



NETWORKS

DSUs: Revised Phase 1 Solution For Energy Payments & Other Issues

ESB Networks' response to SEM Committee consultation SEM-24-046
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1. Introduction

ESB Networks welcomes the opportunity to respond on the Single Electricity Market Committee's (SEMC) consultation regarding 'Demand Side Units: A Revised Phase 1 Solution for Energy Payments and Other Issues'¹. Demand Side Units (DSUs) play a crucial role in the Irish electricity market by empowering IDS (Individual Demand Site) customers to manage their electricity consumption more effectively. This approach not only offers greater flexibility for system operators but also enhances the overall security of supply. In light of the growing challenges and costs facing electricity markets across Europe, DSUs are a valuable asset for maintaining stability and efficiency in the Irish electricity market.

ESB Networks continues to support any necessary changes to assist the SEM in introducing a long-term enduring solution. Given that there is currently little to no visibility of DSUs and Individual Demand Sites (IDS) in the retail market design and systems, the changes proposed in this consultation, SEM-24-046, could have significant implications for ESB Networks and the retail market, of which details are provided later in this document. For the changes envisaged for ESB Networks, or the retail market, the earlier we are involved in the process, the greater our ability to provide effective solutions and efficient implementation timelines. ESB Networks recommend the formation of a working group to facilitate the necessary clarity for enabling market design. As such, ESB Networks looks forward to contributing to further industry engagement on this important topic.

In ESB Networks' consultation response to consultation SEM-22-036² in July/August 2022, ESB Networks outlined, at a high-level, how it believes an enduring solution should be underpinned by enhanced coordination and information exchange between the Transmission System Operator (TSO), Distribution System Operator (DSO) and DSU. Following then there has been significant effort between ESB Networks and EirGrid under the TSO/DSO Joint System Operator Programme and work has now begun on developing the detailed design of the TSO/DSO Operating Model following the agreement of the High Level Design (HLD). The outcome and implementation of this detailed design, including arrangements for data sharing and the roles and responsibilities for dispatch and activation, may have some overlap with the considerations for the SEM proposals in this consultation with regards to DSUs. Therefore, it will be important to have close alignment to ensure a cohesive and efficient implementation.

¹ SEM-24-046 [Demand Side Units: A Revised Phase 1 Solution for Energy Payments and Other Issues](#)

² SEM-22-036 [Enduring solution enable energy payments balancing market dsus consultation](#)

1.1 Role of ESB Networks

ESB Networks is the licenced Distribution System Operator (DSO) in Ireland, and manages ESB's Distribution Asset Owner (DAO) and Transmission Asset Owner (TAO) functions. ESB Networks works to meet the needs of all Irish electricity customers – generation and demand - providing universal access to the electricity system. We deliver and manage the performance of a system of approximately 157,000 km of overhead networks, 27,000 km of underground cables and 800 high voltage substations. To date we have connected approximately 6.4GW of renewable generation to the distribution and transmission systems, from microgeneration, mini-generation and small scale generation through to large scale renewable generation. We have almost 2.5 million demand customers, of which currently more than 112,000 are now becoming active customers – including, but not limited to, domestic and commercial premises with microgeneration/mini-generation (a rapidly increasing number); participants in flexible demand; and premises with battery storage.

ESB Networks also delivers a range of services to the Irish electricity retail market servicing almost 2.5 million customers. It manages relationships with market participants and provides data in a timely and accurate fashion on a daily basis. It supports the wider Irish electricity market through the ring-fenced Meter Registration System Operator (MRSO) and Retail Market Design Service (RMDS) and supports the wholesale Single Electricity Market through the provision of aggregated meter data.

In late 2020, ESB Networks established the National Network, Local Connections (NN,LC) Programme to implement the Clean Energy Package, focusing on active energy citizens, community energy, and flexible electricity services. By December 2022, the Climate Action Plan 2023 (CAP 23) set a legally binding target of 15-20% flexible system demand by 2025. The Commission for the Regulation of Utilities (CRU) directed ESB Networks to accelerate the NN,LC programme and expand DSO flexibility products to help meet that target.

ESB Networks plays a key role in the National Smart Metering Programme (NSMP), to date installing over 1.8 million smart meters across Ireland, including 102,000 at sites with export capacity. This achievement enables customers to be remunerated for exports measured through their smart meters.

In 2023, ESB Networks consolidated the NN,LC programme, NSMP, and retail market services into the Distribution Markets and System Operation (DMSO) unit. This unit drives smart energy services and flexible demand, supporting climate action and customer participation in a sustainable energy system.

2. Key Areas of Impact

ESB Networks supports the proposed changes in the consultation regarding the settlement of Demand Side Units. Currently the central retail market systems lack visibility of Individual Demand Sites (IDS) and have minimal visibility of DSUs. ESB Networks, specifically the ring-fenced Meter Registration System Operator (MRSO) function, is the meter data provider for all demand sites and all distribution-connected export sites in the Republic of Ireland (ROI). Consequently, ESB Networks assumes it will be required to fulfil the role of Meter Data Provider (MDP) for DSUs. If this assumption is confirmed, integrating DSUs into the retail market will have significant impacts. It is imperative that there is further engagement between CRU, Single Electricity Market Operator (SEMO), TSOs, MDPs and SEMC to clarify roles, responsibilities and requirements, and to also explore potential solutions.

The following is a non-exhaustive list of areas, along with a brief commentary, within the retail market that will need to be considered further.

A prerequisite to introducing change to the retail market is the Retail Market Design Change Control¹ process. It would be ineffective to commence the Retail Market Change Control process without further clarity in the areas outlined in this consultation response.

In addition to the retail market, ESB Networks outlines four other areas where further consideration is required in relation to this consultation.

ESB Networks would welcome the opportunity to discuss these potential impacts in more detail with CRU, SEMO, TSOs, MDPs and SEMC.

2.1 Retail Market

- **Overarching:** ESB Networks needs to understand how the changes proposed in this consultation will impact its role and responsibilities, it would also benefit from clarity in relation to the key responsibilities of other market participants in relation to DSUs.
- **DSU & IDS Classification:** Clarification is required to understand the treatment of DSUs and IDSs in the retail market. For example, existing Market Participants have a company/unit relationship e.g. Participant Generator/Generator Unit(s) or Supplier/Supplier Unit(s). ESB Networks understands that there are both positive and negative demand reduction scenarios. Further consideration is required on how these are modelled in the central retail market system.
- **Eligibility Criteria:** ESB Networks needs to understand the required eligibility criteria so that it is ensured that only valid DSU/IDS are set up/registered. For example, ESB Networks presume that an interval meter will be required to be in place at the IDS. ESB Networks also assume that there is no special treatment required for IDSs that are also operating as a non-participant generator.

¹ RMDS Governance Documents: <https://rmdservice.com/governance/governance-documents>

- **New Entrant:** ESB Networks assume that the New Entrant Process will need to be reviewed and updated to accommodate DSUs.
- **Market Assurance:** ESB Networks assume retail Market Assurance will need to change to accommodate DSUs.
- **DSU Registrations:** In the Retail Market, there are existing agreed processes that describe how a Supplier or Generator is registered to an MPRN, how change of suppliers are processed, the process around objections and cancellations and also the process that needs to be followed for a supplier to be de-registered from an MPRN. It is assumed that similar new market processes would need to be developed, agreed and then implemented in the market systems to facilitate DSU registration to an MPRN.
- **DSU Exit:** Consideration should be given to what happens when there is an unplanned exit of a DSU from the market.
- **Data Calculation, Processing, Aggregation & Flows:** There are likely to be new interfaces required in order to capture the demand reduction event start and end details. A development would be required to calculate baselines and the demand reductions. New/ Updated interfaces will be required in order to provision the calculated data to DSUs and SEMO. The application of Distribution Loss Adjustment Factors (DLAFs) will also need to be considered.
- **Change of Legal Entity, Customer Details and Meter Point Details:** Consideration will need to be given to scenarios which may call into question the validity of a DSU registration e.g. where a change of legal entity is initiated by the retail supplier after the DSU registration to the previous customer was confirmed. Agreement will be required for what changes a DSU can request at an MPRN and also what key information a DSU will be entitled to view in relation to the MPRN e.g. changes to an MPRN's energisation status or Maximum Import Capacity (MIC).
- **Change Control & Governance:** For example, consideration on whether DSU representation will be required on the retail market Industry Governance Group (IGG), and if a DSU will be entitled to raise Market Design Discussion and Change Requests?
- **Technical Architecture and Tools:** Communication between ESB Networks and retail suppliers predominantly occurs via system-to-system communications. ESB Networks/ DSU communication would be expected to take a similar approach. Other considerations in this area include whether DSUs would be entitled to use the market "Access Systems".

2.2 TSO/DSO Operating Model

The TSO/DSO Operating Model High Level Design (HLD) has been agreed between the system operators. This outlines the future plans for exchange of data between the system operators as well as expected roles for issuing dispatch and activation signal instructions to different types of resources. In this agreed HLD the DSO is largely assigned the role of issuing the signal to those resources which are smaller scale, not in the wholesale electricity markets, and/or on the “demand” side, including Demand aggregators (e.g. DSUs), whether in the wholesale markets or not. The development of the detailed design of this model is now underway where this arrangement will be considered further. The outcome and implementation of this detailed design may have some overlap with the considerations for the SEM proposals in this consultation with regards to DSUs and for the most part, issues outlined below should be addressed through the engagement on detailed design and implementation of the TSO/DSO Operating Model.

The inference from the consultation is that DSU participation in both transmission and distribution networks (e.g., through on-site generation or aggregated demand sites) needs close coordination between the TSO and DSO to avoid disruptions or inefficiencies. While these issues are already being addressed as part of the TSO/DSO Operating Model HLD, ESB Networks would welcome discussion on the SEM proposal via the Joint System Operator Programme whole of system workstream to consider potential impacts and interactions required regarding any new responsibilities on control, visibility and reporting of demand response activities as a result of this consultation and output of the Demand Side Response Network Code. For example, information sharing to minimise distribution congestion will become increasingly important as more flexibility and demand response is utilised on the network.

ESB Networks is aware that some DSUs might use on-site generation, particularly Combined Heat and Power (CHP) plants, which are typically connected at the distribution level. While DSUs reduce demand at the transmission level, they may generate energy locally, which the DSO will have to manage. ESB Networks must handle the net demand impact on the distribution network when DSUs generate their own power, ensuring that reverse flows from local generation do not negatively impact network stability, especially in areas with high renewable penetration. Currently potential DSU congestion is managed via ESB Networks NN,LC Pilot 2 Dynamic Instruction¹ sets and the TSO/DSO Operating model most likely will develop an enduring solution for this to ensure the optimal whole of system efficiency for demand response is achieved using more accurate close to real time information to securely manage the network.

¹ Piloting Roadmap DOC-230921-GYP section 4 : https://www.esbnetworks.ie/docs/default-source/publications/esb-networks-national-network-local-connections-programme-piloting-roadmap.pdf?sfvrsn=5ee37a88_7

2.3 Flexibility Market

Under the DMSO function, a flexibility market is under development with initiatives such as Pilot 1¹ and Beat the Peak.² These initiatives use a baselining methodology and as such, further engagement will be required on the proposed methodology; however, the flexibility market would support the recognised approach identified in the consultation paper.

It is important to note that the enduring solution is dependent on Demand Side Response Network Code (due to be submitted by ACER to European Commission in March 2025 with the intent of implementation and transposition to national legislation from 2027).

2.4 Metering

ESB Networks (MRSO) would be in favour of the baselining method as a means to determining measured quantities for DSUs.

Although there may be some benefits to using sub-metering, it is envisaged that the introduction of a sub metering arrangement would be quite complex, costly and challenging to implement. It is probable that ESB Networks will receive requests to accommodate non-standardised meter configurations for the diverse range of customers participating in demand response services, resulting in increased complexity and costs. It is ESB Networks' strong preference to support a baselining approach as the method for calculating the demand reduction.

2.5 Competing Regulatory Priorities

Given the significant level of change required to introduce an enduring solution, it is important that there is further engagement between ESB Networks, CRU, SEMO, TSO, MDPs and the SEMC and other stakeholders as early as possible to ensure that the enduring solution is incorporated into the wider DMSO Blueprint. The DMSO Blueprint is a multi-phase, multi-layer vision strategy setting out the DMSO's evolution to deliver on Ireland's climate action targets. Informed by the future needs of Irish electricity industry and society, the Blueprint outlines how the DMSO will continue to fulfil its distribution markets and system operation license obligations to support the transformation of legislative and regulatory policies at both national and EU levels. The DMSO Blueprint sets out how capabilities will evolve across a multi-phase timeline out to 2035. ESB Networks currently anticipates wider consultation with industry on the DMSO Blueprint and associated roadmaps to commence in Q4 2024.

1 Pilot 1 : https://www.esbnetworks.ie/docs/default-source/publications/pilot-1-rft---section-3-specification-background-information-pdf.pdf?sfvrsn=1efba784_6

2 ESB Networks Beat The Peak: <https://www.esbnetworks.ie/who-we-are/beat-the-peak/beat-the-peak-business>

3. ESB Networks Response to Consultation Questions

Below we have provided responses in relation to the Questions which we believe are most relevant to ESB Networks.

ESB Networks have questions on the full implications of the consultation proposals in relation to the DSO's roles and responsibilities and may have additional comments or seek further engagement with CRU, SEMO, TSOs, MDPs and the SEMC to better understand the requirements of the changes being proposed.

3.1 Response to Question 1

Do you agree with the description and analysis of the models for compensating demand response and, in particular, for energy payments to DSUs?

ESB Networks acknowledges the significant level of detail provided in the consultation. However, to fully understand the nuanced implications for ESB Networks and the retail market of each proposed model, further engagement with RAs, SEMO, and SEMC would be beneficial.

3.2 Response to Question 2

Do you agree with the description and analysis of the appropriate treatment of 'long-run' DSUs?

ESB Networks are not clear if there is a requirement for ESB Networks to differentiate between a 'long run' DSU and 'short run' DSU, in respect to its role as an MDP.

3.3 Response to Questions 3

Do you agree that incorporation of a supplier compensation payment between DSUs and suppliers would be an appropriate mechanism for addressing the 'missing money' problem for DSUs?

ESB Networks have no comments on the appropriateness of this mechanism but would like to understand the data requirements from ESB Networks to facilitate this.

3.4 Response to Question 8

Do you agree that it would be possible to categorise DSUs into long-run and intermittent DSUs by some other criterion, such as running hours, such that it would be possible to determine whether or not compensation for 'missing money' would be appropriate? If not, please explain why.

How could such a test be implemented, in practice, and eligibility criterion enforced? Should such a test be used instead of, or together with, supplier compensation payments?

ESB Networks are not clear if there is a requirement for ESB Networks to categorise DSUs into long-run and intermittent DSUs, in respect to its role as an MDP.

3.5 Response to Question 10

Do you consider that some form of baselining is needed? Would appropriate supplier compensation payment arrangements affect this?

If baselining is needed, do you have any views on how the baselining methodology should work?

What should be taken into account in determining the baseline profile?

ESB Networks is of the opinion that baselining for measuring demand reduction is an appropriate mechanism.

ESB Networks applies a baseline to the Flexibility Market initiatives such as Pilot 1 and Beat the Peak. The baseline methodology is currently based on historical demand during the period when the flexible service is needed. Baseline methodologies should be simple, accurate and easy to understand and implement. ESB Networks is currently working on a baseline methodology that is more dynamic by using the historical demand in the previous quarter or previous month. It is important to note that this comes with some challenges, such as how to address the typical shoulder months where demand can change significantly.

ESB Networks acknowledges that baselining is a topic for consideration under the draft Demand Side Response Network Code. ESB Networks recommend further specific engagement on baselining methodology with CRU, SEMO, TSOs, MDPs and SEMC.

3.6 Response to Question 11

How important is it to use sub-metering? Please explain your view.?

As stated in section 2, although there may be some benefits to using sub-metering, it is envisaged that the introduction of a sub metering arrangement would be quite complex, costly and challenging to implement. It is probable that ESB Networks will receive requests to accommodate non-standardised meter configurations for the diverse range of customers participating in demand response services, resulting in increased complexity and costs. It is ESB Networks strong preference to support a baselining approach as the method for calculating the demand reduction.

3.7 Response to Question 12

Would it be appropriate to use SCADA data for the purpose of setting DSU metered quantity?

How could this arrangement work in practice? Please explain your view.

SCADA is an excellent tool used to support the management of energy systems although it is widely accepted as not providing revenue grade data as there is typically a small percentage difference between metered quantities and SCADA data. However, SCADA may form part of a solution, in particular if there are interim measures required.

3.8 Response to Question 13

Do you consider that on-site generation could be accommodated in the SEM through the arrangements for Aggregated Generator Units?

**Are there reasons why it makes more sense to use Demand Side Units?
Please explain your view.**

ESB Networks note that there is currently no mechanism in the ROI retail market to facilitate Aggregated Generator Units. ESB Networks would be supportive of any process CRU or SEMC initiated to progress the introduction of Aggregated Generator Units into market design in ROI.

3.9 Response to Question 14

Are there any other issues relating to the treatment of DSUs in the SEM, which the SEM Committee should consider when implementing a revised Phase 1 solution? If so, please explain these issues.

Please see list of considerations included in section 2.

3.10 Response to Question 15

What are your views regarding negative demand response? Do you consider the supplier compensation payment arrangement will work for negative demand response?

Do you think there is any potential for perverse outcomes and undue discrimination between customers? Please explain your view.

ESB Networks understands that this may be a useful tool to help operate the electricity system. ESB Networks would welcome further engagement regarding the Flexibility Market and TSO/DSO operating model.

4. Conclusion

ESB Networks welcomes the opportunity to respond to SEM Committee's "Revised Phase 1 Solution for Energy Payments to DSUs and Other Issues" consultation and we consider that the positive changes to DSU payments and incentives will offer additional options to provide capacity / energy onto the network at times of scarcity response by TSOs and also to offer flexibility in the electricity system.

To implement a solution using measured metered quantities based on data calculated (baselined) from the main ESB Networks meter will require significant effort to develop and agree a market design, agree a plan and execute an implementation. Although, this would be less complex and more cost effective compared to the suggested approach of sub metering.

ESB Networks require significant additional clarity, which we have touched on in this consultation response before being in a position to proceed with any further design. ESB Networks recommend a succinct working group with members from the SEMC, SEMO, TSOs and MDPs be put in place to ensure the necessary initial clarity and alignment is in place across these key market stakeholders. This will complement the significant work that is already progressing between ESB Networks and EirGrid under the TSO/DSO Joint System Operator Programme and particularly the work of implementing the detailed design of the TSO/DSO Operation Model, in relation to dispatch and activation, communication as outlined in section 2.2.

In addition, ESB Networks are developing the DMSO blueprint and associated roadmaps. It is important that all key regulatory requirements that impact these areas are considered before these roadmaps are baselined. The proposals in this consultation are significant and should be considered in conjunction with the other demands that will need to be considered as part of the DMSO blueprint.

ESB Networks looks forward to working with CRU, Transmission and Distribution System Operators and Meter Data Providers as well as the SEM Committee to explore possible solutions and we remain available to discuss any aspect of our consultation response.



NETWORKS

ESB NETWORKS

Three Gateway,
East Wall Road,
Dublin 3,
DO3 R583

Tel 1800 372 757 or +353 21 2386555

Email esbnetworks@esb.ie

esbnetworks.ie