Enduring Solution to Enable Energy Payments in the Balancing Market for DSUs

Consultation Paper SEM-22-036

A Submission by EirGrid plc. & SONI Ltd.

29 August 2022

Contents

1 EXECUTIVE SUMMARY

EirGrid plc. (EirGrid) and SONI Ltd. (SONI) welcome the publication of consultation SEM-22-036, Enduring Solution to Enable Energy Payments in the Balancing Market for DSUs (the Consultation Paper) and the opportunity to respond to the consultation.

EirGrid and SONI recognise the contribution of Demand Side Units (DSUs) to the power system and their role in the transition currently underway. EirGrid and SONI also recognise the potential benefits of demand response in potentially alleviating some of the security of supply concerns facing the power system.

We are very supportive of changes that will encourage more demand side availability, however it must be reliable and available when required. The availability of DSUs to date in comparison to the contracted amount has clearly been of some concern and we have engaged with the Regulatory Authorities (RAs) and the DSU industry on this matter on a number of occasions previously. For example, for the 12-month period from May 2021 the average availability of DSUs was less than 30% of their installed capacity. We must stress that consistent and reliable performance of DSUs must be a cornerstone of any new measures as part of having a secure power system. In order to help towards mitigating the capacity shortage and system security concerns DSUs will need to provide consistently high availability so that we can factor in their actual availability in operational planning timeframes.

We must also be mindful that the changes proposed by the RAs require careful consideration due to their complex nature, the potential unintended impacts and how the opportunities presented by DSUs can be best realised as efficiently as possible and at an affordable cost. It must also be acknowledged and accepted that there is considerable room for improvement in the contribution of DSUs in supporting a secure power system.

EirGrid and SONI are of the view that there are a number of challenges associated with both the phase 1 and phase 2 proposals that will have to be overcome prior to embarking on what will be significant and material changes to the market arrangements for DSUs. For example, for the phase 2 proposal, EirGrid and SONI would welcome clarity on the roles and responsibilities with respect to this solution noting that while the Consultation Paper suggests making changes through the Trading & Settlement Code, many of the changes relate to retail market entities that do not currently exist within the Code. It must also be noted that the NI Protocol applies to wholesale arrangements only and not to retail arrangements and it must be explored if this proposed expansion of the TSC is proper in the circumstances. These challenges are set out in detail in this response.

EirGrid and SONI would strongly welcome specific feedback from the DSU industry about how performance of existing DSUs would be improved by new measures, and also what is the potential scale, availability and reliability of new DSU capacity that could arise should new measures be adopted. We believe there is also need for a robust exercise of due diligence on existing and new DSUs' capability to be dispatched for sustained delivery taking full account of any restriction on their operation, e.g. environmental limitations on the delivery of service.

EirGrid and SONI agree with the consultation paper that performance monitoring of DSUs performance is a requirement for the proposed Phase 1, and we would also welcome further clarity on the subject of the resourcing, governance and performance monitoring expectations. EirGrid and SONI are keen to engage further on this subject in order to ensure that all initiatives

requiring TSOs and/or SEMO input are considered in the context of the overall programme of works so that the most beneficial initiatives can be appropriately prioritised on the basis of robust consideration of their likely cost and benefit.

EirGrid and SONI must also advise that there are considerable risks that the phase 1 proposal could add significant and unsustainable costs to the current scale of imperfections. For example, a reasonable estimate of the additional cost of the proposed DSU energy payments, using higher imbalance prices, could be anywhere up to €100m per annum or above and this would represent a significant increase in the imperfections payment requirements. It is imperative to ensure that the costs incurred in designing, implementing and operating new measures will deliver appropriate benefits which justify the size of the costs incurred.

Taking the above points into consideration, we believe this project requires a working group with industry to be established, incorporating views from the Transmission System Operators (TSOs), the Distribution System Operators (DSOs), the Market Operator (MO), Suppliers, Generator and DSU participants among others. It is important to ensure that all participants continue to receive fair and equitable treatment, particularly in relation to their costs and revenues while delivering any beneficial enhancements. In particular for both the phase 1 and phase 2 proposals, EirGrid and SONI are keen to engage further with the RAs and other stakeholders to better understand the vision intended under both proposals and which are discussed in more details in their respective sections within this response.

EirGrid and SONI remain committed to supporting the role of DSUs as part of a reliable and affordable power system. We look forward to engaging further with the RAs on the development and implementation of any market design or operational changes resulting from this consultation.

2 INTRODUCTION

2.1 EIRGRID PLC AND SONI LTD

EirGrid plc (EirGrid) is the licenced electricity Transmission System Operator (TSO) in Ireland, and SONI Ltd (SONI) is the licensed TSO in Northern Ireland. Both companies also hold Market Operator (MO) licences in Ireland and Northern Ireland respectively and collectively act as the Single Electricity Market Operator (SEMO), which operates the Single Electricity Market (SEM) on the island of Ireland. Thus, this response is submitted by EirGrid and SONI in their capacities as TSOs and MOs for Ireland and Northern Ireland respectively.

2.2 STRUCTURE OF OUR RESPONSE

This response is comprised of the following sections –

- **High Level Principles** – this sets out EirGrid and SONI's views with respect to the proposed changes and how Demand Side Units are treated in the market as well as the broader regulatory landscape;
- **Proposed phase 1 approach** – this provides specific comments on the proposed phase 1 approach and proposed near term changes to the current market design;
- **Proposed phase 2 approach** – this provides specific comments on the proposed phase 2 approach for the enduring solution and proposed long term changes to both market design and data management processes;
- **Response to Consultation Questions** – EirGrid and SONI have outlined at the beginning of each section the relevant consultation questions each section applies to.

3 COMMENTS ON THE CONSULTATION

3.1 HIGH LEVEL PRINCIPLES

3.1.1 THE EU REGULATORY FRAMEWORK, EMERGING POLICY AND DESIGN PRINCIPLES

The responses in this section are relevant to consultation questions 2, 5, 7, and 8.

Consideration of the appropriate principles to apply to the operation and remuneration of Demand Response across all markets is evolving at European level as evidenced by ACERs consultation on their draft framework guideline on demand response. This guideline, as well as other publications from relevant bodies both in Europe and beyond (e.g. EUI working paper on "The Regulatory Framework for Independent Aggregators") set out a number of considerations of relevance to the treatment of Demand Response including in the SEM. Despite the exit of the Northern Ireland from the European Union, EU regulation still applies to the wholesale Energy Market under the terms of the NI protocol.

The ACER consultation indicates an intention to eventually enshrine the relevant principles and approaches in a formalized network code alongside existing regulation in this area. It is therefore critical that any reform or revision of the SEM arrangements are mindful of the existing EU regulatory framework and the future direction of travel as well as the SEM design itself. In relation to the enduring solution now proposed in phase 2, the SEM Committee decision in SEM-19-029 noted, in relation to concerns raised during the previous consultation, that "The SEM Committee note these comments and recognises the need for further engagement with industry before any further solution is designed or implemented which would encompass the requirements of the Clean Energy Package". It seems appropriate that before any further solution is designed or implemented it should also encompass any emerging requirements too, including those from the new network code which has been indicated. We also believe it is appropriate to establish principles for the developing demand response industry in the SEM taking account of the size and location of projects, ensuring that they contribute positively to alleviating security of supply concerns.

We would suggest that further assessment of the proposed phase 1 and phase 2 changes against existing and emerging EU regulatory requirements and relevant scholarly thinking may be worthwhile in informing policy decisions in this area. It is not immediately clear to us what further work is intended in this area as solutions are developed.

3.1.2 ROLES AND RESPONSIBILITIES

The responses in this section are relevant to consultation questions 2, 4, 5, 7, and 8.

The phase 1 proposal seeks to provide for the making of energy payments based on an assumption that Dispatch Quantity is an adequate proxy for delivered demand response, such that there is no new process for the determination of what was delivered but rather a new role for the TSOs in monitoring this delivery. This is in effect an extension of existing monitoring activities already carried out by the TSOs and therefore an extension of this role. Such an extension warrants consideration of the resourcing impact this will have and the governance under which it is to be carried out. It is not yet entirely clear precisely what (if any) additional governance is proposed for

this role or precisely what would be considered an adequate form of monitoring and reporting for these purposes. We would welcome engagement with the RAs on this subject should the SEM Committee decide that the TSOs are required to carry out additional monitoring activities.

The phase 2 proposal is significantly more impactful and envisions multiple new activities for operators and data providers in the SEM and at least one entirely new role and associated set of responsibilities. This relates to the aggregation of metered quantities from individual demand sites and the use of these quantities in determining what demand response was delivered for each DSU as well as how this response is reflected in the final metering and aggregations submitted for SEM settlement. This would appear to require additional governance to ensure that any new or extended role(s) can be implemented in a robust way which ensures that operators have clearly understood and documented/binding rights and obligations. In our response to the 2019 consultation, EirGrid and SONI suggested that further clarity was required on how it is intended that the enduring (phase 2) solution would be operated and implemented. This clarity is essential before any work on phase 2 can be done.

3.1.3 BUSINESS PLAN DEVELOPMENT AND NEXT STEPS FOR PHASE 2

The responses in this section are relevant to consultation questions 7, 8, 9 and high-level design request for proposed phase 2.

The Consultation Paper states that "phase 2 requires a delivery plan from EirGrid/SONI"; however, it is not yet clear to us what the TSOs and SEMOs role would/should be in relation to the delivery of phase 2. The implementation of phase 2, as highlighted in the consultation, would require the introduction of new functions, many which may either not be best placed with the TSOs (e.g. adjustments to the metered quantity of IDSs and suppliers prior to wholesale aggregation which as indicated in the consultation is likely to be a DSO activity) or require an entirely new role (aggregation and demand response determination functions mentioned above). In addition, there appears to be some misunderstanding as to the information available in existing SEMO systems where it is implied that SEMO already have access to the necessary individual demand site meter data etc. when this is not the case. Given the significant uncertainty here and the anticipated impact on the DSOs systems and processes it is not clear to us that it is appropriate for the TSOs to develop a delivery plan for the proposals in phase 2; however, when the roles and responsibilities of all parties has been clarified, the TSOs would be happy to engage in the development of a work plan of its implementation tasks.

EirGrid and SONI support the development of an 'enduring solution' for this project. However, as the design of a solution for phase 2 would appear to require substantial input from outside the TSOs, we would suggest that, prior to carrying out business planning activities, a helpful next step regarding phase two may be for the Regulatory Authorities, TSOs, DSOs and SEMO to engage multi-laterally to identify the most efficient path to implementation.

3.1.4 COST VS BENEFIT AND PRINCIPLES OF EQUITY

The responses in this section are relevant to consultation questions 2, 5, 7, and 8.

The phase 1 detail proposes to make energy payments to DSUs in all periods by using the existing logic that ensures that payments are made during price events with no adjustments to the IDS metered quantities or supplier unit aggregations. Because phase 1 does not include adjustments to the relevant Supplier Unit's volumes, this results in a cost of these additional payments which is to be borne by all consumers as a result of socialization via the imperfections charge.

We support any measure intended to increase the availability and/or performance of demand response resource, to assist with system security and efficient balancing of the system. With that said, it is important to ensure that all actors continue to receive fair and equitable treatment, particularly in relation to their costs and revenues while delivering any beneficial enhancements. It is also important to ensure that any costs incurred in designing, implementing and operating any reform deliver appropriate benefits which justify the size of the costs incurred.

In relation to fair and equitable treatment, particularly of consumers, the phase 1 proposals would result in costs, of making payments to DSUs while not adjusting the relevant Supplier Units, being socialized across all consumers while only a subset of consumers can receive the direct benefit derived from those costs. i.e. those consumers who are part of DSU. We acknowledge that if the desired availability and performance improvements from demand response resources occur there will be benefits there for all consumers in terms of security and reliability of supply and potential costs saved elsewhere but feel the impact on all consumers needs further consideration especially given the SEMC's positions in SEM-22-009 alluding to "the context of the current and expected next two years' high prices".

We are keen to understand whether an assessment of the costs (for design, implementation and operation of the proposed solution and also in terms of increased imperfections costs of the payments themselves) and the benefits to the broader consumer base (from enhanced availability and performance aiding security of supply and having the potential to reduce costs elsewhere and in terms of entry signals to prospective DSUs) is intended prior to taking a final decision. As part of this assessment, EirGrid and SONI believes that DSUs should provide quantitative detail on the benefits of energy payments as set out in the RA proposed phase 1 approach.

Similarly, for the phase 2 proposal, it would appear to be appropriate to undertake some analysis of the likely costs and benefits prior to embarking on what will be a highly costly multi-year project (see subsequent sections for more detailed views on this subject). The cost of both implementing and operating the phase 2 proposals are likely to be substantial given the scope of the changes required and also once the roles and responsibilities are clarified. It is unclear at present whether the likely benefits would justify this cost or if there has been any assessment of alternative approaches and how the cost and benefit of such approaches might compare.

3.1.5 RESOURCING, PRIORITISATION AND CONSEQUENTIAL IMPACTS

The responses in this section are relevant to consultation questions 2, 5, 7, and 8.

While EirGrid and SONI recognise the importance of this project, it is in a very complex area which will impact multiple parties across different systems. It is important to understand the scope of work involved and the likely consequences of the consultation proposals on other priority projects for the impacted operators given the finite pool of resources both internally to the TSOs and SEMO and externally with our vendors and other third-party partners.

It is likely that most if not all of the work in designing and implementing the consultation proposals, will draw on the same resources that are needed for delivery of over important initiatives over the coming years. The TSOs and SEMO resources will be heavily utilized in delivering a number of initiatives. These include various projects which are critical to delivering on ambitious government renewable targets in Ireland and Northern Ireland including System Services Future Arrangements transition and delivery, SEM 4.0 design and delivery and key Scheduling and Dispatch enhancements including implementation of Clean Energy Package requirements to provide for non-Priority Dispatch renewables etc. among others.

Given the scale of reform aspired to over the coming years in the context of the renewable it is important that the SEM Committee and the RAs have sight of the likely interaction between initiatives which are competing for resource from the same pool and funding in order to plan and prioritise accordingly. We are keen to engage further on this particular subject in order to ensure that all initiatives requiring TSOs and/or SEMO input are considered in the context of the overall programme of works so that the most beneficial initiatives, in the Regulatory Authorities' view, can be appropriately prioritised on the basis of robust consideration of their likely cost and benefit and their impact in helping meet the 2030 emissions and renewable energy goals, and ensuring power system security in both the shorter and longer timeframes.

3.1.6 FUNCTION OF EXISTING AND PROPOSED DESIGN

The responses in this section are relevant to consultation questions 2, 5, 7, 8, and 9.

EirGrid and SONI are keen to engage further with the RAs and other stakeholders to better understand the vision intended under both the phase 1 and phase 2 proposals which are discussed in more details in their respective sections elsewhere in this response.

In relation to the phase 1 proposals, we would like to understand in more detail what changes to the existing logic are envisaged prior to assessing what would be involved in implementing the changes and prior to their impact being analysed. The interactions between different elements of settlement in the wholesale market timeframes and trading/bidding behaviours are complex and details on the precise implementation are still relatively limited i.e. the specific legal drafting of any

modification.

The Consultation Paper indicates that "Modifications to implement phase 1 would include removal of the Trading Site Supplier Unit (TSSU) for the DSU. (This currently exists to cancel out any activity by the DSU in the balancing market below the Strike Price)." but there is little further detail on what modifications are likely to be proposed other than describing their intended effect. We suspect that any change to implement the intended proposal could be substantially more complex than anticipated and are not clear precisely what is meant by removal of the TSSU in terms of the introduction of a new Trading Site configuration or otherwise removing the effect of the TSSU downstream. We are also not clear as to what other elements of settlement logic change are envisaged. Substantial work will be required in modelling settlement for any proposed changes for different trading possibilities to ensure that there are not unintended/unforeseen outcomes. The implementation of any approved Modification will of course also be more complex if the design itself is more nuanced and complex. The current function and future design particulars based on the existing consultation proposals are discussed in more detail in the relevant sections below for both phase 1 and phase 2.

The design set out for phase 2 also requires more development and analysis prior to arriving at the optimal approach. Detail on how the approach would function and who will be responsible for its operation is still limited and substantial development work would be required to move towards high level and subsequent detailed design outcomes.

We have raised concerns previously in our response to SEM-19-013 in relation to sites where no metering currently exists and in relation to the need to determine and acceptable approach to utilizing meter data to determine the delivered demand response. Whilst we are of the same understanding as reflected in the consultation that "most IDSs sites participating in DSU's have appropriate metering at least at the connection level with quarter/half hourly reading." our concerns are in relation both to those sites which do not have this in place and in relation to the processes required to use this information to determine the delivered demand response and we believe that these issues still present a significant challenge.

There is also more development work needed in terms of the function of the roles in recording and aggregating meter data and data transfers between entities and in the roles and approach to utilizing this data to determine what demand response has been delivered either via comparison to baselines or consumption levels at the time of a dispatch instruction or otherwise.

3.2 PROPOSED PHASE 1 APPROACH

Section 2 of SEM-22-036 proposes that phase 1 will maintain the existing 'interim solution' design but with the following changes/requirements;

- SEMC proposes that DSUs would receive energy payments in the balancing market at **all** times (phase 1). It is proposed that this solution would be implemented at the earliest opportunity. Includes the assumption that dispatched quantity is a suitable proxy for metered quantity for DSUs.

- For 'phase 1', the existing 'interim solution' approach of DSU energy payments being funded through the imperfections charge in accordance with TSC modification, Mod_17_19, would be maintained.
- 12 month assessment of DSU performance in the balancing market as set out in section 2.1.3 of SEM-22-036
- Modifications required to the TSC to implement phase 1 would include removal of the Trading Site Supplier Unit (TSSU) for the DSU.

To avoid any potential confusion as phase 1 is also called the 'interim' approach when there is already an interim in place since October 1st 2020 implemented through Mod_17_19 to the Trading and Settlement Code, EirGrid and SONI suggest that the consultation phase 1 proposed approach should be clearly recognized as an evolution of that solution with an alternative name such as the 'advanced interim' of the existing one.

3.2.1 SEMC PROPOSAL THAT DSUS WOULD RECEIVE ENERGY PAYMENTS IN THE BALANCING MARKET AT ALL TIMES (PHASE 1).

The responses in this section are relevant to consultation questions 2 and 5.

EirGrid and SONI wish to highlight that there are risks of unintended consequences arising from some aspects of the proposed approach that need to be considered, in particular the following items in terms of the level of detail available within the Consultation Paper which subsequently limits the level of assurances that EirGrid and SONI can provide in their response to the phase 1 proposals.

It is uncertain and unclear as to how exactly the removal of the TSSU is to be interpreted, currently the need for TSSU is defined in TSC part B.9.5.4. The below options were identified during the consultation response process. Once confirmed which option would be preferred by industry TSOs and SEMO can provide an impact assessment on the market systems, TSC and timeline for implementation.

1. Removal of TSSU and replacing it with ASU – this option would require registration changes for all DSUs registered in the market and tidying up of the TSC and some market systems changes.
2. Removal of TSSU specific treatment $QMLF_{TSU} = -DQ_{DSU}$ as currently outlined in TSC F.2.5.6 – this option would require both changes in the market systems and extensive review of TSC algebra to make sure no unintentional adverse effects will arise.
3. Removal of TSSU without replacing it with ASU – this option would mean DSUs to be the only generator type without TSSU/ASU. This would again require registration changes, review of TSC algebra and market system changes.

In addition to the above, the future treatment of CEADSU charge components introduced by MOD 17_19 is not discussed in the proposal. These charge components are applicable to TSSUs and the

current interim solution algebra is part of TSC part H.14 'INTERIM RULES TO APPLY FOR A FIXED PERIOD OF TIME FOR DEMAND SIDE UNIT SETTLEMENT'. Again, during the consultation response process the below options were identified, each with a different impact on market systems and TSC.

1. Terminate (end date) those charge components in the market systems once the new interim solution is introduced.
2. Altering the algebra for CEADSU charge components based on preferred future treatment of TSSU.

Without the clarity required in the phase 1 proposal around TSSU treatment and other supplementary changes, a number of key assumptions would need to be made at this time when assessing the level of system changes required to accommodate the proposed change for phase 1, along with assessing the timelines required to implement the proposed changes. While , the Consultation Paper implies that phase 1 would be straight forward and immediately implementable, the delivery time of phase 1 is highly dependent on the outcome of the clarity sought within this response and subsequent governance timelines required to introduce any additional design and implementation work required to develop and subsequently implement a Modification.

While EirGrid and SONI acknowledge that the introduction of payments at all times for DSUs may incentivise DSUs to be more responsive to DSU dispatch instructions and/or increase their availability, it also needs to be carefully considered that the material impact of this will lead to increased energy payments to be funded by Imperfections charges (as also acknowledged in the Consultation Paper). The proposal will also socialise an additional cost across all suppliers (and thereby to all consumers) while a limited subset would receive the benefits of it.

3.2.2 MAINTAIN APPROACH OF DSU ENERGY PAYMENTS BEING FUNDED THROUGH THE IMPERFECTIONS CHARGE

The responses in this section are relevant to consultation questions 5 and 6.

The current arrangement for the Demand Side Unit (DSU) state aid compliance (SEM-19-029) has little impact on imperfections, due to infrequency of occurrence.

It is difficult to accurately quantify what the magnitude of the additional energy payments would be, until clarification on detail is provided and significant modelling on DSUs expected behaviour as the historical data can't donate to the proposal. However, high level analysis of historical dispatched DSU volumes indicate that it is likely to be less than €100m for a year; however, given the ambition of enduring payments to DSUs is increase availability in the market, it is likely that the actual figure will be higher.

Due to the above, the TSOs have strong concerns, that approval of this modification would add significant costs to the current scale of imperfections cost (link to 2022/23 Imperfections Charge Consultation here).

Following a similar approach to DS3 system services where DSU operators provide evidence of how they have met their dispatch quantity beyond a calculated SCADA value that comes across to SONI/ EirGrid would be welcome to prove their compliance.

3.2.3 12 MONTH ASSESSMENT OF DSU PERFORMANCE IN THE BALANCING MARKET AS SET OUT IN SECTION 2.1.3 OF SEM-22-036

The responses in this section are relevant to consultation questions 1, 3, and 4.

It is the TSO's understanding that the RA's proposal for phase 1 is to be implemented without an evaluation of how well dispatch quantity of DSUs has been a suitable proxy for metering from DSUs to date. The TSOs note that this appears to diverge from the SEMC original plan outlined in SEM-19-029 that, *"It is the intention of the SEM Committee to move to a situation of making full energy payments to DSUs at all times, once it has been determined to the satisfaction of the RAs that; Performance monitoring by the TSOs indicates that dispatched quantity is an effective proxy for metered quantity; and the socialisation mechanism is operating effectively to ensure that DSUs are paid energy payments and that the costs are socialised as per the principles set out above."*

The TSOs are of the view that it would be a more prudent approach to evaluate recent performance of DSUs, as was planned in SEM-19-029, dispatch quantity versus DSU provided aggregated MW reduction. The TSOs believe there is a need for an exercise of due diligence on existing and new DSUs' capability to be dispatched for sustained delivery taking full account of any environmental limitations on the delivery of service. The TSOs would be happy to support this exercise should the SEMC agree. This could inform any decision to move to phase 1 whereby dispatch quantity is used as a proxy for metered quantities for these enduring energy payments.

This approach seems particularly important when phase 1 arrangements could potentially be in place for longer than 12 months. Consumers will ultimately pay for any poor performance until phase 2 is implemented. In addition, the proposal for a requirement for 12 months monitoring of DSUs, and then potentially reversing back to the current set of calculations if the DSU performance is unsatisfactory, add costs and risks to the market. It should be understood that a decision to implement phase 1 cannot be easily reversed as suggested in the consultation paper. Any decision to "revert to … current interim arrangements as detailed in SEM-19-029" will be a system change as impactful as the original and therefore likely to take more time to implement, meaning that if performance is unsatisfactory, consumers will continue to pay for this for longer than the monitoring period.

EirGrid and SONI agree with the consultation paper that performance monitoring of DSUs performance is a requirement for the proposed Phase 1, and it would be helpful to clarify the performance monitoring expectation of the SEMC. Currently the TSOs assess DSU performance by looking at SEM availability versus real-time availability declarations as well as dispatch quantity versus aggregated DSU delivery of dispatch quantity. The former being carried out monthly and the

latter trigger by DSU dispatches on the system. The TSOs are happy to share this data with the RAs on a monthly basis as required. If the change in energy payments results in the DSUs being dispatched more often, this will drive more performance assessments by the TSOs. The TSOs would note that enhancements to the existing performance monitoring process for DSUs continue in terms of direct communication and notifications of performance monitoring reporting data to DSUs.

The TSOs believe that satisfactory effectiveness of outcomes from phase 1 would be that the expected demand reduction is delivered reliably by DSUs when dispatched, in the same way other units are expected to deliver to their dispatch quantity. Below are some statistics on DSU performance from May 2021 to June 2022:

- Based on EirGrid & SONI Monthly Availability Reports, "365 Day Rolling Availability Conventional Units – May 2021 to May 2022", the average all-island DSU unit unavailability was 74% of the time, from a total contracted volume of 722 MW.

- Of the 26% which was available, 5013 MWh were required/dispatched on an all-island basis during the period July 2021 to June 2022, with 4259 MWh provided by DSU units.

The TSOs believe the risks with the implementation of phase 1 need to be carefully considered , as participants will not be penalised for non-performance which could lead to an overall higher cost for the consumer as more expensive generation may need to be dispatched in the event of DSU non-performance. The TSO currently receive manual metering data files for DSU IDSs from the DSO and should utilise this information alongside further relevant evidence from a DSU in the event of discrepancy arising in performance monitoring during phase 1.

It is noted in the Consultation Paper that, "There is potentially no penalty for non-performance during phase 1." The TSOs would argue that there is no penalty in place for non-compliance in phase 1 while allowing the DSUs full access to the balancing market.

The TSOs would like to clarify that no confirmation has been provided by the TSOs to signify that dispatch quantities were a suitable proxy for metered quantity as stated in 2.1.2. The TSOs believe that dispatch quantity is not sufficient on its own and this has been communicated to the RAs. The current difficulties SONI are having in performance monitoring DSUs has also been communicated, where metering values do not align with the dispatched quantities in previous assessments.

3.2.4 GENERATOR PERFORMANCE INCENTIVE (GPI)

The responses in this section are relevant to consultation questions 5 and 6.

Following a similar approach to DS3 system services, where DSU operators provide evidence of how they have met their dispatch quantity beyond a calculated SCADA value that comes across to the TSOs, EirGrid and SONI would welcome this approach to enable DSUs to prove their compliance.

The proposal to introduce a mechanism similar to Generator Performance Incentives may be of particular importance during the operation of the phase 1 approach before metered quantities for DSUs can be calculated. Without metered quantities, market settlement will assume any dispatch instruction has been fully met and DSUs will not be exposed any uninstructed imbalance settlement

for non-delivered quantities. It is imperative that some mechanism is considered that addresses non-performance where it occurs.

In principle, the TSOs support the introduction of a GPI for DSUs, as appropriate. However, there may be a timing issue with regard to implementation of such a GPI given that SEMC decisions have been made for 2022/23. DSUs are different to conventional generation, in terms of operation, connection agreements and code obligations. While DSUs have Operational Certificates, they do not have DSU Connection Agreements; rather the Individual Demand Sites (IDSs), which comprise the DSU, have individual connection agreements, typically for connections to the Distribution System thereby obliging them to comply with the Distribution Code. Additional discussions around this topic can be found in Other System Charges Consultation here and recommendation paper here. To fully extend GPIs to DSUs, it is likely to involve further changes to Grid Codes and Distribution Codes.

3.3 PROPOSED PHASE 2 APPROACH

Section 2.1.4 of SEM-22-036 proposes implementing the previously proposed enduring solution in SEM-19-029 with existing operational metering;

In a summary in Section 2.1.4 of the Consultation Paper, phase 2 is described as continuing with most elements of the previously proposed enduring solution (SEM-019-013). These include:

- Associating each IDS with a host Supplier;
- Removing the TSSU for the DSU from the settlement algebra of the TSC;
- Amending the TSC to construct the metered quantity for each DSU from the sum of the metered demand response of each IDS;
- Amending the TSC to adjust metered quantity for each supplier unit by removing any metered demand response from any associated IDS;
- System changes to MDPs, MO and TSOs' systems to support the above changes.

As indicated in the Consultation Paper, proposed phase 2 approach appears to be very similar to the enduring approach proposed previously in SEM-19-013 with the exception that it includes the use of existing operational metering. There is an indication here that data used for performance assessment of DSUs in capacity and in DS3 can potentially be used as market data for the enduring solution; however, it is not clear that this is the case and not all sites which are either current or prospective IDSs for participation as part of a DSU necessarily have adequate metering/comms in place and this would appear to need to be further assessed.

Section 2.1.4 of SEM-22-036 also proposes a number of practical requirements to implement the enduring solution for phase 2.

3.3.1 DETERMINATION OF DELIVERED DEMAND RESPONSE

The responses in this section are relevant to consultation questions 1, 7, 8 and 9.

In this section we discuss what in our view are some key points from our response to SEM-19-013 in relation to the determination of delivered demand response for the enduring/phase 2 approach which we feel are yet to have been fully addressed.

In the context of the enduring approach, the assumption that the DSU delivers the Dispatch Quantity may be no longer appropriate given the scale of DSU penetration in the SEM (which is approaching 1 GW and above). In order to determine how much the DSU generated, i.e. the demand response of the IDS, it is necessary to determine a Metered Quantity reflecting the delivered demand response. This cannot be measured in the same way that other generation is measured. Other generation starts at zero and increases output. By measuring the output and subtracting the start point, we arrive at the amount produced. For the DSU, the start point is the theoretical demand of the IDSs had the reduction not occurred. Unlike other generation where the start point of zero is known, this value is not known and as the IDSs will reduce their output on dispatch of the DSU, their meters represent the second value – their actual consumption after demand response processes have been activated (either via the output of onsite embedded generation which can be metered or the cessation or reduction of electricity consuming processes which cannot).. It is therefore necessary to calculate the first value of what their theoretical demand would have been without the reduction. This could be done either based on a profiling methodology to arrive at a baseline or by reference to the consumption at the time of the instruction to reduce demand or by some combination of the two or some other agreed method. Any method agreed for the SEM will have to comply with EU regulation in this area, noting the ongoing work of ACER on a framework guideline for demand response and any associated network code, and will require a well defined ruleset and appropriate governance.

To measure the demand response, having a meter feed of the actual energy consumed on the IDS is not the main item which requires development, as most IDSs would have appropriate metering at least at the connection level. What would be required is the methodology through which the response is calculated using that metered consumption. There needs to be a focus on the standard of the data used for this process, and the process being sufficiently robust to cater for all types of DSUs. In other markets in Europe, a profiling approach is taken which involves a methodology to determine a baseline level of consumption which would be expected in the absence of responding to an instruction. The actual consumption in the periods following an instruction is compared with this baseline to determine the measured demand response.

EirGrid and SONI believe that the implementation of a demand response determination methodology for IDSs associated with DSUs is required to fully level the playing field for DSUs and other forms of generation. This would enable DSUs to demonstrate their capability to deliver the same or greater levels of reliability than other forms of generation; and where they cannot, to face the same consequences. The demand response determination methodology would need to be suitably robust to be appropriate for current and future developments of DSUs, and to ensure that balance responsibility is implemented, accurately determining the appropriate party to whom energy volumes are relevant. For example, there are different means of demand reduction, such as reducing consumption or increasing on-site generation. There may also be increased utilisation of demand reduction, meaning the methodology would need to ensure that any baseline profile or

alternative approach is reflective of the level the site would have expected to consume even in situations where there is a small sample size of instances where the unit was not dispatched. This would require further development work likely with a substantial impact on resources and systems both for the design and implementation of the desired approach.

The Consultation Paper appears to suggest the Market or System Operators carrying out tasks which could be considered more appropriate for a metered data aggregator. The construction of Metered Quantities for DSUs, and maintaining data (with all of the security requirements they entail) on the relationship between IDSs and Supplier Units, are tasks that would typically fall under the meter aggregator role; however, the proposals in the Consultation Paper suggesting that only changes to the TSC, which currently has no oversight over IDSs, are required. This would suggest that these tasks may fall to the MO. This also has implications for the IDSs requiring some form of registration for individual sites under the TSC which places an additional overhead on these sites to comply with the wholesale market rules if they wish to participate within a DSU. In our view, there is likely to be a large amount of development work needed to implement these approaches and they would be extremely impactful on both operators and market participants.

The current Market Operator and Transmission System Operator Licences do not contain an obligation on the MO or TSOs to act as a meter aggregator. As neither the TSOs nor the MO currently carry out these tasks, should these obligations be placed on the TSOs or the MO then development work would be needed to ensure that they are able to comply with the requirements. This would include carrying out a necessary impact assessment on resources and systems, procurement of new systems to support data management, and the need for new governance associated with any new function(s), potentially extending beyond wholesale arrangements in the TSC. It is our view the TSOs and the MO are unlikely to be the most appropriate entities/operators to carry out the proposed meter aggregation and adjustment activities considered in the phase 2 solution.

Alternatively, the changes required could be incorporated into existing Meter Codes and carried out by the current relevant data aggregators, meter operators and DSOs with the results being sent through the existing data submissions to the MO, with the MO having no active role in further processing included in the TSC that would be implemented through Central Market Systems. Whether it would be necessary and appropriate for IDSs to register under the TSC to enable particular solutions should also be considered in determining the governance of these activities along with the other considerations above.

The TSOs agree the use of operational metering for the enduring solution. However, existing metering is used by SONI in their performance monitoring of DSUs, as discussed previously with the SEMC where issues were highlighted with the existing approach around changes required to TSC, metering code, connection agreements, licenses etc.

3.3.2 SCALE AND PRIORITY OF PROPOSED PHASE 2 APPROACH

The responses in this section are relevant to consultation questions 7, 8 and high-level design request for proposed phase 2.

As we have commented previously, the enduring solution or the phase 2 approach is significantly dependent on data systems and transfers that do not exist within the current wholesale market design and systems, and will involve significant time and investment to deliver if it is decided to implement in this manner. If the decision continues to propose implementation through amendment to the TSC, the scale of the changes to support the enduring solution should not be under-estimated and may result in a multi-year, cross industry implementation project that will fundamentally affect a number of systems, processes and resources. Aside from those mentioned in the Consultation Paper (metering, settlement, legal frameworks) registration of individual IDSs and associated SUs may also affect the registration systems in both the retail and wholesale market, along with changes to retail market aggregation systems and possibly entailing complex data exchanges between the DSOs, TSOs and SEMO.

The phase 2 approach seeks to make changes to the TSC to create mapping links between DSUs and IDSs between MO and TSO systems; however, IDSs are not an entity in the current TSC or SEMO market systems. As such, this is not a simple modification but will entail the creation of a new entity within the Code along with roles and responsibilities that it must accept on registration. IDSs are already registered within the DSO systems and requiring market registration with the wholesale market operator, when the IDS will have no direct activity within the wholesale market arrangements places and additional burden on the IDS. It is also questionable if it is appropriate to introduce an IDS, essentially a retail consumer, into the wholesale market arrangements. The NI Protocol applies to wholesale arrangements only and not to retail arrangements and it must be explored if this proposed expansion of the TSC is proper in the circumstances.

We note also that the consultation suggests that adjustments "be made at the meter level prior to wholesale aggregation in order to adjust the Metered Quantity of each Supplier Unit/remove any metered demand response from IDSs". As this happens prior to wholesale aggregation and, therefore, prior to submission to SEMO, this solution would be employed in the DSOs' meter collection and aggregation systems. This would negate the need for SEMO to procure any new systems for mapping of an IDS and for an IDS to register in the wholesale market as the specifics of the data adjustment are happening elsewhere and SEMO will be in receipt of already adjusted, settlement ready data. Thus, SEMO has no need of access MPRN data from each IDS in a DSU, nor does it need to track the relationship between the IDS and the DSU because for this approach to be applied, this relationship must be tracked in the retail systems.

Generally the Consultation Paper is silent on who it is intended will operate the phase 2 solution once implemented and while the paper does state that "phase 2 requires a delivery plan from EirGrid/ SONI", given the lack of clarity of who will be responsible for the operation of the solution we do not feel it is not appropriate for the TSOs to propose a delivery plan that may significantly involve an implementation by other parties; however, when there is greater clarity on the roles and responsibilities for the affected entities involved in the process, we would be happy to engage in the development of a delivery plan focussed on the roles of the TSOs and SEMO in the implementation.

EirGrid and SONI want to stress that if TSOs and MO are to be responsible for this implementation rather than at the meter level in the retail systems, this involves a significant expansion of the TSOs' and/or SEMO's role and their capabilities. This would not be a change to current systems but a whole new procurement of metering systems capable of interrogating retail MPRNs, and that will be an immense project. EirGrid and SONI strongly suggest that a cost benefit analysis is considered before proposed work on phase 2 begins.

3.3.3 PROPOSED TSC MODIFICATIONS FOR PHASE 2

The responses in this section are relevant to consultation questions 7 and 8.

The Consultation Paper proposes the following modifications to the TSC for phase 2:

- *Removal of the TSSU for the DSU from the settlement algebra of the TSC*

  EirGrid and SONI comment: We are not clear as to whether this means removing the requirement to have a TSSU but still requiring some form of supplier unit to be registered to the Trading Site with the DSU such that that supplier unit would receive settlement via the 'normal' supplier unit settlement logic for the unit type; or, whether this means retaining the existing obligation and configuration but removing the TSSU from the settlement logic directly; or, removing the requirement for a DSU Trading Site to have a supplier unit more generally. Each of these approaches differ in terms of both implementation approach and the resulting settlement outcomes which would occur. We would respectfully suggest that any decision in this area should be informed by robust analysis of the likely outcomes for different trading and price scenarios and would require consideration of a fully detailed design before we can be in a position to provide an informed view on what a set of changes would mean in terms of their effect on wholesale settlement outcomes.

- *Amendment of settlement algebra to construct the Metered Quantity (QM) for each DSU from the sum of the metered demand response of each of the IDSs;*

  EirGrid and SONI comment: Where the DSU response is the result of activation of on-site generation, it is likely that metering exists for this; however, where this is the result of actual demand reduction through process shutdown, there is unlikely to be metering installed to the specification necessary to allow this to be relied upon for commercial settlement, therefore a profiling solution will need to be specified and developed. This means that where demand reduction has been delivered through shutdown or processing, a different solution is required. Also, along with the concerns highlighted elsewhere in this response in relation to the lack of certainty regarding roles and governance associated with this function, we are uncertain as to whether the wholesale market Trading and Settlement Code is the appropriate place for such governance to be implemented and are unclear on what approach to the determination of metered quantity for each DSU is intended as the consultation does not detail this. This is another area where we would suggest that further consideration of the detail of the proposal is needed to arrive at an informed view as the changes required to introduce the determination of QM would appear to require substantially more development and implementation work than an amendment of settlement algebra within the TSC. This work would include substantial data gathering/transfer infrastructure as well as the potential need for new systems or significant system changes.

- *Adjusting the Metered Quantity (QM) for each Supplier unit by removing any metered demand response from any associated IDS;*

EirGrid and SONI comment: Where a profiling solution is required to determine the level of processing shutdown, EirGrid and SONI would question how does this get reflected in the Supplier Unit aggregation if the data is being provided by different entities. It would appear that this is likely to need additional data flows between TSOs, MO and MDPs. Such adjustments, if this approach was decided upon, would be difficult to implement via Trading and Settlement Code changes alone given that IDSs do not currently exist as a concept under the TSC and given that metering and aggregation processes are governed outside of the TSC.

- *Making any necessary adjustments to other aspects of the TSC to account for changes in the treatment of DSUs and Supplier Units*.

EirGrid and SONI comment: This would be a large registration and settlements systems change for MO and would need a full impact assessment to be carried out to understand the system changes required. The above proposal appears to suggest that there may be changes that are not explicitly detailed. More detail on what form such changes would take is needed prior to being in a position to comment on what their implications would be both for the TSOs and MO and for settlement outcomes.

3.3.4 PROPOSED IMPLEMENTATION APPROACH FOR PHASE 2:

The responses in this section are relevant to consultation questions 7 and 8.

For implementation, the Consultation Paper proposes that phase 2 of the solution will practically require:

- *The creation of links in the TSC and the TSOs' and MO systems between DSUs and IDSs to calculate the actual demand response of each DSU to enable assessment of performance*

EirGrid and SONI comment: This is a highly significant change to the TSC and MO systems. Currently, the concept of an IDS does not exist within the TSC or any market systems; therefore, the first change would be to create the IDS entity within the TSC, define its role and responsibilities under the Code including any registration requirements. Registration and data retention systems will need to be procured by the MO to facilitate this new data element and map them back with the DSO and TSO systems as well as with the DSUs also. It should be noted that this places an additional burden on the IDS as they are now subject to rules of the TSC as well as having to register in MO systems along with the DSO systems where they already are registered.

- *[**possibly**] adjustments to be made at the meter level prior to wholesale aggregation in order to adjust the Metered Quantity of each Supplier Unit/ remove any metered demand response from IDSs;*

  EirGrid and SONI comment: This proposal to adjust metering prior to wholesale aggregation would see these changes applied in the DSO systems which currently contain most of the data needed. The TSOs and MO systems do not have this data or capability currently, and a project to create this from scratch will be a highly costly, multi-year project. With this approach of applying the adjustment at meter level, previously suggested changes such as requiring the MO to develop systems to track the links between an IDS and a DSU are not required.

  Changes like this are also outside the current governance of the TSC which does not set rules for the retail metering arrangements.

- *Additional registration data for each IDS, linking it to a Supplier unit;*

  EirGrid and SONI comment: Individual Demand Sites are **not** currently within the governance of the TSC. Placing this into the TSC means that demand sites that make up a DSU will become subject to wholesale market rules. This will require significant change to the TSC to ensure no unplanned implications for retail consumers as a result. Also, this means significant change to the retail and wholesale market systems as the TSOs/MO now need to be included on any COS (Change of supplier) messages in the retail market.

- *Creation of a relationship between the DSU and its component IDSs to ensure that the approach nets the energy paid to DSUs from the energy revenues received by Suppliers in order to avoid double-counting;*

  EirGrid and SONI comment: This will involve mapping the MPRN at an IDS (*a retail market concept*) to a DSU (*a wholesale market concept*) while also keeping record of which retail company the IDS is registered with (*a retail market concept*). Meter capture at IDS is currently done by the relevant meter data provider, in general the retail MDP. This will represent a significant change in processes, systems, etc. for whichever entity is tasked with this role.

- *Changes to data transfers for all IDSs between Meter Data Providers (MDPs), the MO and the TSOs to reflect the changes to the TSC and meter aggregation arrangements.*

  EirGrid and SONI comment: This proposal is yet to be resolved. EirGrid and SONI suggest this could be resolved through one of the following options;

  1. MDP resolves metering issues at source and provides data to MO/TSOs for settlement (minimal interface change);

  2. MDP provides metering feeds to as yet unidentified third party for re-aggregation and submission to the MO/TSO (significant change to MDP interfaces, change of registered MDP in MO results in minimal change to MO);

3. MO/TSO receives MPRN level data to resolve aggregations in market settlement (significant change to interfaces between MDPs and MO/TSOs with significant change to wholesale market systems)

The Consultation Paper also highlights that that significant change from the previously proposed enduring solution is the use of existing operational site metering.

EirGrid and SONI comment: In terms of metering/profiling, where metering currently exists, EirGrid and SONI already consider this to be revenue class and appropriate to use. Concerns previously expressed by the TSOs/SEMO were specifically in relation to sites where no metering currently exists and EirGrid and SONI think these are still valid. Where sites have no current metering in place, there may also be a cost implication to this proposed solution for some DSUs in relation to the installation of settlement quality metering at some IDSs. It is also worth noting that any required Grid Code modifications for the TSOs to accommodate DSUs will have to follow the defined Grid Code changes process.
