



Sycamore House, Millennium Park
Osberstown, Naas, Co. Kildare
Phone: 045 899 341
Email: info@energystorageireland.com
Website: www.energystorageireland.com

Energy Storage Ireland Response to the System Services Future Arrangements High Level Design Consultation Paper

Submitted on 21st October 2021

Contact: Bobby Smith (info@energystorageireland.com)

Table of Contents

Executive Summary	3
Introduction.....	4
Governance Arrangements	5
Auction Design.....	9
Market Design	10
Conclusion	14

Executive Summary

Energy Storage Ireland (ESI) is a representative body for those interested and active in the development of energy storage in Ireland and Northern Ireland.

We work together to promote the benefits of energy storage to decarbonising Ireland's energy system and engage with policy makers to support and facilitate the development of energy storage on the island. We have 35 members from across the energy storage supply chain and represent over 2,500 MW of projects in development.

Energy storage will play a significant role in facilitating higher levels of renewable generation on the power system and in helping to achieve national renewable electricity targets. As such, it is essential that the System Services framework supports investment in new zero-carbon technologies such as storage.

In general, we believe that the issues at stake here are extremely complex and require significant further engagement and consideration in order to put in place an optimal set of enduring arrangements.

We believe the timelines set out to put in place a framework in advance of 2024 are extremely ambitious and the process to develop a decision and implementation should not be rushed without sufficient discussion and industry oversight.

There is considerable risk that pushing through a framework in this timeframe will not deliver the investment in new capability needed to support our 2030 renewable electricity targets.

In relation to the questions posed, we have offered our initial views but at this stage it is difficult to comment with certainty on many of the questions relating to auction design and market design without further engagement and detailed consideration. This highlights the need for a considered process that allows time for detailed stakeholder engagement and review of options. Therefore, our views are subject to further detail being made available throughout the process of developing this System Services framework.

In the following sections we set our responses to the questions posed in the consultation paper.

Introduction

ESI Response to Question 1: Do stakeholders consider that the commitment to putting these arrangements in place on an enduring basis, at least to 2030, represents sufficient certainty of process?

ESI believes the arrangements should be in place beyond 2030 to provide sufficient certainty for new investment. With a possible go-live in 2024, this would only provide six years of certainty if the end date were fixed in 2030.

We suggest that the arrangements have no fixed end date as the goal is to put in place a framework that providers can participate in on an enduring basis.

Governance Arrangements

ESI Response to Question 2: What are stakeholders views on the options and recommendations presented for qualification/registration? Are there further options that may be considered?

ESI supports a rolling application process. This removes the cliff-edge risk that industry have had to deal with via the bi-annual procurement windows in the current tariff arrangements. The current contracting arrangements put significant pressure on new build providers to meet strict testing and contracting deadlines and delays can lead to a loss of six months of a project's primary revenue stream. We have called for increased flexibility in the contracting process in previous instances and therefore we would welcome a process that allows providers to test and contract on a rolling basis.

We do recognise that this process may lead to increased strain on TSO resources to process the amount of providers contracting and testing on a regular basis and we urge that this is considered by the SEMC in relation to additional funding and resourcing needs that the TSOs may require.

ESI Response to Question 3: What are stakeholders views on the proposed formalisation of the QTP?

We have no issues with progressing the QTP as an annual process with a call for evidence however, this needs to be a robust and efficient process which can facilitate consultation with industry and trialling of new service technologies. Again, we stress that any additional resource requirements to ensure the success of this measure be considered by the SEMC.

We would recommend that consultations should be brief and run in cooperation with the proposed 'System Services Code Panel' to ensure the process is as efficient as possible

One area where we could see this having merit is with hybrid sites e.g. a BESS co-locating with wind and/or solar. Individually these are proven DS3 technologies but progressing them as a hybrid site may need additional consideration in terms of DS3 participation and the QTP process should facilitate this.

ESI Response to Question 4: What are stakeholders views in terms of the introduction of a single System Services Code?

ESI supports the amalgamation of the various System Services documents but we highlight that any changes to the Code must have industry oversight and be run through the proposed 'System Services Code Panel'.

ESI Response to Question 5: What are stakeholders views on the options in terms of governance of rules changes

ESI supports the establishment of a 'System Services Code Panel' with industry involvement. Changes to System Services documentation and requirements can have important commercial

impacts on service providers and therefore it is essential that industry has more say and oversight in the process. The introduction of a Code Panel will not only allow industry to have more involvement in and oversight of changes but will enable industry proposals to be brought forward and discussed with relevant parties such as the TSOs.

ESI Response to Question 6: Do stakeholders have views on the potential to amalgamate different Panel meetings?

We believe it does make sense to try and coordinate and streamline between the different Panels where possible, perhaps having meetings on the same day following each other or to avoid duplication of work, but there needs to be clear delineation between the different panels (Grid Code, Modifications etc) in terms of participants, roles and responsibilities.

ESI Response to Question 7: What are stakeholders views on the funding arrangement proposals?

Of the options proposed, we are not in favour of Option 3 or 3A as the trading period based supplier charge will be a significant burden to manage for suppliers and it is also possible that the impact of such an arrangement could push costs on to consumers that cannot shift their demand at times of high System Service prices which would lead to an unequal distribution of costs and damage support for the enduring arrangements.

We also do not support option 3A as it would be extremely complex to implement, would bring issues around transparency in terms of how costs are allocated and would put costs onto service providers that are delivering significant value to consumers by enabling the power system to operate at higher RES-E levels.

Therefore, we believe Option 1 or 2 would be more appropriate.

ESI Response to Question 8: What level of involvement should the DSO/DNO have in the governance process?

Distribution connected parties will play a huge role in future System Services provision and the DSOs will have an important part to play in these arrangements however, we believe the arrangements should be TSO led and that the TSO should be the point of contact/contracting body with service providers. Ultimately, the TSOs are procuring these services and we believe the approach should remain the same as today. The obligation should be on the TSO and DSO to work together and ensure a seamless process for providers.

ESI Response to Question 9: How should the interactions with distribution connected parties be governed?

It is imperative that distribution connected service providers are able to participate fully in the future arrangements and provide the full range of services possible. To simplify the process for service providers and ensure transparency in the arrangements we believe the contracting party, point of contact and market interface etc. to allow this should be via one party i.e. the

TSO. We believe market/availability information for both transmission and distribution connected providers should be provided by the TSO, via the TSO/DSO interface, to service providers. We believe this will require enhanced coordination between the TSO and DSO and we welcome further engagement on this matter as the process develops.

ESI Response to Question 10: Are there any further considerations for the High Level Design of the Governance Arrangements?

It is essential that energy storage technologies are able to participate fully in the future arrangements to ensure an equal playing field. The current market system limits the ability of energy storage projects to provide their full range of services and reduces the wider system and consumer benefits that energy storage can provide. A well-functioning market that allows technologies such as energy storage to fully participate and compete with other market participants is essential.

The Trading & Settlement Code (TSC) envisages the main mechanism for operating storage units and managing the state-of-charge of energy storage to be via the ex-ante and balancing markets. However, as identified below there are currently a number of known technical and process-related limitations that prevent this happening effectively.

In particular, issues exist associated with the charging (import) of storage projects via the ex-ante markets or the balancing market, and also with the ability of these projects to be fairly included in scheduling and dispatch decisions. This creates a number of issues not just for the commercial interests of asset owners and operators, but also in terms of preventing the efficient use of these flexible and zero-carbon assets on the system by the TSOs.

The known key limitations often involve IT and market systems as follows:

- a) There is no capability for current market interfaces (MPI) to accept and process 'negative' Physical Notifications (PNs) into central scheduling, for charging of storage;
- b) Standard dispatch tools (EDIL) do not have the capability to relay 'negative' MW instructions for charging (even if negative PN actions could be submitted as envisaged under the TSC) – although the TSOs note the possibility to use telephone instructions here;
- c) The lack of an appropriate battery storage market model, which results in storage units being registered and setup as 'Multi-Fuel Generator' Units. This therefore precludes effective operation in the balancing market in several ways, including:
 - (i) Multi-fuel units do not allow representation of the full operating range of a storage project such as a battery (import as well as export), meaning it is not possible for the TSO to utilise their negative operating ranges, leaving them at a significant disadvantage to traditional pumped storage units;

- (ii) Key TOD/COD parameters cannot be submitted to allow proper representation of assets in TSO optimisation and scheduling decisions (for example energy limit, efficiency);
- (iii) units are non-marginal flagged inappropriately due to the zero-MW minimum stable export limit of batteries; and
- (iv) There are potential issues with the visibility of storage in the merit order due to logic associated with circuit-breaker status and a 'normal' zero MW output level.

It is imperative that the enduring solutions to remove the current IT and market systems issues and allow energy storage projects to participate in the market as intended under the TSC are progressed as quickly as possible to allow the most effective use of these providers on the system. It is important that a roadmap is set out to get to this enduring solution to provide clarity and certainty to industry.

Auction Design

ESI Response to Question 11: What are stakeholders views on the Auction Design options and SEMC Recommendation?

In general, energy storage should be able to participate in all of the auction design options proposed but it is difficult to comment on our preferred approach at this time as there is still a lot of detail to consider in terms of the various design options. It is not clear which products would be procured under short-term auctions and those which might be procured over longer timeframes and even how individual service volumes may be procured in terms of product segmentation, timeframes or bundles.

Before locking in any high-level decision, we emphasise the need for further industry engagement and detailed consideration of the options (including worked examples), services to be procured and the types of technologies that could participate in the market.

If a decision is made on an auction design approach without full consideration of the potential interactions and impacts, then we risk locking ourselves into an approach which could lead to issues and delays down the line in the implementation phase.

ESI Response to Question 12: Are there any further considerations in terms of the Auction Design options?

ESI has several key questions to be considered:

- How will the market guarantee delivery to the TSOs of sufficient volumes of specific product characteristics- e.g. FFR <2s response, dynamic vs static response? We believe this warrant further consideration in terms of product differentiation and specific volume requirements.
- How realistic is it to implement secondary trading if this is contingent on go-live of the arrangements? This will be a complex area of work and we believe will be difficult to implement by go-live in 2024.
- Is there any merit in a combination of auction designs with volumes procured across multiple time horizons? This would allow a wider pool of service providers to participate in the market and may also give the TSOs more certainty over service volumes and availability ahead of time.

Market Design

ESI Response to Question 13: Are there any further considerations in terms of the Auction Design options?

We see value in the concept of a System Service forecast statement containing elements of location and volume forecasting for System Services as well as indication of definition and timing for any new System Services that may be required. We believe at least a 5 year and 10 year look ahead will be required for long-term forecasting and this should be updated on an annual basis.

This is a similar principle to that which is carried out in GB where both near-term and long-term signalling for service volumes and service requirements are frequently published by National Grid.¹

For near-term forecasting, more information is needed on the granularity of this forecast and how it fits with the auction design e.g. will half hourly forecasts be available and how often will these be updated?

ESI Response to Question 14: What are stakeholders views on the development of Secondary Trading of System Services?

We believe this will be complex to implement in the timeframe before go-live and that addressing the issue of firm access would be a more appropriate option. We have provided comments on this under question 16.

ESI Response to Question 15: What are stakeholders views on the proposals regarding Commitment Obligations and Scalars?

We recognise the need for a commitment obligation to ensure service availability and scalars to incentivise reliable performance. However, more clarity is needed on how commitment will be based for storage providers, will this be their availability signal, as is the case today, since they generally won't have an FPN?

We recognise that it makes sense to remove the temporal scarcity scalar as the scarcity signal should be there in the auction price. However, this might not be relevant for all services as some services are not linked to SNSP (i.e. voltage) and so consideration needs to be given to incentivise provision, particularly where services might be location based.

Therefore, we believe the locational scalar could be maintained but this needs a clear roadmap for implementation which gives adequate investment signals and allows a lead time for new build investment to deliver.

¹ <https://www.nationalgrideso.com/industry-information/balancing-services/frequency-response-services/firm-frequency-response-ffr?market-information>

ESI Response to Question 16: Do Stakeholders have views on the introduction of the concept of Firm Access to the System Services market?

We believe this is an important topic, which is also dependent on the auction design approach, but we do not agree with the concept that all providers should be treated as having non-firm access for the purposes of service provision. This would lead to considerable uncertainty for service providers and damage investor confidence. Where a provider such as an energy storage facility is located in an area and helping to mitigate constraints, or has made an investment decision based on a commitment from the TSO or DSO that is not delivered on, they should not be penalised.

There are a few key principles that we think are important here:

- Investors need to see a clear path and timeframe to remove operational and network constraints to level the playing field for zero-carbon providers e.g. increases in SNSP limits, removal of Min Gen constraint and grid reinforcement.
- The risk of non-delivery of these actions should sit with the party best placed to manage them i.e. the System Operators and SEMC.
- If the System Operators' grid build out or operational transition e.g. to 100% SNSP/ 0 Min Gen does not happen in the timeframe set out, zero-carbon providers should be held whole in the market (i.e. paid for their service availability).

The concept of firmness may also be dependent on the type of service. For instance, for the shorter-term reserve services provision of these services from providers such as energy storage should be within system temporary overload limits. Therefore, firmness shouldn't matter for these particular services as they can be provided in any case.

ESI Response to Question 17: Do stakeholders have views on layered procurement of System Services? What approach could be taken to support this?

ESI supports a layered approach to the procurement of System Services. Where new investment in zero-carbon service provision is required, particularly where these technologies may be high capex/low opex, longer-duration procurement mechanisms such as fixed contract auctions or bilateral tenders may be appropriate.

Adequate investment certainty formed a key principle of the original DS3 System Service high-level design. The zero-carbon reserve market in Ireland (primarily delivered by battery technology and Demand Side Units) was seeded by the fixed-term auction procurement framework, backed up by the presence of a regulated-price tariff procurement regime of shorter term and higher uncertainty. These frameworks have been successful in delivering new-build zero-carbon providing units which is probably adequate for the needs of the 2020 system. But the system will need more new-build zero-carbon service providers well in advance of 2030 for reserves and other services such as inertia, reactive power and future services such as

congestion management. These units will require an adequate level of certainty to invest and deliver when they are needed. It is important to note that it is not enough to deliver a decision on a long-term daily auction framework linked to some future volume forecast. Any such market will need to be up and running for a period for investors to get adequate understanding of the price risk. In advance of that, new-build units will need an alternative framework to invest.

Long-term contracts or a form of long-term price certainty are a traditional and widespread means of delivering new investment (e.g. RESS and Capacity market auctions). ESI's view is that locking out new investment will very likely result in an outcome which is not 'economically efficient', particularly where this new investment is needed to support a 2030 system and brings significant additional consumer value in terms of facilitating integration of renewable generation and lowering emissions.

Underinvestment in System Services over the long term will result in high levels of renewable curtailment and stall investment in renewable technologies. We believe the future arrangements needs a clear roadmap in terms of volume requirement, product differentiation and timeframes that allows adequate consideration of where and when longer-term contracting mechanisms are needed.

ESI Response to Question 18: Are there any further considerations in terms of Market Design?

We consider that market power is a real concern due to several operational and network constraints on the all-island power system which could lead to an unequal playing field for service providers. It is essential that operational constraints such as Min Gen are removed and SNSP increased to 100% to allow a fairer playing field for new zero-carbon service providers.

One other important area that the consultation does not address is that of System Services expenditure. We believe that the move to enduring competitive arrangements should not require an expenditure cap, similar to how the energy market does not have a cap, but in advance of this it is important to address the transition to these arrangements and the current expenditure cap.

The current cap of €235m per annum was put in place to reach 2020 RES-E targets and a 75% SNSP limit. The system has now exceeded 40% RES-E and we are already trialling the 75% limit so it logically follows that the budget must now be reviewed and revised upwards to ensure the 2030 targets are met. The CRU has set targets in the PR5 framework for EirGrid to reach 80% SNSP by 2023 and 85% SNSP by 2025. It is evident that in order to meet RES-E targets in Ireland and Northern Ireland by 2030 the system will need to be capable of operating at 100% SNSP. This ambition must be supported by adequate resources and funding to deliver the technologies and services required.

It is also relevant that the cap was set by the RAs in 2014 based on TSO analysis quantifying the production cost saving and reduction in SMP as a result of facilitating additional wind on the system. This analysis was undertaken over seven years ago and is outdated. For example, commodity prices have out-turned higher than forecast, and installed wind is now over 5.5GW as opposed to the 4.6 GW assumed. In fact, installed wind capacity today is on a par with the higher installed wind scenario modelled by the TSOs, with associated production cost saving of €399 million estimated at the time.

It is therefore not just a question of service volumes but also how the system is being operated that should be considered when assessing DS3 expenditure. We believe the system is already operating beyond what the current system services budget was designed to do.

There is also increased value from energy storage projects reducing the need to constrain or redispatch conventional generators to ensure system stability limits, thus reducing dispatch balancing costs. One of the key means of reducing this cost is procuring zero-carbon System Services providers such as energy storage, in combination with technologies like synchronous condensers, that will alleviate and eventually remove the need to constrain/redispatch fossil fuel plant to provide these system stability services. The value then of removing these operational constraints, via combination of energy storage and zero-carbon inertia, is likely much higher than initially forecast in the formulation of the DS3 expenditure cap in 2013/2014 and this should be considered now that investment is delivering to address these issues, rather than penalising it via lowering of tariffs or other expenditure control measures.

We believe that new investment should be supported by increasing System Service expenditure limits and that this issue needs to be addressed well in advance of the enduring arrangements coming into place otherwise there is a real risk of stalling new System Service investment on the island.

Conclusion

In conclusion we believe there is still a lot of detail to be worked out before proceeding to the implementation phase for the enduring arrangements and further industry engagement is needed, in addition to further consultations, to develop this further.

We are available to discuss any of the points raised in our response and we look forward to engaging with you on the next steps for this project.