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Emailed to: energyconsultation@decc.gov.ie

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

Energy Storage Ireland (ESI) is an industry representative association comprised of members who are active in the development and operation of energy storage in Ireland and Northern Ireland. Our aims are to promote the benefits of energy storage in meeting our future decarbonisation goals and to work with policy makers in facilitating the development of energy storage on the island of Ireland. We have over 50 member companies representing all areas of the energy storage supply chain.

Energy storage will play an essential role in facilitating the higher levels of renewable generation on the power system required to achieve national renewable electricity targets and ensuring a secure, sustainable energy supply. The flexibility of storage systems and their ability to contribute to the energy, capacity and system services markets allows them to deliver a wide range of benefits to end consumers such as wholesale energy price reductions, reduced CO2 emissions, low carbon capacity and flexible system support services to help manage the grid with higher levels of renewables.

We would like to thank the Department of the Environment, Climate and Communications (DECC) for the opportunity to provide feedback on the Review of the Security of Energy Supply of Ireland's Electricity and Natural Gas Systems.

In general, we believe there should be more consideration in the review regarding the contribution of energy storage to Ireland's energy security and ensuring a clean and sustainable supply of energy in line with our net-zero goals.

In May 2022, ESI and Baringa published '*Game Changer*' a report showing the benefits that two GW of various durations of energy storage can bring to the system and to end consumers on

the island of Ireland by 2030.¹ In order to accentuate why more emphasis should be put on energy storage in meeting Ireland's 2030 and 2050 climate ambition, we have highlighted some of the key findings from this below:

- By participating in the Irish day-ahead energy market, energy storage can reduce day-ahead carbon emissions by 50% by using long-duration storage technologies. This makes a material contribution to meeting ambitious 2030 power sector decarbonisation goals.
- Strategic deployment of energy storage in transmission constrained regions of the network reduces the dispatch-down of renewable generation from constraints without the need for network reinforcement, unlocking additional carbon savings.
- By contributing to security of supply, helping to support renewable capacity, and displacing fossil fuels in the balancing market, energy storage can deliver a net saving to end consumers in Ireland of up to €85m per year.
- These benefits are additional to the carbon, renewable curtailment, and end consumer savings offered by energy storage through the provision of zero-carbon system services.
- Energy storage helps the integration of renewables at all stages by ensuring that generation is not wasted; reducing oversupply by up to 60%, constraint volumes by up to 90%, and curtailment by 100%.

There are multiple energy storage technologies that can unlock these benefits and provide different services and duration capabilities from lithium-ion battery storage all the way out to green hydrogen. It is likely that a broad portfolio of storage technologies will be needed to support our decarbonisation goals and the policy framework and market signals should be developed with this in mind.

A coordinated strategy is needed along with national energy storage targets to drive the deployment of energy storage needed to support Ireland's energy security. The upcoming DECC consultation on an energy storage policy framework for Ireland provides the opportunity to establish this strategy and set national targets that policy makers and industry can aim for

We have decided to frame our response in the context of the consultation questions regarding mitigation options and policy measures. Our comments below are intended to collectively address the questions posed in relation to these sections of the consultation:

¹ <https://www.energystorageireland.com/wp-content/uploads/2022/05/GameChanger-ESI-Report-May2022-Web-1.pdf>

Mitigation Options and Policy Measures

Battery Storage Capability

The battery storage capability assumed in the analysis in 2030 is extremely low considering there is already 670 MW of operational BESS with an energy volume of 470 MWh on the system today.

ESI's pipeline survey analysis shows there is a significant volume of nearly 2 GW of energy storage projects with planning that are queued for a grid connection. These projects could deliver early this decade, but it is unlikely that the all-island market structures and policies at present are sufficient to drive investment and development of the volumes of energy storage that will be needed in future.

For instance, battery storage projects face barriers obtaining grid connections at present with limits on the number of offers that can be processed for storage in each ECP connection batch. There are still many barriers that are blocking the full integration of energy storage and preventing projects from stacking revenues across the wider storage use cases, particularly access to the energy and capacity markets. There is a disjointed approach to many energy storage policy issues among and even within the various policy makers which risks policy misalignment and the creation of further issues down the line.

Changes to grid connection policy to allow more battery storage projects to receive connections and fixes to TSO market systems that allow full participation of energy storage in the market are urgently needed.

Long Duration Energy Storage

The need for, and benefits of, Long-Duration Energy Storage (LDES) have been shown in multiple studies both nationally - [Baringa](#) and [SEAI](#), and internationally – [McKinsey](#) and [AFRY](#). EirGrid's Shaping our Electricity Future roadmap also assumes over 2 GW of energy storage in Ireland by 2030 (including capacity of 6 hours duration and above). While these studies vary in the volume and durations of LDES required, they all arrive at a result showing a significant volume of multi-hour storage by 2030 in order to meet targets for the electricity sector. LDES will be essential to decarbonising our energy system by providing a range of valuable services from congestion management, peaking capacity, alternative network solutions, increasing renewables on the grid, delivering cost benefits to end consumers, and ensuring security of supply.

However, the energy security review does not seem to give much consideration to the role of LDES in the electricity mitigation options beyond a slight addition in pumped hydro storage and some small potential for green hydrogen generation.

ESI has developed a position paper on LDES procurement that we would be happy to discuss with the relevant DECC teams. The issue is that current market frameworks and incentives are unlikely to be sufficient to deliver the volumes and capabilities of LDES we will need in future as current structures are based around short-term markets, recovery of fuel costs and investment signals for generation (predominantly fossil fuel) capacity. This will require new frameworks to drive investment in LDES similar to how REFIT and RESS have driven investment in renewable technologies with similar high Capex/low Opex characteristics to LDES. The goal of these new frameworks should be to meet two key objectives:

1. Provide a stable long-term revenue floor to enable efficient low cost of capital investments in new LDES technologies
2. Ensure optimal operation of LDES assets to maximise their value to the system and to consumers through existing and new services/market incentives.

The upcoming DECC consultation on energy storage policy presents an opportunity to kick off a discussion, similar to what has occurred in GB, on the need for and potential options for procurement of LDES. A call for evidence was launched by GB in July 2021 titled '[Facilitating the deployment of large-scale and long-duration electricity storage: call for evidence](#)'. The paper sought feedback on items such as the value of LDES, current barriers to deployment and potential procurement approaches in future. Following this the Department of Business, Energy and Industrial Strategy (BEIS) procured AFRY to carry out analysis on the benefits of LDES which includes details on the quantities and types of storage technologies that will be needed in the coming decades. Based on this and the responses received to the call for evidence, in August 2022 BEIS committed to "ensure the deployment of sufficient large-scale, long-duration electricity storage (LDES) to balance the overall system by developing appropriate policy to enable investment by 2024."²

In Australia they are even more advanced. AEMO in New South Wales are currently tendering Long Term Energy Service contracts including 600MW of LDES with 14-40year contracts available.^{3 4} The award criteria proposed under this procurement includes consideration to the holistic system value of storage, in a manner not dissimilar to what is envisaged in our position paper. The aim is to deliver 2GW of LDES in this region by 2029.

Hybrid Projects

Another mitigation option that seems to be overlooked is the role of hybrid projects e.g. co-locating storage with renewable energy development. The Climate Action Plan 2021 contained a number of actions to remove barriers to hybrid projects and allow hybrid projects to compete in RESS. There has been very little progress on removing barriers to hybrid connections such as multiple legal entities behind connection points and sharing of MEC by technologies behind

² <https://www.gov.uk/government/consultations/facilitating-the-deployment-of-large-scale-and-long-duration-electricity-storage-call-for-evidence>

³ <https://aemoservices.com.au/-/media/services/files/publications/iio-report/2021/iio-report-2021.pdf?la=en>

⁴ <https://aemoservices.com.au/tenders/tender-pack>

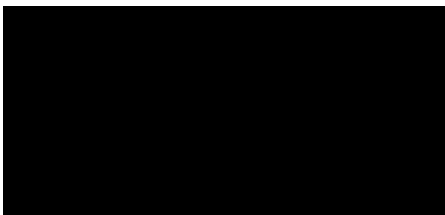
the same connection. It is also not clear how hybrid participation in RESS is being progressed. Allowing hybrid projects to develop e.g. co-location of wind or solar with storage has the potential to deliver multiple benefits such as lower connection costs (and therefore lower RESS bids), more renewable energy capacity and lower wholesale energy costs.

Removing these barriers to hybrid participation should be addressed as a matter of urgency and it is essential that the proper resources and prioritisation is given to this by the relevant stakeholders. We would encourage DECC to ensure that the relevant timelines are met as some of these actions, for instance the framework for multiple legal entities, have been delayed and there is still no decision on this.

Conclusion

In conclusion, we would like to thank DECC for the opportunity to provide feedback on the Review of the Security of Energy Supply of Ireland's Electricity and Natural Gas Systems. We are available to discuss any of the points made above in more detail should you require, and we look forward to working with you in future.

Yours sincerely



Energy Storage Ireland