

storing  
**renewable energy**  
at scale



Consultation security of supply Ireland's energy system



# Corre Energy Summary

Corre Energy is a developer of grid-scale renewable energy storage projects, to enable a secure, flexible and affordable green energy system Based on our knowledge of Long Duration Energy Storage (LDES), Corre Energy:

- Believes that consideration of security of supply should be fully integrated with policy initiatives to achieve decarbonization targets in the Climate Action Plan.
- Strongly agrees with the analysis that the intermittent nature of wind and solar energy requires complementary and flexible sources of power such as “conventional generation, batteries, demand side response, interconnection and other solutions”
- Considering that requirement, believes that the proposed high reliance on additional gas-powered generation to achieve security of supply, could have the unintended consequence of prolonging Ireland’s dependence on fossil fuels and the import of natural gas, as well as an increase in GHG emissions rather than a reduction.
- Therefore, suggests to plan for and embrace a range of solutions, such as hydrogen generation and storage, LDES techniques such as Compressed Air Energy Storage (CAES), flow battery technologies, heat to power solutions. These solutions are being adapted in other markets and may not all be implementable at scale by 2030 but are mature enough for consideration in Ireland.
- Suggests to put targets and support mechanisms in place for CO2-free flexible electricity generation capacity solutions and sees a need for planning regulations that would recognise the urgency of meeting energy security and decarbonisation objectives.
- Suggests to start planning for hydrogen infrastructure for indigenous use of hydrogen (based on the largest industrial natural gas users) so that hydrogen generated at certain coastal location is brought to where it is most urgently needed.
- All of this would better align the security of supply objectives and with Ireland’s Climate Action Plan target of generating 80% of electricity from renewable sources.

## Summary continued

- Corre Energy is pioneering development of LDES solutions internationally and is receiving support for proposals to develop Compressed Air Energy Storage to complement new off-shore wind generation in the Netherlands as well as Denmark. Both governments recognize the need to respond to security of supply issues on their pathway to full decarbonisation
- Corre Energy sees potential in Northern Ireland for both Compressed Air Energy Storage and hydrogen storage facilities in Larne, County Antrim, which would aid security of supply for the Single Electricity Market of the Republic of Ireland and Northern Ireland. Such facility would also provide a first use case for hydrogen ([www.greenhydrogenhub.dk](http://www.greenhydrogenhub.dk))
- Considering Corre Energy's experience in designing and planning storage solutions in a range of institutional and market environments, we would be pleased to discuss with DECC how that experience could be transferred to Ireland. Corre Energy is also an active participant in the Long Duration Energy Storage Council, which is considering a range of technologies for different duration energy needs and different host environments.

## 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 document focusses on security of supply but without taking full account of the potential conflict between security of supply and decarbonisation targets.
  - It is argued that Ireland must reduce its import dependency by increasing the level of energy from a diverse range of renewable energy solutions. However, only battery is considered as a viable storage option. This is a major risk to the formation of suitable policy and doesn't identify the solution costs that are passed on the consumer via PSO.
  - The NI/IE interconnector flows are stated as being secure. However, there remains a risk of terrorist threat to any interconnector, which should be taken into account in managing security of supply.
2. If there are other risks that you have identified, could you outline some mitigation options to address the risk(s)? \ul style="list-style-type: none;">- With only Li-Ion battery being considered as a storage solution, it leaves the build out of more fossil thermal generation as the most realistic solution for the next 10 years. Although this may aid security of supply, it will do little to reduce wind and solar curtailment, and it will increase carbon emissions. We believe a range of green solutions needs to be considered, such as 'green' electricity storage (in the form of much larger pumped storage hydropower, flow batteries or compressed air energy storage) as a short/medium term solution and green hydrogen in electricity generation as a longer term solution.



## Mitigation Options

4. Do you have any additional mitigation options that you think should be considered?
  - Ireland should consider longer duration electricity storage solutions (such as flow batteries, PSH, CAES etc) to both reduces wind curtailment as well as provides green back up power to help phase out fossil thermal plants.
  - Put targets in place for CO<sub>2</sub>-free flexible electricity generation capacity (not discriminating on the technical solution), and the associated support mechanisms. Which can help accelerate and realise these solutions
  
6. Which electricity supply mitigation options, if any, should be considered for implementation?
  - Faster build out of renewable electricity to support quicker role out of green hydrogen including green hydrogen infrastructure for domestic use, should be considered, particularly if green hydrogen in power generation, industry and heat is the longer-term future.
  - Give more consideration to the full range of energy storage solutions, for both the medium- and long-term, and their contribution to Ireland's wider decarbonisation objectives
  
7. What measures should be considered on the demand side to support security of supply of electricity and gas?
  - Demand side solutions associated with smart tariffs are important and will play a key role
  
8. Do you have any views on how the mitigation options should be implemented?
  - Solutions that involve significant build out of fossil fuel generation will make the decarbonisation targets harder to achieve. While likely a solution to security of supply, more robust, green and sustainable security of supply solutions are required. These solutions should be considered with a longer-term path in mind. This requires robust system modelling to evaluate solutions that meet the dual criteria of security of supply as well as reducing GHG emissions. Which can then inform policy decisions as well as the required technology agnostic support mechanisms. For instance, those for CO<sub>2</sub>-free flexible generation capacity.

## Policy Measures

9. Do you support the policy measures proposed in section 8 of the consultation paper?
  - The proposed solutions do not go far enough, are not aligned with decarbonization objectives, and do not recognize the potential for current and future accessible technology solutions that are being adopted in other EU countries.
  
10. What further tools and measures do you think would contribute the most to Ireland's energy security of supply?
  - REPowerEU states that long duration electricity storage is in the overriding public interest and should be supported by streamlined permitting processes. This could be translated to relevant policy at the national level.
  - Setting storage targets will also help drive the implementation of solutions
  - As above, putting in place support mechanisms for CO<sub>2</sub>-free flexible generation capacity