

SEM Committee

4<sup>th</sup> November 2022

Emailed to: [Donna.Maye@uregni.gov.uk](mailto:Donna.Maye@uregni.gov.uk) and [mjoseph@cru.ie](mailto:mjoseph@cru.ie)

**RE: SEM-22-054 Call for Comments on the EY Review of the Performance of the SEM CRM**

Energy Storage Ireland (ESI) is an industry representative association comprised of members who are active in the development 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 members representing many areas of the energy storage supply chain.

Energy storage will play a significant role in facilitating higher levels of renewable generation on the power system and in helping achieve national renewable electricity targets. Storage systems can act in the energy, capacity and system services markets to deliver a wide range of benefits such as wholesale energy price reductions, reduced CO2 emissions and flexible system support services to help manage the grid with higher levels of renewables.

We would like to thank the SEM Committee for the opportunity to provide feedback on the consultation on the EY Review of the Performance of the SEM CRM.

**Question 1: Was sufficient capacity procured in the capacity auctions?**

Based on the outcome of the first few years of capacity auctions, it is clear that the volume procured was not sufficient, given the ruleset which currently exists where planning is not a pre-requisite for auction qualification. Delays in the planning process have remained to be an issue, with the process regularly taking 5-10 years for large-scale infrastructure. With this in mind, we would urge the SEM to further consider new-build capacity which is not subject to the same planning and licencing risks.

- Multi-hour battery storage has been proven to be relatively quick and straightforward to permit and also to deliver.
- Multi-hour storage does not require an EPA licence.
- Over the past three years, we have seen the industry deliver over 700MW of battery storage from a standing start at the beginning of 2020.

- There is approximately 1,500 MW of battery storage with planning permission that is in the connection queue.
- Multi-hour battery storage can have a material impact on the capacity shortage and can do so particularly in the difficult to mitigate early years (up to 2026), but they will not deliver without changes to the market to specifically incentivise them.
- As these units are high capex/low opex, they have different cost & operational characteristics to gas units, which are low capex/high opex. However it is gas units and their cost profile that the capacity market is currently structured around which limits the participation of energy storage.

Overall, the capacity market in its current form is not equipped to sufficiently accommodate storage, particularly storage of longer durations.

### **Question 2: Did capacity auctions attract sufficient participation?**

**EY potential remedy 2** – *“Requirement of new prospective capacity to have all necessary consents to prequalify for auction. This remedy is potentially redundant if remedy 3.1 is taken forward (i.e. extending auction lead times).”*

We appreciate that this mitigation may provide more certainty that projects that secure capacity contracts will deliver in the timeline required. This needs to be addressed in further detail by EY in proposing this measure. As noted in our response to question 1, there is already a substantial quantity of permitted energy storage projects. We believe that this is another reason to consider specific measures to incentivise multi-hour storage, which can deliver permitted projects into auctions in a much shorter timeframe than new gas generation plants.

### **Question 3: Did new capacity procured in auctions get built?**

ESI agrees with many of the mitigations described such as increasing the lead time to deliver on T-4 to at least 4 years, increased performance bonds and increased monitoring of progress. However, we would argue that some are not as beneficial as the EY report suggests.

*Require performance security to be lodged prior to auction*- this is listed as ‘Medium’ benefit but in the lodging of security after contract award has not been an issue to date nor do we see how moving that date to before the auction will make any difference to the ability of new projects to deliver on time. We would designate this one ‘Low’ for benefit.

*Increased monitoring, with a taskforce involving RAs, TSOs and Govt departments to flag issues and take action to address barriers*- this is listed as ‘High’ benefit, however without significant reform of the planning system, it is difficult to see how any cross-party taskforce would

effectively address barriers in the delivery of new capacity. It would certainly be useful to have such a forum in place, however this may be considered a low to medium benefit without the accompanying planning reform.

**Question 4: Was the capacity procured of sufficient value?**

This section asks some pertinent questions, and addresses whether the CRM appropriately values efficient generation technologies.

Firstly, the report cites generation availability as a contributory factor to projected capacity deficits and proposes numerous options for strengthening penalties via increased RO difference charge risk. The EY proposals are to recalibrate the ASP function and refining the flagging of interconnector actions from BM prices in order to create a higher frequency of periods with BM pricing above the RO strike price. However, it is the failure of delivery of new capacity which is the key contributing factor to the capacity deficit. Implementing measures to increase the risk of penalties to capacity contract holders, when they are already incentivised to be available and are facing a significantly greater risk of penalties due to the capacity deficit than they would have anticipated, will not result in improved availability as intended. ESI therefore disagree with the proposals in this section of the report.

The report then goes on to discuss the situation for incentivising capacity market incentives for CCGT plants, without exploring in any detail the equivalent for multi-hour storage. We are disappointed that the report does not address the benefits that battery storage could provide in the capacity market in this regard.

The report does acknowledge that “providing longer-term revenue certainty to the most capital-intensive projects could help ensure a more level playing field between technologies”, but proposes only one potential mitigation with respect to this point and that focuses primarily on CCGT:

**Question 4 potential remedies: Level playing field for more efficient generators**

The following remedies have been identified for addressing the finding that the CRM design, and the regulatory uncertainty around the future of the mechanism beyond its existing state aid provision, may act as a barrier to the development of new CCGTs within the CRM. Remedies have been assessed according to the size of benefit associated with the remedy as well as the feasibility of implementation.

#	Remedy	Advantages	Disadvantages	Benefit	Feasibility
	Allow 15 year contracts for the most capital-intensive new build (i.e. CCGTs, long duration storage).	<ul style="list-style-type: none"> <li>Helps address identified shortfall in CCGT generation within SEM</li> <li>Reduced capacity prices</li> <li>Market-based approach to promoting CCGTs</li> </ul>	<ul style="list-style-type: none"> <li>Longer lock in to gas generation capacity agreements</li> </ul>	Medium	Medium*

ESI fundamentally disagrees with CCGT and long duration storage being addressed in the same category, as there are very clear differences between the two. A BESS site can be permitted more easily than a CCGT, does not require EPA licensing, and has a very different business case

to a CCGT. As such, we would strongly recommend a specific examination of the benefits, options and feasibility for long duration storage.

As discussed in our response to Question 1, ESI believes that the delivery of multi-hour long duration storage is a high-benefit and high-feasibility solution to a specific issue we are seeing with the capacity market of today- i.e. significant capacity deficits out to 2030 and the high risk associated with depending on new-build gas generation to address this deficit. We will describe this further in the next section.

### **The case for multi-hour battery storage in the capacity market**

Various issues are apparent with regards to the current capacity market system. A number of these are outlined below;

- CRM has failed to deliver >600MW of contracted capacity in recent years- 476MW of this was new gas generation.
- Planning associated with new-build gas generation continues to be a significant risk
- Gas generation and battery storage are the most viable technology options that can deliver at scale in the short term
- Multi-hour battery storage can mitigate the planning risk associated with new build gas units, however the business case for multi-hour battery storage doesn't work due to how the current CRM is structured (e.g. de-rating factors and price caps). We believe there are high feasibility options to change this situation.

There are clear benefits of Long Duration Energy Storage (LDES) in a high RES-E system. Numerous recent reports, both in Ireland and abroad, illustrate the system benefits of deploying LDES in a high RES-E system:

- Baringa ESI Game Changer Report<sup>1</sup>
- Afry IESA Missing Link Report<sup>2</sup>
- LDES Council- Net Zero Power Report<sup>3</sup>
- Form Report for National Grid<sup>4</sup>
- Poyry GB Benefits of Long-Duration Storage report<sup>5</sup>

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<sup>1</sup> <https://www.baringa.com/en/insights-news/points-of-view/game-changer-irish-energy-storage/>

<sup>2</sup> [https://www.iesa.ie/files/ugd/9123eb\\_a4d45cbfdbcd4efb82831368806b666f.pdf](https://www.iesa.ie/files/ugd/9123eb_a4d45cbfdbcd4efb82831368806b666f.pdf)

<sup>3</sup> <https://www.ldescouncil.com/assets/pdf/LDES-brochure-F3-HighRes.pdf>

<sup>4</sup> <https://formenergy.com/insights/energy-storage-to-support-the-uk-transmission-grid/>

<sup>5</sup> <https://afry.com/en/newsroom/news/benefits-long-duration-electricity-storage>

However, markets have struggled to provide sufficient signals to date. We see common blockers identified to deployment across markets;

- Lack of sufficient long-term revenue certainty for high capex/low opex storage
- Market systems not fit-for-purpose
- Network charges act to discriminate against storage
- Lack of locational and or time-of-use incentives

There are specific barriers to entry for LDES in CRM

- Price cap set by Best New Entrant gas plant- €146,920/MW/year based on Net CONE €92,300/de-rated MW/year<sup>6</sup>
- Multi-hour battery storage is not rewarded adequately to deliver in competition with gas generation as things stand
- Storage is high cape/low opex, has de-rating factors applied based on duration and no incentive beyond 6 hours duration

However, the CRM is failing to recognise key advantages of battery storage;

- Lower risk of permitting for battery storage vs gas and lack of EPA licence required
- Speed of construction of battery storage that can be delivered in 18 months for the coming winter periods
- The positive impact of well-sized and well-located battery storage on the grid infrastructure i.e. congestion management, mitigation of renewable oversupply.
- The contribution to capacity adequacy of multi hour battery storage

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<sup>6</sup> [https://www.sem-o.com/documents/general-publications/Initial-Auction-Information-Pack\\_IAIP2627T-4.pdf](https://www.sem-o.com/documents/general-publications/Initial-Auction-Information-Pack_IAIP2627T-4.pdf)

Other capacity markets have already taken action to specifically incentivise multi-hour storage, e.g. Spain. EirGrid have alluded to potential 8-hour storage incentive<sup>7</sup> however no further details or plans have been released in relation to this.

### Approaches to Incentivise multi-hour battery storage

We propose 3 options below to specifically target multi-hour battery storage; all of which would assist in bringing forward long duration storage projects to provide capacity.

- 1) Maintain a 10-year contract duration but varying the CRM Clearing Price

We note that a consultation on a review of the BNE is underway and this may result in an increased price cap for new-build capacity. Another option would be to implement a separate capacity pot for zero-carbon capacity of a minimum de-rating factor and allow this to clear at a separate cap based on battery storage (as the most cost-efficient zero-carbon technology).

This option requires an increase to the new-build price cap and perhaps a review of CRM state aid approval. Where this is noted as a requirement for other potential mitigations in the EY report the feasibility is designated as 'medium' and ***we therefore categorise this measure as 'medium' in terms of feasibility.***

- 2) Provide a 15-year contract for LDES

This potential mitigation is listed in the EY report.

This option requires an increase to the new-build price cap and perhaps a review of CRM state aid approval. Where this is noted as a requirement for other potential mitigations in the EY report the feasibility is designated as 'medium' and ***we therefore categorise this measure as 'medium' in terms of feasibility.***

- 3) Varying network charges for LDES

This potential mitigation could leave the capacity market untouched and has the storage clearing at the existing price cap for new build of €147k/MW/annum (or whatever the next BNE review settles on). Instead, we seek to address what we see as a fundamentally incorrect treatment of battery storage in the network charging regime.

This option does not require an increase to the new-build price cap nor a review of CRM state aid approval. There is precedent for the CRU rapidly addressing a clear issue with the network charging regime for battery storage. In September 2020, CRU/20/115<sup>8</sup> an interim solution

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<sup>7</sup> 2. <https://www.semcommittee.com/publications/sem-22-015-crm-parameters-consultation-t-4-202627-capacity-auction>

<sup>8</sup> <https://www.cru.ie/wp-content/uploads/2020/12/CRU20115-Decision-Paper-Network-Charges-for-Commercial-Storage-Units-.pdf>

published which removed generator transmission use of system (GTUOS) charging for battery storage units. This decision paper acknowledged a widespread move in Europe to examine network charging for storage units and the potentially unfair treatment of storage and how this is a potential barrier to storage deployment. It further notes the need for a full examination of the network charging regime and this work has since commenced.<sup>9</sup> ***We therefore categorise this measure as ‘high’ in terms of feasibility.***

The CRU decision in relation to the PSO levy to only treat storage as an energy consumer on its house load consumption<sup>10</sup> is relevant here as the principles from that decision, and the CRU’s decision on G-TUoS for commercial storage, acknowledge that storage technologies represent a new class of ‘unit’ with unique characteristics that must be accurately reflected within market arrangements, as well as other commercial arrangements, such as network charging.

It is ESI’s position that a longer-term solution for storage technologies is needed with network charging for import only based on the import required for serving house loads.

The CRU determined that “it is appropriate to base the station MIC [for PSO purposes] on its normal house load (typically c.0.7 MVA) when it is off line (neither generating or pumping)”. So it would seem reasonable to determine the quantity of electricity on which a storage unit’s PSO levy and demand TUOS and DUOS are based should be the load of controls, auxiliary systems and cooling systems when the unit is at equilibrium temperature (i.e. not cooling after a charge or discharge event).

Such an approach would be consistent with the principles already established by the CRU in relation to the unique characteristics of storage assets; i.e. they are not an end consumer of the electricity they store (PSO decision) and cannot be a generator of the electricity they release, therefore they should not be treated as either a generation or demand customer under the network charging regime. Storage technologies are a flexible technology that can increase the carrying capacity and efficiency of the network and, aligned with the correct economic and locational incentives that should be delivered via the wider market arrangements rather than network charging policy, this will increase their overall utility to end consumers. Hence network charging policy that distorts appropriate economic signals and reduces the utility of storage assets, and therefore the wider network, must be avoided.

Since network charges are a considerable cost to a storage project this would have a significant benefit for the project’s business case. For the TSOs, they can provide a real incentive for the deployment of multi-hour storage while maintaining operational security and avoiding difficult

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<sup>9</sup> <https://www.cru.ie/wp-content/uploads/2021/10/CRU21123-Electricity-Network-Tariff-Structure-Review-Objectives-Principles-Call-for-Evidence.pdf>

<sup>10</sup> <https://www.cru.ie/wp-content/uploads/2019/03/CRU19034-Application-of-the-PSO-Levy-to-Commercial-Storage.pdf>

## Conclusion

We would like to thank the SEM Committee for the opportunity to provide feedback on the consultation on the EY review of the performance of the SEM CRM. We are available to discuss any of the points made above in more detail should you require.

Kind Regards,

A handwritten signature in black ink, appearing to read "Bobby Smith", written over a horizontal line.

Bobby Smith  
Head of Energy Storage Ireland