achievement of CAP targets
3. Feasibility	Offshore storage, likely unfeasible by 2025. Renewable gas, DSR and Hydrogen, could be deployed in this timeframe but not at significant scale.
4. Proportionality	Significant cost involved, especially in relation to procuring sufficient cushion gas quantities, does not mitigate against long term gas supply shock scenarios.
Summary	**Energia believe the aspects pertaining to Renewable gas, DSR and Hydrogen should be considered further, potentially in tandem with an appropriately designed onshore storage facility (Option 4)**

For the reasons outlined in option 2 above, Energia would not support this option as long as an offshore gas storage facility remained in scope. Energia would however support the proposals in relation to incentivising the adoption of green gas and hydrogen in addition to promoting more demand side management and efficiency on the grounds that they adhere to the four principles our response outlined. An additional benefit of both green gas and hydrogen, is that it diversifies the fuel mix Ireland's energy system relies on, which benefits both security of supply and enhances resilience to international commodity fluctuations. Energia understand that many European nations have demonstrated an ability to switch to stored biogas at times of high prices to the ultimate benefit of consumers.

2.6.1 Onshore Energy Storage Project

Principles	Commentary
1. Future Proof	Must be capable of storing Hydrogen in the future
2. CAP Complimentary	Yes
3. Feasibility	More information is needed to evaluate fully, but appears challenging to implement by 2025
4. Proportionality	Acting only as a reserve storage facility, the investment would seem difficult to justify unless it is built to store hydrogen efficiently in the near future. Overall costs uncertain.
Summary	**More information is required to thoroughly evaluate this option.**

The fact that the facility would not be operated on a commercial basis, but rather held in reserve, entails that the benefit of this facility is limited only to the extent to which it prevents gas supply shortages. However, the quantity of gas held in an onshore facility is unlikely to fully mitigate a major interruption to supply. Energia thus struggle to see how the benefit of such an option outweighs the cost. Given that the facility is unlikely to be delivered in time for 2025 (when the CEPA report indicates the need for such a facility is greatest), Energia wonder instead whether it might be more appropriate for this facility to be designed to store hydrogen from the outset. Further information is required to fully assess this option and the CEPA report notes that it did not approach GNI in great detail as to the type of onshore storage facility it was considering developing.

2.6.2 Natural Gas Demand Management

Principles	Commentary
1. Future Proof	Yes
2. CAP Complimentary	Yes
3. Feasibility	Yes
4. Proportionality	Difficult to justify forbidding future gas connections, especially if this proves damaging to renewable gas and/or hydrogen development.
Summary	**Energia do not believe this option is worth pursuing**

Restricting further gas connections, does not appear to Energia to be a proportionate response to the risks identified in this consultation. While the long term goal is to decarbonise heat and power, by replacing the use of gas with green alternatives, many consumers, particularly in rural areas remain reliant on fuels that are far more carbon intensive than gas. Restricting access to the gas network might therefore remove viable options for certain users to reduce their carbon emissions. The gas network has the potential to act as an enabler for investments in both anaerobic digestion and green hydrogen, both of which are technologies that will be necessary to meet Ireland's CAP targets. Imposing a restriction on new connections might therefore act as a barrier to some of these investments, isolating some users from the solutions of the future. In summary, Energia do not believe this option can be justified,

especially on the basis of the extent to which this solution mitigates against interruptions to gas supply.

2.7 Q6: Which electricity supply mitigation options, if any, should be considered for implementation?

2.7.1 Increased Interconnection

Principles	Commentary
1. Future Proof	Yes
2. CAP Complimentary	Yes
3. Feasibility	Yes by 2030
4. Proportionality	Interconnectors are not a dependable mitigant for security of supply shocks/shortages
Summary	**Energia do not believe this option is worth pursuing**

As the CEPA report documents, interconnector flows are not a dependable mitigant to security of supply shocks, especially where shocks are correlated across local markets. As such Energia do not believe the case can be made for further interconnection on the basis of alleviating security of supply concerns alone.

When considering the potential benefits of new interconnection, it is important to consider the impact this interconnection will have on renewable generation on the island of Ireland. Depending on the timing and direction of interconnector flows, additional interconnection can both benefit renewable generation by exporting power during periods of high renewable output or depress renewable output by importing power that displaces indigenous renewable generation. The presence of increased interconnection also creates the potential for the island of Ireland to be used as a power corridor between the electricity markets of other countries. Power may be scheduled to flow from one country, through Ireland to a third country stressing the transmission network in Ireland.

For these reasons it's important that a decision to proceed with additional interconnectors is based on a detailed cost benefit analysis, examining in particular the impact an interconnector might have on the indigenous renewable industry.

2.7.2 Additional Electricity Storage – pumped hydro

Principles	Commentary
1. Future Proof	Yes
2. CAP Complimentary	Yes
3. Feasibility	Likely to be challenging to fully commission within the necessary timeframes.
4. Proportionality	Costly solution given the benefit for security of supply, would need to operate commercially to provide benefits to final customers.
Summary	**Energia do not believe this option is worth pursuing**

Energia's understanding, informed by both CEPA's analysis and our own experience, is that developing a pumped storage project in a European jurisdiction is quite challenging given the planning requirements that must be adhered to, particularly in relation to Environmental Impact Assessments. To our knowledge there are no pumped storage projects of the scale required to mitigate security of supply shocks, planned or in train and thus delivering one seems unlikely within the chosen time horizon. Long duration storage is however a key enabler of the energy transition, and it is therefore important that a rigorous evaluation is undertaken to determine what the optimal technology mix will be beyond 2030.

2.7.3 Additional Generational Capacity-Dispatchable Low Carbon

Principles	Commentary
1. Future Proof	Difficult to assess
2. CAP Complimentary	Most likely
3. Feasibility	Likely to be challenging given the lack of current units capable of being overhauled to use biomass as a feedstock.
4. Proportionality	Likely to be a costly solution and concerns remain in relation to the long term security of a sustainable feedstock
Summary	**Energia do not believe this option is worth pursuing**

Energia's understanding is that no present unit within the market would be capable of being fully powered using biomass as a feedstock. We note also CEPA's concerns in relation to the challenge associated with procuring enough sustainable feedstock to supply such a unit into the future. Given these concerns and the potential cost involved with building and operating such a unit, Energia do not believe a case can be made for supporting this option.

2.7.4 Increased Secondary Fuel Storage at Gas Fired Power Stations

Principles	Commentary
1. Future Proof	No
2. CAP Complimentary	Unlikely to impact on renewable delivery, but risks placing additional costs on consumers at a time when energy prices are already high.
3. Feasibility	NORA's ability to coordinate the deployment of reserve fuel stocks has not been demonstrated. If CCGT stations are obliged to increase storage capacity on site, this will be challenging to implement by 2025.
4. Proportionality	Likely to be a costly solution to a problem that is unlikely to occur. Difficult to argue that cost is justified in the context of the risk therefore.
Summary	**Energia do not believe this option is worth pursuing**

The modelling undertaken by CEPA, finds that unmet electricity demand occurs only in a scenario wherein there is a prolonged outage (>30 days) to both gas interconnector s (IC1 and IC2 during a winter month in 2025 (scenario 5). On the basis of recent history, such a prolonged outage has no precedent. Discounting the change in geopolitical circumstances for

the time being, the risk of a major interruption to both gas pipelines has therefore not increased. Ireland's reliance on gas in the coming winters, is also not projected to increase markedly.

In spite of the increased publicity surrounding the future of gas supply in the next decade, Energia would find it difficult to justify any measure solely targeted at mitigating an event that is extremely unlikely. This is especially the case if the option does not only adhere to the principles we previously outlined in section xx above, but also places an additional economic burden on society/ final consumers. For the following reasons therefore Energia, do not believe increased secondary fuel storage at CCGT stations is a viable mitigation option.

1. Future Proof

The cost of purchasing increased stocks of secondary fuel and/ or the storage capacity required, quite clearly create a risk of becoming stranded assets in the near future, as the energy transition continues to remove Ireland's dependence on fossil fuels. Indeed, CEPA's own analysis suggests a much smaller quantity of secondary fuel stocks would be required in 2030, compared to 2025 to fully mitigate the same shock scenario (scenario 5)[1].

Further illustrating the potential for this option to result in sunk costs and stranded infrastructure.

2. Climate Action Plan Complimentary

While the procurement of additional secondary fuel stocks is unlikely to directly impact on the achievement of Ireland's CAP targets, recovering the cost of pursuing such an option, risks placing an addition economic burden on either energy customers or taxpayers at a time when consumers are already expected to be paying high energy prices and contributing significantly to support schemes to deliver renewables.

As CEPA's analysis outlines, Carbon emissions associated with operating on secondary fuel are significantly higher and further studies might be required to understand whether any restrictions might prevent stations from operating on secondary fuel for prolonged periods of time.

3. Feasibility: Some CCGTs are limited by virtue of their location as to the amount of secondary fuel they can store onsite and may struggle to acquire additional storage capacity

CEPA's analysis suggests that scope exists for NORA to provide oil supplies during emergency circumstances. It's not clear from CEPA's analysis the extent to which NORA has been consulted as part of this process, but Energia's experience of engaging with NORA would be that this is a role they are not currently equipped to provide for all of the CCGT sites across Ireland.

NORA presently hold emergency fuel stocks at oil storage facilities located at key ports around Ireland. Not all CCGT stations are located close to an existing NORA storage facility, however. Either NORA or the station operator would need to ensure a reliable means exists by which the significant quantities of secondary fuel required by the station could be transported and delivered to an operating station in an emergency scenario. This is likely to entail an

[1] In 2025 the requirement for secondary fuel totals 14 days of continuous running. In 2030, the requirement for secondary fuel totals 8.6 days of continuous running.

investment in transport infrastructure that needs to remain in situ such that it can be readily available in emergency scenarios.

If transporting significant quantities of secondary fuel in an emergency scenario proves unviable, the only alternative for a cohort of CCGT stations would be to increase their secondary fuel storage capacity on site. The challenge associated with this course of action is not only the cost, but the development timeline for constructing the necessary storage infrastructure. Procuring sufficient space on site, is likely to present a challenge to some stations given the size of the storage facilities required and the need to ensure tanks are set back a minimum distance from other buildings/infrastructure.

Obtaining planning permission is also likely to be challenging, given the nature of the investment and the likelihood for appeals to any planning decisions. As such Energia would struggle to see how this option could be delivered in time for winter 2025 when the need for such infrastructure is the most critical as per CEPA's analysis.

4. Proportionality: An increased SFO is a costly mitigant in a very specific and unlikely set of circumstances

The cost of procuring the required quantity of secondary fuel is estimated at €78m, which does not account for additional costs that might be necessary, such as infrastructure related costs (i.e., increasing storage tank capacity). Procuring an increased quantity of secondary fuel, does not provide any security of supply mitigation in circumstances other than a major shortage of gas supply for a prolonged period of time unlike some of the other options provided. This is due to the fact that cost of operating a CCGT using secondary fuel is prohibitive in all circumstances other than when there is a certainty of Lost Load. As such running the option of running on secondary fuel should be perceived only as a last resort alternative to the lights going off. Spending a minimum of €78m on procuring additional secondary fuel stocks will therefore provide no additional resilience or system flexibility. Nor will it reduce the price impact of any future commodity spikes or encourage behavioural change on the part of consumers.

CEPA's analysis seems to assume that no efficiency losses are incurred when a CCGT is obliged to operate on secondary fuel, when in reality it is likely that CCGT stations incur an efficiency loss somewhere between 5 and 20% depending on the station. As such the quantity of fuel required to deliver the same output is greater and thus the estimated cost of €78m, needs to be reviewed upwards.

As previously discussed, if CCGT stations are required to develop additional storage infrastructure, this will come at a significant cost. Operating sites with an such a quantity of stored fuel, is also likely to be more costly on an ongoing basis. Energia's understanding is that increasing the quantity of fuel stored on site as proposed, would transition CCGT sites into the upper tier of SEVESO sites. Entering this category will impose more onerous safety standards on site operators under HSA COMAH regulations, such as increased fire protection measures. Once again this would increase the overall cost associated with this option, a cost that would ultimately be borne by either energy customers or taxpayers.

2.7.5 Conversion of a Gas Fired Power Plant to Hydrogen

Principles	Commentary
1. Future Proof	No
2. CAP Complimentary	Yes
3. Feasibility	Difficult to assess currently, Hydrogen market in Ireland remains at a very nascent state, but could develop quickly with the right incentives.
4. Proportionality	Likely to be a costly solution until the cost of producing hydrogen decreases further.
Summary	**Energia would be in this option remaining on the table until such time as it proves cost effective in the future.**

New Fossil fuel generators being deployed on the grid, will need to be capable of transitioning to a sustainable fuel if they are to remain a part of the electricity generation mix beyond the end of the next decade. As such, all new gas plants constructed in this decade must have a pathway to decarbonisation for example by being able to transition to green hydrogen in future years.

While in the near-term is likely to be an expensive fuel for this category of plant, the expectation is that hydrogen production costs will decrease as electrolysers are deployed at greater scale. If an opportunity thus emerges to completely decarbonise the power system at modest cost, capitalising on this opportunity, necessitates that generators currently reliant on gas are hydrogen ready in the future.

Decarbonising the power sector will require a significant volume of green hydrogen and green hydrogen derivatives that may need to be stored and/or transported. This will impact cost but is worth further consideration given existing renewable and green hydrogen storage options being explored by Irish companies and the wider role storage plays in increasing capacity adequacy and securing energy supply.

2.7.6 Electricity Mitigation Package (DSR and Batteries)

Principles	Commentary
1. Future Proof	Yes
2. CAP Complimentary	Yes
3. Feasibility	Varies by technology type, but definitely feasible for certain technologies before 2030
4. Proportionality	While this package of measures will not mitigate the risk of major outages of key infrastructure, customers will benefit by virtue of the effect flexible technologies will have on electricity prices.
Summary	**Energia are in favour of pursuing this option**

Further growth of DSR will depend both on technology uptake, such as consumers embracing smart meters and the use of flexible technologies such as EVs. Until such times as the volume

of DSR increases uncertainty will remain around the reliability of DSR providers to deliver on their contracted volumes. The advantages of this mitigation option are that both batteries and DSR would bring wider benefits beyond physical security of supply such as being additional sources of flexibility which would support the integration of RES and the operation of a high-RES system. Market structures would need to be put in place to support the delivery of batteries and DSR. Therefore, this may introduce a source of uncertainty regarding the volumes that can be deployed by 2030. However, as batteries and DSR are both modular they can be introduced gradually and are more flexible in terms of their deployment than larger pieces of infrastructure.

Utilising demand side, whether through the use of Demand Side Units (DSUs) or by shifting household demand, can provide system operators with increased flexibility and an additional tool for operating a secure system at peak periods. As such, policy can be designed to reduce peak demand on the system by shifting demand to lower demand periods and effectively smooth the demand curve.

A further benefit of demand side response is congestion management. In congested areas of the network, such as the Dublin region, demand side response can be used to alleviate congestion when required. Demand side response also has some potential to alleviate wind and solar constraint and curtailment by shifting demand to periods with high levels of renewable generation.

Demand Side Flexibility

The Climate Action Plan 2021 sets a target that "20-30% of system demand is flexible by 2030". As outlined by the Demand Response Association of Ireland, in their submission to an Oireachtas meeting in March 202219, "demand response is key to providing services to grid operators to rapidly adjust output, balance the system, maintain a secure power supply, and quickly respond to events. Commercial and industrial electricity customers continue to be the richest source of demand response in Ireland, but greater incentives are required to stimulate increased participation by this evermore ESG focused sector, including energy payments and carbon credits to recognise the positive impact their local actions have on our national decarbonisation objectives." DRAI's statement goes on to outline several measures and policy levers required in the area of Demand Side Response:

- Remove barriers that exist in current markets and system operation.
- Develop robust markets for energy, capacity, system services and flexibility that are technology inclusive.
- Incentivise and empower customers – provide carbon credits, correct levels of remuneration, and prioritise grid access for committed demand response participants to reward service provision.

Demand Side Efficiency

State agencies such as the SEAI, and government departments have a sizeable role to play in relation to communicating the benefits of improving energy efficiency for households and businesses

Financial support has been rolled out in Ireland in the form of energy credits and these can be effective in the short term, but support mechanisms need to be underpinned by demand reduction and efficiency measures for lasting effects. Better managing the demand side by using energy in a more conscious and 'smart' way also contributes to reducing our energy

consumption and bills. Energy efficiency is a key element in the EU's energy policy. In the current geopolitical and energy market realities, structural energy efficiency measures are one of the easiest and most cost-effective ways to enhance Ireland's energy security and decarbonise our electricity system. Coordinated efforts at local, national and EU level and the active participation of citizens are necessary to ensure a quick and effective deployment of energy efficiency measures, which are often coupled with energy saving actions to maximise their beneficial impact.

2.8 Q7: What measures should be considered on the demand side to support security of supply of electricity and gas?

If the cost of investing in a mitigation solution on the supply side is known, e.g., €72m to procure enough secondary fuel to mitigate an outage to both gas interconnectors, then this amount should inform the minimum pot that can be used to incentivise demand reduction initiatives. The future energy system will need to become more flexible on the demand side in order to react to changes in energy supply volumes, particularly on the electricity side.

In addition to funding, it is clear that greater awareness both among domestic and commercial customer alike, is needed to spur the quantity of investment that is need on the demand side. SEAI has a key role to play here in relation to educating the wider public on the benefits and need for demand side flexibility. Making information available to all categories of energy consumers, should also be a key task of every state and semi-state body involved in the energy industry.

Insulation

The Climate Action Plan outlines ambitious targets for insulation measures by 2030. Due to the current high wholesale gas prices, public awareness of the need for energy efficiency has never been greater. While it remains important that government support remains directed towards deeper retrofit measures, deep retrofits are not always an option for many households due to the need to vacate the premises for a potentially prolonged period of time. Even with increased incentives to complete deep retrofits, the cost of renting temporary accommodation is likely to represent a barrier to completing large scale insulation works. Incentives that encourage the deployment of effective energy efficiency measures that do not require households and/or business to vacate their premises for long periods of time should therefore be considered, even as a short term measure over the next couple of winters.

Heat Pumps

Heat pumps can provide heat with amazing efficiency. Efficiency of most air source heat pumps exceeds 100% (COP>1) at temperatures down to -18 degrees Celsius. The fact that heat pumps use electricity also provides an opportunity for aggregated heat loads to play a participatory role in demand side reduction schemes which could also help improve security of supply. While grants are already to increase the number of heat pumps installed in homes, heat pumps must be installed in conjunction with energy efficiency measures to be truly efficient. It is therefore important that incentives to support heat pump adoption compliment those aimed at increasing the standard of insulation in buildings.

2.9 Q8: Do you have any views on how the mitigation options should be implemented?

2.9.1 Proposed Mitigation options

Of the mitigation options proposed, Energia were only in favour of further consideration of the third gas mitigation option (Renewable Gas, DSR and Hydrogen minus the offshore storage component) and the sixth electricity mitigation option (DSR & Batteries). Both options are eminently achievable, but will require a concerted effort on the part of policy makers and regulators to remove any barriers to adopting these technologies at scale. The disaggregated aspect of both solutions is also positive in that neither option is entirely reliant on the development of a single large infrastructure project, which could be subject to significant delays in planning. As we outline further below, planning, and consenting timelines are a significant issue challenging the delivery of a number of key projects that are critical to the achievement of Ireland's CAP targets and long term security of supply. We discuss this further in the following section:

2.9.2 Planning Reform and Stream-lined Consenting

The successful implementation of any options will be dependent on a well-functioning planning system. The growing concern surrounding Ireland's energy security and the continuing urgent need to decarbonise our energy system has highlighted the need for faster development timelines. The necessary infrastructure cannot be delivered in time to decarbonise our electricity system and make Ireland energy independent without a fit-for-purpose planning system.

The timelines associated with the permitting process have long been identified in Ireland, and across the EU generally, as a key barrier to the development and delivery of infrastructure projects. Thus, Ireland's planning consent and appeals system needs to be reformed if we are to fulfil the goals of the energy transition.

Relatedly, consistent delays in the consenting of onshore wind energy projects has resulted in the average duration of the planning process lasting for several years. The planning and permitting phase alone can now typically take between 2-3 years at present (excluding grid connection planning). As discussed previously in section 2.1.1, developers have had to come to terms with the expectation expect that every planning decision will be appealed and will thus need to account for the time taken to resolve a Judicial Review in their development timelines. As we have discussed, there is a legal and policy solution to this issue.

The legal solution is reform of the planning system, the policy solution is to streamline the planning process and related judicial review process. It's clear that a balance can be achieved between maintaining citizen's rights to appeal decisions in such a way that the process for challenging decisions does not unduly delay project delivery timelines when appeals are not upheld.

Therefore, including the above, it can take between 8-10 years for the full development phase of an onshore wind farm to complete. i.e., from commencement of environmental monitoring to lodging a planning application/ securing planning permission, securing a grid connection, obtaining a route to market before finally entering construction. Depending on the size of a project, construction can then typically take between 18 months to 2.5 years upwards to complete. These prolonged timelines are replicated in other areas of society too it seems.

Streamlining and speeding up the permitting process represents an opportunity to introduce meaningful change and improvements to the planning process in Ireland and will help reduce permitting timelines. There may also be opportunities to remove duplication and speed up or run certain permit applications in parallel.

2.10 Identifying and Adopting Synergies Between Industries

Mitigation options should encourage synergies between industries in clusters, ports and cities create a virtuous circle between supply and demand. In that way costs can be reduced through shared infrastructure and economies of scale. The two options Energia expressed support for, necessitate both expediency on hydrogen development and system flexibility. These are long term solutions to challenges we face not only in the coming winters, but the period beyond.

The announcement and establishment of "go to zones" in line with REPowerEU will play a critical role in creating a more efficient planning process for renewable energies such as hydrogen. Appropriate land zoning for the production of hydrogen will greatly accelerate the growth of the hydrogen economy and government could further incentivise industries to set up near hydrogen production facilities. This supply chain localisation will not only reduce emissions associated with the transportation of hydrogen but also reduce the cost of hydrogen for consumers.

Appropriate zoning of hydrogen production can also benefit the governments objectives under The Rural Development Plan 2021. Hydrogen production facilities create employment and revenue for rural areas around the country, but the establishment of hydrogen valleys and clusters will also act as a significant mechanism for attracting foreign direct investment25.

Ireland's planning regime has protracted timeframes for the delivery of infrastructure. This must be taken into consideration before introducing any mitigation measures outlined.

The European Commission in its annual 2022 Country Report – Ireland identified planning as a key issue:

> *"Removing bottlenecks to the above investments will be necessary for reducing Ireland's dependence on fossil fuels. Challenges remain with the planning and permitting system, particularly the long timeframe in granting planning permission, which is also linked to the appeal procedures for planning applications. Advancing reforms in these areas would foster greater roll-out of renewables, thus helping diversify the energy mix."*

2.11 Q9: Do you support the policy measures proposed in section 8 of the consultation paper?

Yes, Energia believes each of the policy measures proposed have merit and should be adopted irrespective of the choice of mitigation options.

2.12 Q10: What further tools and measures do you think would contribute the most to Ireland's energy security of supply?

2.12.1 A "no regrets" expansion of Ireland's electricity grid

A focus on isolated solutions is not enough. Without the accelerated and aggressive build out of backbone infrastructure and grid reinforcements, as well as the deployment of alternative

technologies and solutions to reduce fossil fuel contributions and minimise congestion and constraint, ambitious targets for the sector cannot be met.

The current grid development strategy is focused on delivery by 2030, and does not consider beyond, towards a net zero future. Although we wait for the updated Shaping Our Electricity Future development plan from EirGrid, expected in early 2023, it is evident that the existing Roadmap will not deliver significant strategic capacity or headroom beyond the current renewable electricity targets. Significant network capability to allow for additional renewable capacities beyond 2030 will be needed for further decarbonisation and to account for electrification and green hydrogen generation as well as other increasing demand. The power system should be planned, designed, and developed beyond 2030 to minimise the lag between societal development and needs and network deployment. This would tie in with EirGrid completing a Net-Zero study, which is due to be completed by Q4 2023 under Action 127 of the Climate Action Plan. This is vital to ensure that targets continue to be met in the post 2030 timeframe.

The matter of system resiliency and reliability is also a consideration. With the prospect of climate change, it is anticipated that we will experience more storms, more flooding as well as higher temperatures. These factors pose a greater risk to the resiliency and reliability of our power system. Stations are at risk due to increased flooding. Overhead power lines are at risk due to more electrical storms and lower ratings of circuits, therefore reducing capacity and increasing congestion. Ensuring the necessary mitigations, policy and standards must be identified and implemented in a timely manner to ensure the ongoing safe and secure development and operation of our power system.

2.12.2 Speed and Policy Certainty vital in Supply Chain

Policy certainty and urgency will be particularly vital to give Irish projects a chance to overcome the supply chain bottlenecks, expected in the latter half of this decade. Particularly from an offshore perspective, as concluded by the recent Offshore wind vessel availability until 203027, “to ensure in time installation of set targets, it is key that both the EU and local governments facilitate offshore wind development by creating the right conditions in terms of legislation, funding, supply chain and infrastructure as well as by creating proper conditions for the investment in installation vessels”.

While the report focused on availability for Baltic Sea projects, it shows how the global offshore wind market will accelerate significantly towards the end of the decade, with the 2021 globally installed capacity of 57 GW set to increase over 5 times to 316 GW by 2030. This growth will be led by Europe, which, in 2030, will account for almost 50% of the global offshore wind market. This will mean significant shortages of vessels to meet demand over the course of the decade. Policy certainty around offshore is critical. The European Union has an Offshore Wind target of 300 GW by 2050. Recently in its Dublin meeting, the NSEC countries set out a target for the Northern Seas of 260 GW of offshore wind by 2050. Offshore wind development across European countries and around the world is competing for a limited supply chain and there will be competition for contractors, OEMs, vessels, etc. If Ireland is to deliver, certainty must be provided to the international supply chain as a matter of urgency.