



**System Services
Future Arrangements
High Level Design Consultation**

SEM-21-069

A Submission by EirGrid plc. & SONI Ltd.

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Contents

Executive Summary	2
EirGrid Plc and SONI Ltd.....	3
Structure of Our Response	3
Context: The Core Requirements of the SSFA.....	4
Responses to Consultation Questions.....	7
Consultation Questions – Introduction	7
Consultation Questions – Governance Arrangements	7
Consultation Questions – Auction Design	17
Consultation Questions – Market Design	20
APPENDIX.....	31

EXECUTIVE SUMMARY

EirGrid and SONI welcome the opportunity to provide further input to the SEM Committee's System Services Future Arrangements (SSFA) project. The Transmission System Operators (TSOs) responded to the 2020 Scoping Paper and have since engaged with the Regulatory Authorities on a number of the areas being considered; we look forward to continuing this engagement in the coming months and through to the implementation of the new arrangements.

The existing DS3 System Services arrangements have been in place on an interim basis since October 2016 and on a full regulated basis since May 2018. Twelve system services, addressing frequency and voltage needs have been procured to date, facilitating the power systems of Ireland and Northern Ireland to be operated with up to 70% instantaneous non-synchronous renewable energy on the system. An increasing number of the existing services, devised to address the technical scarcities arising from the displacement of synchronous generation, are being contracted from new technologies such as wind, demand side units, batteries and interconnectors. In addition, incentives offered by DS3 System Services, coupled with changes in the capacity market rules, have encouraged conventional units to re-examine their operational modes and to offer enhanced behavioural flexibility, optimising the levels of system services that they can provide. The behavioural changes effected by both conventional and new technologies in response to the current arrangements are exactly what the framework was designed to incentivise. Now, however, the TSOs acknowledge the need for the SEM Committee to focus on the challenges that will be faced in future years. The context of future power system needs, specifically addressing the technical scarcities that will arise in the low carbon electricity system of the future, should be central to the design of the SSFA. Imperative in this is that there is a focus on ensuring that there is a clear signal for investment in system services, so that the required volumes of services to meet future system requirements are made available. In order to do this optimally, there will need to be coherent alignment between all revenue streams (energy, capacity, system services and others such as renewable support schemes), for service providers. The TSOs also note the SEM Committee's emphasis on compliance with the latest EU regulations; in particular, the Clean Energy Package, the Electricity Balancing Guideline and the System Operation Guideline.

Against that backdrop, it is understood that that SEM-21-069 has been presented so as to frame the continuing industry dialogue on SSFA in a manner that is not prejudicial to the final outcome. However, some of the proposed detail will need to be developed in order to effectively explore the options currently being considered by the SEM Committee at this stage. Thus, the TSOs' reflections on the questions concerning auction design and broader procurement design proposals may be refined as the Regulatory Authorities (RAs) progress the design of the accompanying detail on areas such as funding and timescales for delivery.

The TSOs note that the cost recovery mechanism for the changes required to facilitate the SSFA has not been discussed by the Regulatory Authorities. This will need to be clearly and commonly understood between the respective Regulatory Authorities and TSOs before the design of auction and market arrangements can be progressed meaningfully. For the

avoidance of doubt, the question of costs relates not only to the capital expenditure required to deliver changes to systems, processes and contracts, but also the enduring increase in operational costs to deliver the TSOs' revised role in accordance with the SEM Committee's final decision on SSFA.

Furthermore, the TSOs urge the SEM Committee to balance the ambition for the new arrangements with caution concerning the implementation timescales. The changes outlined in the options put forward in SEM-21-069 in some cases go beyond those considered within the I-SEM programme; the detailed design for the I-SEM took over two years to complete with implementation taking a further two years of system build and testing. By way of further illustration, the full development of a new industry code (combined with the associated licence changes, accession and amendment of existing contracts) could not be done between the proposed SEM Committee Final Decision date in early 2023 and the go-live of the new arrangements in May 2024. The TSOs are committed to the timely conclusion of the SSFA project, but would urge caution on how best to balance speed of delivery with ensuring an optimal outcome, given that the discussion of many aspects of the design are still at a high level.

In acknowledgement of the scale and breadth of the challenges associated with developing a new architecture for system services and ensuring that what is implemented is compatible with other significant changes, EirGrid and SONI look forward to continuing to support the Regulatory Authorities as they progress the design of the Future Arrangements. Building on our recent engagement on this topic, the TSOs remain at the disposal of the SEM Committee to discuss the content of this response further, should this be helpful in supporting the decision-making process.

EIRGRID PLC AND SONI LTD

EirGrid plc is the licenced electricity Transmission System Operator (TSO) in Ireland, and SONI Ltd 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.

STRUCTURE OF OUR RESPONSE

In responding to the consultation, EirGrid and SONI have sought to present general observations in response to each of the questions raised. These observations should be considered in conjunction with the regular engagement between the TSOs and Regulatory Authorities in recent months on this multifaceted and complex topic.

EirGrid and SONI welcome the sharing of this response by the SEM Committee and this response is not submitted on a confidential basis. More generally, EirGrid and SONI remain open to further engagement with the Regulatory Authorities on this important issue.

CONTEXT: THE CORE REQUIREMENTS OF THE SSFA

In addition to providing responses to the specific questions raised in the consultation, the TSOs wish to highlight a number of areas which are central to the secure transition of the electricity system to be able to manage with 70% of electricity from renewable sources, underpinned by Future Arrangements, which have yet to be covered in detail in either the previous Scoping Paper consultation or this High-Level Design (HLD) consultation. These matters pertain to ensuring that there is a strong focus on investment in the design of the arrangements to address the technical scarcities that a 70% secure renewable system needs by 2030. Specifically, we believe there needs to be further engagement on the HLD in relation to four specific underpinning areas.

These relate to certainty of process, value of the Future Arrangements, the risk management of oversupply, curtailment and constraint and the management of the transition from the current regulated DS3 System Services to the enduring Future Arrangements. A clear view needs to be established in relation to these four core requirements as part of the HLD design decision. While these topics may require further formal industry consultation, we provide our considered views on them in the subsequent paragraphs.

Certainty of Process

Given the importance of future investment in system services in achieving our 2030 renewables targets, service providers need to have sufficient confidence when investing that the arrangements will have sufficient longevity so as to justify the investment; we refer to this as a *certainty of process*. The SSFA should primarily drive the necessary investment in complimentary technology to manage technical scarcities to facilitate operation of the power system at 95% SNSP by 2030. The TSOs welcome that this is explicitly addressed by the SEM Committee in the consultation; our specific views on the length of the arrangements, and the need for clarity on this matter, is addressed in Question 1.

Value of the Future Arrangements

The important issue of the level of funding for the Future Arrangements has not been addressed in this HLD Consultation Paper. The Regulatory Authorities did indicate, in their first industry workshop as part of this HLD consultation process, a predicted increase in system services costs, identifying it as a key market for the future, against a backdrop of declining energy market revenues as we move towards 2030. The TSOs have provided analysis to the Regulatory Authorities on the value of future system services to consumers and indeed the cost to consumers of under investment in future system services capability. It is an area which we believe should be addressed in the High Level Design.

Oversupply, Curtailment and Constraint Risk Management

Risk allocation is a critical component of any investment decision when it comes to renewables. In this regard, clear principles concerning the allocation of risk can provide a helpful investment signal with respect to both the construction and operational phases of asset development. In developing any principles on risk allocation, consideration should be given to whether the risk is ultimately within a developer's control, whether such a risk can be transferred or assigned (assuming it is economical to do so) and whether the main economic benefit of controlling the risk accrues to the developer. Consideration of these issues should result in a risk allocation or apportionment approach which ensures that the entity best able to manage the risk takes responsibility for its mitigation over time and simultaneously that the benefits of risk mitigation, any upside, should accrue to the entity taking the risk.

In that context, there are three material risks for investors to consider. These are oversupply, constraints and curtailment. When looking at the current arrangements, it could be argued that oversupply is a risk that may be best managed through the support structures put in place by policy makers. Constraints and curtailment are, in the long term, potentially ultimately better-managed by the consumer (via the network operator or system operator as appropriate), in light of how investors might choose to respond to the ownership of this risk.

The Consultation Paper addresses the issue of network constraints, requesting comment on firm versus non-firm access approaches and suggesting that market solutions could be used to handle constraints. However, we would emphasise that the principles of how constraint and curtailment risks will be managed need to be established as part of the HLD decision rather than leaving the question of risk management unanswered until Detailed Design.

Management of the Transition to the Enduring Future Arrangements

The current DS3 System Services arrangements allow investors to make decisions where all services are procured in a single mechanism and service revenues can be considered holistically. In this regard, potential and existing service providers can choose which services they will tender to provide. There is a lack of clarity in the HLD proposals as to when all services will again be in a single mechanism and investors will again be able to make investments with a holistic approach as to for which services they choose to compete. The proposal that there will be a daily auction for some services and a number of fixed term contracts for others removes the holistic investment view for investors. It is also difficult to see how it would work in practice for an extended period of time. We believe that the SEMC should further consult on what is an appropriate transition. Our views on this are given later in this response, but in summary we believe that it should be two-phased. For Phase 1 we propose that the reserve services should be procured via a daily auction and that the other services should continue to be procured via further extended tariff arrangements. In addition, fixed contracts where there is a specific capability need, for example for zero carbon sources of inertia, should be procured in this phase. We propose that Phase 2 (which should be implemented circa 2026) should comprise of an expansion of the auction to

include all system services and to also incorporate long term Contracts for Difference (CfDs) and the use of locational scalars.

The TSOs welcome the opportunity to continue our engagement with the Regulatory Authorities on these four core requirements. These requirements underpin our views on the questions posed in the Consultation Paper and we are committed to supporting the SEM Committee in appropriately applying these requirements to the HLD decision.

RESPONSES TO CONSULTATION QUESTIONS

CONSULTATION QUESTIONS – INTRODUCTION

Consultation 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?*

EirGrid and SONI welcome the SEM Committee’s commitment to putting future arrangements for systems services in place on an enduring basis and its stated recognition that system services will play an increasingly central role in the market. As we move towards 2030, it is imperative that industry players continue to invest in the provision of system services. This includes both existing providers who can further enhance their service provision and new providers from both existing and emerging technology classes. Such investment will only be delivered if service providers are able to clearly forecast their potential returns by means of a transparent set of arrangements that are fully cognisant of, and align with, the energy and capacity markets and other revenue streams (such as renewable supports). From a system operator perspective, the use of system services will, when coupled with changes in operational practice and enhanced control centre tools, be an essential tool to allow us to operate the power system at high levels of SNSP (>75%) for greater periods (>60% of the time). This represents a paradigm, and essential, shift in system operation, to enable the power system to be run in a manner that maximises the real-time use of the island of Ireland’s natural renewable resources. Given the SEM Committee’s commitment to putting arrangements in place on an enduring basis, albeit that those arrangements may evolve with improvements over time, it may be beneficial to prospective investors if there was further clarification on what is meant by the Consultation Paper’s reference to “at least to 2030”. As written, it could be interpreted literally as arrangements that will last for less than six years, given the 1st May 2024 go-live date for SSFA. We suggest that “at least to 2034”, or “for a period of at least ten years” might be a more appropriate timeframe to reference. Clarity on this point will provide increased confidence to potential service providers looking to invest and contribute to the attainment of our 2030 targets.

CONSULTATION QUESTIONS – GOVERNANCE ARRANGEMENTS

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

With regard to the proposals presented in the paper for the future qualification arrangements for service provision, we will comment in the context of the current arrangements, with a focus on the elements of that which can be usefully retained and what might be appropriate for the SSFA (in the specific context of service auctions being introduced), together with a view on the administrative requirements to which the proposals would give rise.

Current Qualification Arrangements

Under the current Regulated Arrangements, potential service providers apply to become members of a Qualification System. A call for new applicants is issued periodically using the Official Journal of the European Union (OJEU) tender process. Applicants must respond to a tender questionnaire for each service for which they are applying and must satisfy technical compliance requirements by means of obtaining an approved test report for each service. Such technical approval may be obtained through physical testing or where appropriate if event data exists. The other aspects of their application (such as financial standing) are handled through the response to the tender questionnaire. Once an applicant has qualified to provide a service, they become a member of the Qualification System and do not have to reapply in subsequent tender calls, unless they want to amend the volume of service for which they qualify to provide. This process means that there is a clear record of each unit's technical capability for service provision. However, it does require significant testing effort which has to be managed in line with some variables which are not controllable, such as low wind when a wind farm is scheduled to be tested. The timelines of the current tender "gates" align both with the OJEU tender process timelines and also with the provision of realistic windows in which to complete testing. The current process is also aligned with Articles 155, 159 and 162 of EU Regulation 2017/1485 relating to the System Operator Guidelines (SOGL) in terms of prequalification process requirements for reserve services. (The SOGL articles stipulate timelines for the prequalification process for FCR, FRR and RR respectively).

In the Consultation Paper, two options are presented for the prequalification/registration process going forward. The first, Option 1 proposes maintaining the current process, but with quarterly gates.

Option 1:

The timelines around the existing process relate to the Qualification System that is in place. There are timelines around both the OJEU process and around testing. The current "gates" are as they are because all providers in a given gate are governed by the same set of rules. Moving to auction-based procurement, there will no longer be a Qualification System. The paper is silent in relation to transitional arrangements, i.e. whether some services will continue to be procured using tariffs. If it is planned to continue to procure some services using tariffs, then holding four gates in a year is unlikely to be possible for reasons of both OJEU timelines and testing requirements as this would require concurrent gates. Such a process presents a high administrative burden for the TSOs with, from the experience of the additional Gate 4B, limited benefit. Also, if it was intended to keep some services as tariff-based, this would require the TSO to operate two legal frameworks in parallel which would pose multiple difficulties.

Option 2:

Where all services move to an auction-based mechanism, the rolling application process (or what may alternatively be termed a time-defined prequalification process) is feasible, provided that it is adequately resourced. Such a process would introduce considerable additional administrative overhead for the TSOs which will need to be adequately resourced.

We note that a timeline of 90 days for the prequalification process is noted in the paper. As noted in our previous response, the prequalification timelines need to be compliant with Articles 155, 159 and 162 of EU Regulation 2017/1485 the System Operator Guidelines (SOGL). We would envisage that many aspects of the current technical qualification process could form part of a new prequalification process. Clearly the other aspects, such as financial standing/health and safety etc. would no longer be handled by an OJEU tender and new processes would need to be put in place to handle them.

An important aspect that is not covered in the paper is the termination of the current arrangements and the go-live of the new arrangements. All service providers will need to be terminated in the Regulated Arrangements and apply/accede to the Future Arrangements; the scale of this exercise is significant and should be considered as part of the SEM Committee's timeline for decisions and subsequent implementation plan.

Consultation Question 3: What are stakeholders views on the proposed formalisation of the QTP?

With regard to the proposals for changes to the Qualification Trial Process (QTP) presented in the paper, the TSOs wish to highlight that a formal procurement process for the QTP already exists. In addition, the TSOs regularly engage bilaterally with industry participants to explore the use of new technologies.

The QTP trials to date have been successful in proving service provision capability from new technologies, as illustrated by the provision of reserve services from wind and DSUs in the first QTP trial. Both technologies now form part of the portfolio of reserve providers.

We are open to improving the QTP process to further break down barriers for new technologies, but would emphasise that the process should retain the flexibility to address system needs and not unduly delay the running of trials. It has been our experience that when general calls are issued to industry that the outcome is not always successful; for the last QTP, a general call was issued and we received no response.

The steps proposed in the paper also add administrative overhead for the TSOs. Additional resourcing would be required to put the additional proposed steps in place. Clarity in relation to the funding mechanism and number of trials which the SEM Committee are willing to approve per QTP cycle would also be welcome.

Overall, it would be good to agree a clear strategic direction on what can be best achieved with future QTP cycles, such as whether future iterations of the QTP should look at emerging technologies such as those with grid forming capability and/or whether the process should extend to trial services (e.g. Blackstart) from new technologies which are not covered under the system service arrangements.

Consultation Question 4: *What are stakeholders views in terms of the introduction of a single System Services Code?*

In principle, and notwithstanding that the detail of such a code would need to be clearly understood, the TSOs do not have an objection to moving the arrangements from the current contract structure to that of a code. However, we would like to highlight the considerable amount of work that establishing such a code will create in terms of ensuring appropriate governance and legal structures. We presume that a framework which providers have to accede to by virtue of a deed is what is proposed; as this will be quite different to the current arrangements, the transition to such a code would need to be carefully planned and managed. Clarity on whether transitional arrangements are proposed (and, if so, what form these might take) is also important.

Furthermore, extensive consideration would need to be given to how such a code would be compatible with existing legal frameworks, licences and other legislative instruments, with jurisdictional specificities needing to be managed accordingly. The TSOs will be happy to work with the RAs to ensure that the new procurement arrangements interact effectively with the current licenses, thus providing a robust and transparent legal framework to underpin the transition to these new procurement arrangements. The processes followed to create the Capacity Market Code, including the steps taken to develop its objectives, roles, governance and allocation of financial risk could potentially be a useful starting point for this exercise.

Also, given the proposals to use fixed contracts for procuring some services, clarity would be welcomed as to whether it is the SEM Committee's intention that all services will be covered by the proposed code; it is unclear, at present, how such a code could encompass this diverse scope and, in particular, if there is a panel-guided modification process, as proposed in the Consultation Paper, how will fixed contracts be handled as part of that structure. The code governance will also need to align with the roles and responsibilities defined in the relevant European regulations.

There are also requirements deriving from European regulations on management of qualification processes, dimensioning, and procurement terms and conditions, specifically:

- Articles 155, 159 and 162 of EU Regulation 2017/1485 of SOGL for prequalification processes for FCR, FRR and RR outline timelines for TSOs to adhere to in the application of prequalification processes
- Dimensioning requirements for FCR, FRR and RR (Articles 153, 157 and 160 of SOGL) which place obligations on the TSOs to dimension the quantities of products required, and are documented in the Synchronous Area Operational Agreement and the Load Frequency Control Block Operational Agreements as approved by CRU and UR
- EBGL Article 18 which outlines a requirement for the TSOs to develop a proposal for terms and conditions for balancing service providers, lists a number of detailed elements which the proposal must (or may) include, and alongside EBGL Articles 4, 5, 6, and 10, outlines a requirement for month long consultation processes for any proposed changes to these terms and conditions.

The TSOs will be happy to work with the RAs to ensure that the eventual governance arrangements achieve compliance with the existing EU technical and procurement requirements outlined in our response to Question 4.

Consultation Question 5: What are stakeholders views on the options in terms of governance of rules changes?

In addressing this question, the TSOs have provided comments to each of the two options presented in the paper.

Option 1

The current qualification system and contracts governance was put in place to allow new entrants to periodically join the arrangements for system services provision. As the SEM Committee is aware, the terms and conditions of the DS3 System Services contracts (with the exception of the Schedule 9 technical parameters) cannot be varied without agreement of both parties and the approval of the relevant Regulatory Authority (Clause 7: Variations of the contract). The exception to this is the DS3 System Services Protocol document which contains the operational and performance monitoring requirements and the temporal scarcity scalar values. These requirements were put into the Protocol as a means of facilitating changes to incorporate improvements in performance monitoring and compliance testing as the arrangements evolved. Changes to the Protocol to date have included suggestions from both the TSOs and industry. The stipulation in the Governance section on not proposing changes to the Protocol more than once every three months serves to give a level of stability and certainty to industry as to the requirements. The Consultation Paper states that *“there remains no formal, routine and transparent approach to consultation”*. The TSOs would like to clarify that there is currently a requirement in the Protocol that any proposed change must be consulted on with industry. Given that the governance of the current terms and conditions was designed to manage a contractual structure, which is quite different to the system services code structure proposed in the paper, if the terms and conditions of the arrangements move to a code structure, then we believe that the governance of that code needs to be different to that of the current arrangements.

Option 2

In principle, we do not have an issue with having a panel as part of the proposed governance, assuming that the legal aspects of moving to a code (noted in our response to Question 4) have been resolved. As discussed in our response to the Scoping Paper in relation to the governance of rules changes, it is imperative that the TSOs remain central to the governance of the arrangements. As TSOs, EirGrid and SONI have a specific responsibility under EU legislation *DIRECTIVE (EU) 2019/944 Article 40 Tasks of Transmission System Operators* for procuring ancillary services to ensure operational security. With that in mind we think that the governance proposed in the paper, whereby the TSOs make recommendations to the SEM Committee, taking industry views into account, is appropriate. Also of note, under the EBGL terms and conditions (Article 18) requirements around public

consultation may need to be considered as part of the process. This may introduce a requirement for an explicit month-long public consultation for each proposed modification.

In addition, consideration will be needed regarding the type of modifications being considered, what the code objectives are and how modifications can be justified to further those objectives, similar to the justification process for modifications to the Balancing Market.

In general, the TSOs wish to emphasise the importance of ensuring that the governance of changes has a sound legal basis in both jurisdictions and are happy to work with the RAs to ensure that is achieved.

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

The TSOs recognise the synergies that could be gained in using the same resources for different panel meetings and in aligning the timing of meetings to gain efficiencies. However, this is different to amalgamating aspects of the governance, as per the proposal detailed in the Consultation Paper. The SSFA will need to maintain their own separately defined governance; a System Services Code, if progressed, would not fit within the governance of either the Trading and Settlement Code or the Grid Codes as the purpose and objectives of those codes are different to that of system services.

- The purpose of the EirGrid Grid Code is outlined in GC 4.1 as being *“to cover all material technical aspects relating to the operation and use of the Transmission System...”*
- The context of the SONI Grid Code is noted in its Introduction as being *“designed to permit the development, maintenance and operation of an efficient, co-ordinated and economical Transmission System...”*.
- The SEM Trading and Settlement Code Introduction sets out its context as *“a code which: sets out the terms of the trading and settlement arrangements for the sale and purchase of wholesale electricity in the Pool;...”*

Similarly the Capacity Market Code has an objective to

- *“facilitate the efficient, economic and coordinated operation, administration and development of the Capacity Market and the provision of adequate future capacity in a financially secure manner;”*

It is clear that the objectives of system services are distinct from these purposes and objectives.

In addition, both the EirGrid¹ and SONI² contracts for the existing arrangements contain a clause (*Definitions and Interpretation clause 1.4*) which states that the provisions of the Grid Code, Distribution Code, Network Codes and Metering Code have precedence over the

¹ https://www.eirgridgroup.com/site-files/library/EirGrid/Ire-DS3-System-Services-Regulated-Arrangements_final.pdf

² https://www.eirgridgroup.com/site-files/library/EirGrid/NI-DS3-System-Services_Regulated-Arrangements_final.pdf

contractual arrangements in the event of a conflict between the two. In some cases this inconsistency is deliberate, as a service provider must be capable of operating in two different modes.

It is difficult to see how the governance of the system services arrangements could be merged with that of the Grid Codes, even if it were a preferable option (and as their purposes are different we do not believe that it would be), given that the Grid Codes have precedence over system services. Also given the differing objectives of the Trading and Settlement Code and Capacity Market Code to that of system services, noted above, it would not seem appropriate to amalgamate system services with either of those panels. However, the TSOs will be happy to work with the Regulatory Authorities to determine what efficiencies could be gained in the organisation of panel meetings.

Consultation Question 7: What are stakeholders views on the funding arrangement proposals?

Regarding future funding of system services, our response to Question 7 focuses on two separate aspects. Firstly, we will present our views in relation to the proposals in the paper. Secondly, we will address the mechanism through which the funds will transition from source to the relevant service providers.

Comment on proposals on funding in paper

Regarding the proposals presented in the paper on how system services should be funded in the future, the TSOs believe that an approach such as that presented in Option 3a (Allocation of costs to grid users causing increased costs) could be the preferred option in the long run as it would more accurately reflect the “causer pays” and “beneficiary pays” principles. The requirement for system services and the volumes of services needed to address technical scarcities are not driven primarily by demand. For example, the need for reserve services is largely driven by the Largest Single Infeed and operational policy. If charges were to be levied on demand only, then there would be no signal to try to reduce the volume of service required as the unit driving it would not be charged. In addition, demand customers are not the only stakeholders who benefit from a power system that is system services sufficient, as those services underpin the ability for energy to be generated and transmitted for other energy and service providers.

If charges were levied only on demand, there is also a concern that this could disproportionately affect certain service providers. For example, if the availability for service provision from demand side participants is linked to consuming energy that would be made available for demand reduction, and this energy is charged system services charges, then this is an additional charge which these service providers would be exposed to which other service providers would not. This would mean that demand side service providers would potentially have a systemic additional cost to incorporate into their auction bids, which could lead demand side participants to be less economic than other service providers in the auctions. So, despite all service providers benefitting from the services, only some service providers would be charged for the benefit and would therefore bear an additional cost which may disproportionately impact how economic their bids are.

If an approach such as that presented in Option 3a were implemented, this would help with both of these issues. However, we can understand why such an approach may not be implemented at the start of the SSFA due its higher level of complexity and for reasons of practicality. Therefore, if taking an approach which levies charges against demand, we ask that the SEM Committee consider the manner in which it is implemented so that it does not disproportionately impact the ability for certain service providers to compete against others for the provision of the services.

We understand how an approach which determines the charge sufficient to cover the costs of services procured through auctions for a relevant settlement cycle could be determined, being under the same governance through the proposed system services code. However, we are less sure about how these charges to recover costs will be applied to other procurement approaches, for example for fixed contracts. Care is needed to consider how the charges to recover the costs of such contractual procurements, which may be governed outside of the system services code, could be calculated and levied and therefore whether other charging approaches such as forecasted tariffs would be required to fund these. For the avoidance of doubt, the TSOs would prefer an approach which would ensure that their risk is managed in the way explained in the next section.

In addition, resettlement payments will continue to be made under the current contracts for 13 months after the new arrangements start, (or longer should the tariff arrangements for any services be extended). Therefore, in addition to the issues set out above, the funding arrangements will also need to reflect the practicalities and complexities of:

- The M+13 resettlement of the current contracts during the 2023/24, and 2024/25 tariff years
- The payment schedules for services that are procured through a contractual route and the treatment of that through the TSO tariffs

These issues will arise each time a service moves from contract arrangements to auctions and will therefore need to be built into the funding processes and annual TSO revenue/tariff setting cycle.

Mechanism for transitioning funds from source to service providers

While the proposals in the Consultation Paper focus on the source of funding, the TSOs wish to highlight the need for further consideration to be given to the mechanism through which the funds will transition from source to the relevant service providers. The SEM Committee alludes to the mechanisms that are currently used in this regard, whereby an annual forecast is submitted as part of EirGrid and SONI's respective tariffing processes, with the TSOs subsequently managing the necessary settlement following the call-off of the services, but the appropriateness of these mechanisms will need to be addressed by the RAs before the auction and market design can progress.

The view of the TSOs is that the principles of such a mechanism must reflect the risk profile associated with the current arrangements for system services funding; specifically, that the TSOs are not exposed to financial risk in the procurement of the services necessary to support the system. In that context, the mechanism will need to account for the possibility

of significant price volatility and the likelihood of unforeseen prices prevailing while the new arrangements become established. Though the TSOs will be able to develop an informed view of service volume requirements, definitively forecasting market behaviour will inevitably be challenging, as inferred by the content of the SEM Committee's consultation material.

In that context, the TSOs request additional bilateral engagement with the Regulatory Authorities so as to ensure that EirGrid and SONI are not exposed to risks relating to *"variances which are not driven by the underlying controllable costs of the TSOs"* and, specifically, that under no scenario would a significant *"(v)ariance in the forecast...be carried by the TSOs"* as a result of the funding mechanisms that are in place. The TSOs are inherently subject to a number of unique risks and hence the proposed arrangements must not increase the likelihood of either, nor both, of financial and reputational damage. If there is a change in the likelihood of any of these risks, the EirGrid and SONI request urgent engagement with the respective RAs so as to address how this aligns with other extant, and prospective, relevant regulatory frameworks.

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

Consultation Question 9: How should the interactions with distribution connected parties be governed?

With so many of the future generators and system service providers expected to be connected to the distribution system, jointly with the DSOs in Ireland and Northern Ireland respectively, we have entered into jurisdictional joint system operator work programmes to ensure that the needs of both distribution and transmission systems, and ultimately the needs of consumers, are met.

In these work programmes, in recognition of the need for co-operation and interaction between system operators, EirGrid with ESB Networks and SONI with NIE Networks have committed to progressing the following:

- Establishing a TSO-DSO operating model, defining the vision, roles and responsibilities, and ways of interaction;
- Developing TSO-DSO interfaces that enable the sharing of data and coordination in decision making; and
- Working together to manage changes on the distribution network and how those changes impact the operation of the transmission network (and vice versa).

The TSOs and DSOs are working together to ensure that, where appropriate, we have complementary work streams and approaches. While there will be separate programmes of work which reflect the differences in the electricity sector arrangements in Ireland and Northern Ireland, we are seeking to ensure alignment in the approaches taken across the two jurisdictions in so far as possible.

Given that an increasing number of system service providers are, and in the future will increasingly be, connected to the distribution network it is very important that the

governance process is such that it facilitates service providers on the distribution system to participate in service provision, allowing the TSOs to procure and use system services to ensure operational security on the transmission system, while ensuring that the DSO and DNO can continue to operate their networks securely.

The Consultation Paper proposes that there will be a consultative panel for system services including industry representation similar to that of the Grid Codes, where industry views can be put forward and included in recommendations made by the TSOs to the Regulatory Authorities. As noted in our response to Question 5, we have no issue with this arrangement, subject to the further details regarding the legal aspects of moving to a panel arrangement.

There is currently a contractual relationship between all service providers and the TSOs for the provision of system services. As the SSFA are proposed to comprise daily auctions and fixed term contracts, this commercial relationship will remain. With that in mind, the prequalification process will continue to be between the TSOs and service providers, with participation of distribution connected units permitted with the consent of the DSO/DNO as applicable.

As services will be required at both transmission and distribution levels to address technical scarcities, the development of mitigation approaches needs to be aligned. The governance also needs to be such that it is consistent with those areas of European legislation previously mentioned in our response to the scoping paper.³ Additional Network Code requirements concerning different aspects of TSO-DSO cooperation also need to be considered⁴.

For the procurement of local distribution services, the DSO and DNO should play a central role in governance. Where a change in the arrangements for system services for the transmission system would affect the provision of local services on the distribution system or vice versa, the change should be discussed and agreed at the panel. The SEM Committee has proposed that there be a single document housing the terms and conditions (contractual rules) of the SSFA. As the use of systems services for the transmission system from distribution connected units may have specific technical impacts on the distribution systems, the TSOs believe that there should be a separate document for processes affecting the DSO/DNO networks which is managed by the DSO/DNO. In addition, there should be an analogous document to cover technical impacts on the transmission system. In summary, we propose that there are three documents:

- (a) Contractual rules for DS3 system services arrangements
- (b) Document for technical processes affecting DSO/DNO networks (managed by DSO/DNO)
- (c) Document for technical processes affecting TSO networks (managed by TSOs)

³Article 15 of EBGL; Article 182 of SOGL; EU 2017/1485; Article 31 of CEP Market Directive 2019/944; Article 40 Directive (EU) 2019/944;

⁴ Article 18(3)(c), Article 18(5)(f), Article 24(4), CEP Regulation (EU) 2019/943 Article 57

Consultation Question 10: *Are there any further considerations for the High Level Design of the Governance Arrangements?*

The TSOs have no additional comments to make by way of response to this question.

CONSULTATION QUESTIONS – AUCTION DESIGN

Consultation Question 11: *What are stakeholders views on the Auction Design options and SEMC Recommendation?*

With regard to the proposals presented in the paper, the TSOs can work to develop any of the three options, notwithstanding external constraints such as funding and vendor availability. Consideration needs to be given, however, to ensuring that the auction solution interacts optimally with other markets. The TSOs have previously provided our opinions on the pros and cons for similar options to those presented in the Consultation Paper in our response to SEM-20-044⁵ (relevant extracts from that response are included as an Appendix to this response for reference). Some of the points made in our previous response, such as the sequential running of auctions, do not appear in the HLD options. We believe that this particular topic (i.e. how to procure multiple services using one process) needs to be considered further, including the options outlined in Appendix 4 of the Consultation Paper.

On this basis, the TSOs do not have a preference for a recommended auction design option at this time, and we believe many of our core views on those options have already been shared. However, there are a number of points raised in the Consultation Paper on which we would like to comment and a number of additional points that we wish to make in relation to implications for different auction design options and their interactions with other market arrangements.

Interaction between System Services and the Energy Market Schedule:

We have a particular concern around the interaction between the system services auction schedule and the energy market schedule. At the moment, since the ex-ante energy markets are not subject to any consideration of real-time operational limits such as the System Non-Synchronous Penetration (SNSP) limit, it is possible for the day-ahead and intraday markets to clear a result which is not physically feasible to operate, for example where all of the cleared buy orders are met by cleared sales orders from non-synchronous renewable generators. Normally this results in curtailment and redispatch to ensure the real-time schedule is system secure, but with an auction for system services new issues would arise when the energy schedule is not system services sufficient.

For the ex-ante service auction options, and in particular HLD Option 1, there is a very real risk that for different services at different times their daily auction outcome would not deliver a sufficient volume of services to meet the minimum required volumes. If there are insufficient levels of units which can provide the relevant service clearing to a position in the energy market (in particular clearing to be able to synchronise, for a conventional

⁵ [SEM-20-074a - EirGrid and SONI Response to SEM-20-044.pdf \(semcommittee.com\)](#)

generator), then there would be far less offers in the auction for providing the service. This could create a situation where there are insufficient volumes of offers to meet the minimum non-price-elastic required volume for the service from the TSOs, and so the auction would fail.

We believe that this needs careful consideration at this High Level Design stage. For example, if it were decided that a system services sufficient energy market schedule should be ensured or is very desirable, an option such as HLD Option 3, which by design is guaranteed to have system services sufficient schedules being reflected in the auction bids, may appear more attractive than HLD Options 1 and 2 in this regard. If some reflection of high level operational limits were to be included in setting the ex-ante energy market schedule, such as the SNSP limit, then the likelihood of a system services sufficient schedule from the ex-ante energy markets, and therefore a successful service procurement through the auctions, would be greatly increased. We look forward to engaging further with the Regulatory Authorities on exploring this challenge and its potential solutions.

The design of the auction timings (relative to real-time) will be very important, as there needs to be a balance so that the auction is late enough to give access to units with forecasting requirements while being early enough to give units an opportunity to trade to their obligated level reflecting their Physical Notification(PN) for scheduling. We believe that options which try to find this balance and which consider other practical operational requirements can be discussed in the Detailed Design stage.

Regarding the obligations on units registered in the balancing market, we agree with the need to reflect their service provision through the PN (and therefore the need for it to be reflected in service providers' energy market trading). There may need to be further consideration given what this could mean for service providers who wish to participate in the services auction but are not registered in the balancing market.

"Price auctions" prior to the DAM opening are mentioned as an option for a potential "mitigant" against market power issues of having sight of DAM results prior to system services bid gate closure time. Our interpretation of this is that this is not intended to be a separate run of an auction solution before DAM opening, but rather meant as having a gate closure time for prices prior to DAM opening, with service providers being able to submit bid volumes after the DAM results are known for the auction run. This should be clarified in the HLD decision to guide the Detailed Design.

There is mention of Option 3 being less closely aligned with Europe, and that this causes a risk of a need to change the approach in the future. However, in our view all of the options are compliant with European legislation and there is no obvious reason why it would need to change to match the European approach. Most requirements in the EBGL which are focused on day-ahead procurement processes relate to how to efficiently share and exchange balancing capacity across bidding zones and the impact it has on energy markets, rather than how to ensure adequate levels of services in real-time for system security purposes. There can be multiple approaches to procurement to ensure adequate levels of services which do not interact with the EBGL considerations on sharing/exchanging or impact on energy markets, and therefore do not require such day-ahead processes.

In particular, the European requirements for procuring Balancing Capacity are restricted to Frequency Restoration Reserve and Replacement Reserve (so may consider our TOR2 and Replacement Reserve services). There are currently no detailed requirements for other reserve-type services, or for non-frequency services (other than the need to focus on higher level requirements like economic efficiency, transparency, non-discrimination, market-based procurement (Directive EU 2019/944)).

Balancing capacity is also not the same as reserves, as it depends on the design of the service being procured. The TSOs have outlined this in more detail in a separate EBGL-compliance related analysis paper, linked [here](#) (section 1.3), but in short, balancing capacity reflects when the procurement of that reserve has an obligation to “agree to hold” the reserve, not making it available in the ex-ante energy markets and only making it available in bids to the balancing market. There are also requirements in the EBGL around how to share or exchange reserves between bidding zones, but these are also based on the idea of “withholding” capacity on an interconnector from the energy markets in order to count it as reserve in either or both jurisdictions.

Therefore, so long as a reserve services’ design does not have an obligation to “hold” that capacity out from the energy market, and does not require withholding capacity on an interconnector from the energy market in order to exchange or share that reserve, it is possible to have a reserve procurement approach which does not need to meet balancing capacity requirements. As explained in the previously linked EBGL-compliance analysis paper, the current DS3 System Services approach is an example of an approach for procuring reserves which is currently complying with the EBGL obligations, and HLD Option 3 continues the approach of not requiring units to “hold” the capacity outside of the energy markets and therefore is compliant.

While benefits of Options 1 and 2 are outlined in the paper, benefits of Options 3 that are not mentioned include:

- Resolution of issues around the efficiency of volume procurement through co-optimisation in the balancing market schedule;
- Reduction of the risk of over-procurement of services and the impact this has on energy market trading; and
- The lack of a commitment obligation and closer alignment to real-time availability giving more opportunities to variable participants which are subject to larger day-ahead forecast errors.

For the avoidance of doubt, we do not intend the comments above to give an impression of an implicit preference for HLD Option 3. We see the potential benefits and disbenefits of each option, and therefore we have intended to ensure that what we see as an accurate record of these benefits and disbenefits is available to best consider the different options in coming to a decision.

Consultation Question 12: *Are there any further considerations in terms of the Auction Design options?*

In addition to those points raised in Appendix 4 of the Consultation Paper, where the format of the auction is considered, a further aspect to address is the extent to which these auctions should be unconstrained, or if some form of constraints should be incorporated. For instance, it may be desired to ensure that minimum locational requirements for service volumes are met by having constraints reflecting these minimum requirements formulated in the auction. There may be other constraints required to align either with operational policies, where appropriate, or to align with more broad policies, such as those concerning the maximisation of energy provision from non-synchronous renewables or limiting emissions.

While the details and appropriate application of such constraints can be developed in the Detailed Design, the TSOs believe that the fundamental question of potentially using constrained or unconstrained auctions is important to consider at this High Level Design stage. One specific concern is that the initialisation of the auction from the ex-ante schedule may well be at high SNSP system services deficient and as such intractable. How these situations are managed will be a critical success factor of the Detailed Design.

CONSULTATION QUESTIONS – MARKET DESIGN

Consultation Question 13: *What information is required to get a full view of the volumes requirements for System Services?*

EirGrid and SONI wish to clarify the assertion that *“the TSOs do not actively analyse and consider available volumes or volume requirements in the context of system services”*. EirGrid and SONI have previously explained to the Regulatory Authorities the context of volumes in the current arrangements, which are paid based on availability and therefore are not applicable in the same way that they will be in the future volume-based procurement.

In addition, we have explained the considerable challenges in forecasting accurate volumes ten years out when the future portfolio, and the underpinning market architecture, is currently unknown. However, we are continuing to work with the RAs on estimating volumes as part of a 2030 Volumes exercise, the scope of which was agreed before the publication of this Consultation Paper.

As already stated in our previous response to the Scoping Paper⁶, factors that affect the volume requirements for system services include: the Largest System Infeed (LSI), Variable Renewable Energy Sources (VRES) forecasts and uncertainty, interconnector schedules and ramp rates, and demand profiles.

To define the short term volume requirements, we need to know the system conditions and expected dispatch. For example, reserve sizing is a function of the LSI and ramping requirements will be a function of the amount of VRES dispatched.

⁶ [EirGrid and SONI response to the Scoping Paper on the System Services Future Arrangements, 2 October 2020](#)

Thus, for the short term (e.g. day-ahead auction), day-ahead schedules would provide an indication of the LSI and the expected VRES share which would inform requirements in terms of reserves and ramping. However, post day-ahead updates to interconnector schedules and changes to forecast VRES could potentially change both LSI and ramping requirements closer to real-time. Regarding inertia, EirGrid and SONI are currently operating with an inertia floor of 23,000 MWs for the all-island system in order to maintain system security.

In the medium to long term, EirGrid and SONI need to take into account future developments which will involve an increase in LSI and in the share of VRES, and therefore the volumes required in terms of reserve and ramping requirements. However, these evolutions will be strongly linked to the developments of operational policy where we will aim to gradually reduce the inertia floor and the minimum number of synchronous units and at the same time progressively increase the level of SNSP in order to reach our 2030 renewable integration objectives. Based on forecasted portfolios and our operational roadmap we can estimate how the required volumes might evolve.

Ramping requirements will increase in the longer term as the level of VRES increases (from 5 GW installed today to +10 GW by 2030) and may also be affected by increasing interconnection (the +/-500 MW Greenlink and +/-700 MW Celtic interconnectors) and the relationship between changes to interconnector schedules to different markets.

Reserve requirements will also increase in the longer term as the size of the LSI increases (from 500 MW today to 700 MW at go-live of the Celtic interconnector). The type of technology that will provide these volumes will also need to change. For example, if we are operating with an inertia floor of 17,500 MWs in 2030, the volume requirements will be lower than today. However, for certain system conditions (high wind), these volumes will need to be provided mainly by low carbon sources of inertia.

As already noted, we are continuing to work with the RAs on estimating volume requirements for system services as part of a 2030 Volumes exercise.

Consultation Question 14: *What are stakeholders views on the development of Secondary Trading of System Services?*

Within the Consultation Paper, views are invited on the merits of Secondary Trading held after the first auction and before gate closure of the Balancing Market in each relevant trading period with the stated aim of allowing providers an opportunity to adjust their positions in the energy and system services markets (Page 27).

The first point that we would like to make in relation to this proposal is to clarify that while the TSOs will always endeavour to procure system services from the most economical sources available, the actual dispatch of system services will not be based on this procurement, and therefore will not align with the systems service auction outcome. There is no perfect transmission network model with perfect modelling of constraints. The system operators will continue to dispatch according to operational policy to maintain system security, while using system services to facilitate high amounts of instantaneous renewable energy on the power system. This is done through continuing to operate the central dispatch

integrated scheduling process to co-optimize physical service provision, non-energy and network constraints, other security impacts, priority dispatch, and energy imbalances. This negates the need for multiple intraday service auctions from a service-adequacy point of view – the central dispatch approach integrated scheduling process will maintain minimum secure service margins.

Therefore, Secondary Trading would not be needed from a system security perspective; on the contrary, it could end up causing issues for system security. By way of illustration, if the units providing certain services change in between scheduling runs which determine commitment actions and planning around network congestion from the TSOs, this would mean that the FPN start point for the schedules and the fundamental basis for the network flows and decisions taken would have changed, which could change the overall scheduling outcome to a less secure one. While this has the potential to happen for intraday energy trading, this would increase with Secondary Trading of system services.

Secondary Trading is also not strictly required from a European legislation perspective. In the EBGL, Article 34 outlines requirements for transfer of balancing capacity, which does not apply to any other product type other than those which can be mapped to the TOR and RR products in Ireland and Northern Ireland. Article 34(1) also outlines that an exemption to allowing the transfer of balancing capacity may be requested when contracting periods are less than one week, showing that the primary focus is to enable participants who have been procured to provide a service over a week in advance to have an opportunity to transfer their obligation when information changes in the meantime. Having day-ahead auctions should remove much of the need that was the focus of these provisions of allowing transfer of balancing capacity.

Based on this, and the significant additional level of complexity that Secondary Trading would introduce, we believe that an alternative should be considered. One alternative, which the TSOs regard as the preferred option, is to ensure that auction losers that are dispatched to provide required volumes of services are paid and indeed that all service providers that are dispatched for system services are remunerated fairly. For those services which are in the Grid Code, service providers have obligations to declare their true availability and to provide those services even if they are not successful in the auction/procurement. It is arguable that there should be a benefit to winning in the auction, but that auction losers which are subsequently called upon in real time to provide services to meet system requirements should also be paid. Rules around this payment would need to be established.

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

Product Scalars

With regard to the proposals in the paper for the majority of existing scalars to be retained with the exception of the temporal scarcity scalar, the paper proposes that *“the product scalar can continue to work in an auction framework”*. While the enhanced responses, such as faster response or a dynamic trigger response, that are incentivised in the current arrangements will still be valuable and needed, the current scalar framework was designed for tariff arrangements, where every unit that is technically capable of providing a service is paid for the volume of service that it can provide in a given Trading Period. Some of these units will deliver an enhanced response, consistent with the parameters of the scalars, and their payments will be increased accordingly. While enhanced responses are still needed, the current scalars do not translate directly to an auction mechanism. Careful consideration needs to be given to how the existing scalars are translated from the tariff arrangements to an auction arrangements to maintain targeted incentives and to ensure that the TSOs have access to the types of response that they need in real time to maintain security of supply.

In the current arrangements there several different product scalars specific to individual services. For example, for POR, SOR and TOR1, the product scalar is composed of two parts – a Reserve Type Scalar (designed to incentivise dynamic response) and a Reserve Trigger Scalar (to reward reserve trigger capability). The product scalar for FFR has a number of sub-elements, including reward for continuous response and faster response. For SSRP, the product scalar rewards units that can provide automatic voltage regulation and also those that can provide reactive power control at a zero MW output level.

In the context of future arrangements, if, for example, FFR is being auctioned, there will be some providers that satisfy the basic requirements of service provision and some that offer enhanced provision. If we were to set a requirement for a certain volume of FFR for a given Trading Period, for example 300MW, and do not otherwise differentiate the service that we want, we could get 250MW of standard FFR and 50MW of enhanced FFR from the auction, depending on who wins. Using the current scalar framework, the 50MW of enhanced providers would then have their payments scaled.

However, we will likely need to set different volume requirements and/or require different levels of enhanced versus standard service provision for different system conditions / scenarios. For example, in a high wind situation, we may decide that we need more FFR provided by units at a high reserve trigger frequency and/or with an enhanced response speed. As there will be a smaller pool of providers with these capabilities, the auction may result in a higher price for this enhanced provision. Additionally, it will provide a continued incentive to future service providers to provide enhanced capability, as they will be able to bid for both standard and enhanced service volumes.

Performance Scalar:

Reliable service delivery has been at the heart of the system services arrangements since their inception. There needs to be a strong incentive for providers to provide and to

maintain the capability to provide, the services for which they have qualified, have cleared for in auction and/or have made themselves available in real-time to provide. Robust performance monitoring needs to be coupled with this to maintain performance incentives.

The existing performance scalar mechanism was designed for the tariff arrangements. Like the product scalars, the performance scalar mechanism needs to be reviewed in the context of auctions to ensure that the correct incentives are maintained. However, it is more easily translated to the auction context. As in the current tariff arrangements, decreasing performance scalars should apply where a unit was successful in the auction but failed to provide the service in real time when called upon to do so (i.e. it should apply to the auction clearing price or settlement price from real-time service provision). The current mechanism whereby if a unit has not been called upon to provide a service for an extended period then it needs to undergo a performance test to retain its scalar of 1 should also continue.

There are additional considerations for applying a performance scalar in an auction context to those of the performance scalar's application in the current tariff arrangements. In an auction context, there will be two scenarios (a) where a unit has cleared to provide the service but fails to do so and (b) where a unit was not successful in the auction but is called upon by the TSO to provide the services in line with its Grid Code requirements and fails to do so. A decision needs to be made as to how to apply the performance scalar in both scenarios, and whether both scenarios are treated with equal severity.

Also, in the context of an auction, a performance scalar which reduces a service provider's payment may result in a subsequent inflated bid price for that unit to enable it to maintain its revenues. On one hand, this acts as an incentive to maintain performance and so remain competitive to clear for the service in the auction. However, care should also be taken not to drive unintentional large impacts on overall bidding and whether the performance scalar should be bounded in this regard.

With regard to the Reliability Scalar concept proposed in the Consultation Paper, our view is that all instances of non-performance could be accounted for using a single Performance scalar. However, what we view as most important is that all scenarios of non-performance are accounted for and appropriately addressed and the rules for such are developed during the Detailed Design phase.

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

The concept of "usability" will be increasingly important in the context of future system services. "Usability" is broader than firm network access and relates to whether the volumes of services which service providers make available in real time can be used by the system operators. One reason why they may not be able to be used is network congestion. However, it may also be the case that the operational policy of the system operators is such that not all volumes of services from a subset of service providers can be used in real-time. For example, if the maximum SNSP limit in our operational policy is below a certain level, then not all service volumes from wind units may be capable of being used, even if they are

successful in the auctions for reserves. It is an important concept on which to establish a principle in the High Level Design.

Service providers who invest to provide system services will incur a level of risk. One aspect of this risk is whether their service volumes will be “usable” and if not usable, be it due to planned network infrastructure not being built on time or of planned operational levels of SNSP not being reached. So, the risk relates not just to network congestion and the concept of firm access, but also to potential curtailment based on operational policy. In this regard a firm access-like approach needs to account for both congestion and curtailment.

This interacts with the points discussed in our answer to Question 11, concerning the interaction with the energy markets and the potential of not having system services sufficient schedules from the ex-ante energy markets. If aspects such as the SNSP limit are not considered in ex-ante energy market schedules, then this increases the risk that unusable services will clear, whereas if such limits are reflected in ex-ante energy market schedules, the likelihood of scheduling usable services is greatly increased.

It would then be possible to determine what level of risk different parties should take around curtailment based on the level of the SNSP limit considered in ex-ante energy market trading, where a limit higher than actual operational limits could be used in this trading if intending to move the risk away from the service providers.

A decision needs to be made as to who should bear this aspect of usability risk (specifically, whether this is the developer or the consumer) plus whether such units should be allowed to participate in the auction if there is an awareness that they cannot deliver services (due to congestion or curtailment). Any such decision would need to account for the incumbent regulatory frameworks and principles in the SEM; careful planning and regulatory endorsement, including full regulatory cost recovery for any changes to system operator behaviour, will be required so as to drive the right market behaviours required in the SEM-specific context. Furthermore, any jurisdictional differences in relation to firm network access also need to be considered, as policies on both networks would need to be consistent. There also needs to be a clear delineation of “non-usability” reasons which lie outside of congestion and curtailment, for example distribution system security where it is relevant.

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

The paper is silent in relation to the transition from the current Regulated Arrangements to the SSFA. Ultimately we want to develop a comprehensive and enduring set of arrangements, appropriately consulted on with industry, which meet all of the objectives set out by the SEM Committee and, most importantly from a TSO perspective, deliver the investment in system services which is needed to allow us to operate with a high penetration of renewables and to facilitate us reaching our 2030 renewable targets. Given that the current regulated arrangements are due to continue until 30 April 2024, and when considering previous experience of the implementation of the current arrangements and other markets, the next steps that need to be taken to translate the HLD Decision, when it is

issued at the end of this year, need sufficient time to ensure a robust solution. These include detailed design, tendering and implementation of an auction platform, design and implementation of separate fixed tenders and governance around all arrangements. Significant in this is the level of industry consultation required in relation to developing the detailed design. The HLD decision needs to provide a clear and realistic view of what should be in place by 1 May 2024 and what is planned thereafter. With this in mind, we propose that the transition to the Future Arrangements be transacted in two phases.

Phase 1: For Phase 1 we propose that the reserve services should be procured via a daily auction and that the other services should continue to be procured via further extended tariff arrangements. In addition, fixed contracts where there is a specific capability need, for example for zero carbon sources of inertia, should be procured in this phase. There are implications for proposed changes around governance and funding by virtue of further extending the tariff arrangements.

Phase 2: We propose that Phase 2 (which should be implemented circa 2026) should comprise of an expansion of the auction to include all system services and to also incorporate long term contracts for difference (CfDs) and the use of locational scalars.

Such auctions would need a stable and predictable daily auction algorithm to give clear signals to investors. Around this stable auction price and volume, we would propose to use “layered risk management” to procure long term investment using financial commitments - by guaranteeing the volumes at which certain services will be required X years in advance. In addition, financial instruments such as contracts for difference (CfDs) with payments linked to clearing volumes in the auctions and the strike prices referencing the fundamental auction prices, could be used to further provide price certainty. These approaches would have the overall aim that stable prices and volumes provide long-term certainty which should encourage investment.

Carrying out this longer term contracting through CfDs rather than fixed contracts has many benefits. All service providers would still need to compete through the daily auctions, which would give them an ability to make choices regarding which services they wish to compete for and how they wish to make revenue across those services. It also means not locking-out providers who did not gain a longer term contract from being able to provide and be remunerated for a service, since they will still have an opportunity to do so through the auctions. By having a contract focused on a fixed price rather than a volume, this would also be a more efficient approach to procuring the required volumes of services, since the physical volume would be procured based on the daily auction calculations closer to delivery time which would be a much more accurate reflection of the actual real-time requirements than would be possible in the timeframes of long term fixed contracts.

We believe that the proposal would be more efficient overall than an approach where fixed contracts, which have no link to the auctions, are used in layered procurement. We believe that such a fixed contract approach would segment the market, procuring different services at different times and would lock out the ability to provide a service if a potential service provider fails to get such a contract. All of this would increase uncertainty and risk for a potential service provider assessing their forecast revenue, which would undermine investment.

Having periodic procurement of services through longer term CfD contracts would help provide certainty from the TSOs' perspective, i.e. there is increased certainty in units turning up in future years to provide the capability required than if relying solely on a day-ahead procurement approach. It would also provide increased certainty from an investor's point of view, i.e. there is increased certainty for the units in question about the price they would receive when they compete to provide the volume of services through the daily auctions, which removes the element of price volatility and uncertainty from the risks to their investment. This certainty would also help to bring new investment into the competitive market which would provide the capability to enable an increase in SNSP limits, while also incentivising the TSOs to increase the SNSP limits to align operational practice with capability.

Comment on proposals for layered procurement:

The alternative proposals in the paper for a layered procurement of System Services propose offering service specific long-term fixed contracts. Careful consideration must be given to the potential constraints this approach places on investment. Individual service procurement of this nature, while offering long-term certainty to some service providers, by locking volumes into long term contracts, can conversely lock out procurement of other providers closer to delivery time. If sources offering numerous services are excluded from participating fully in all markets then competition is restricted.

The TSOs would also highlight the potential resources required to implement multiple fixed tenders of this kind across separate services. For instance, the TSOs would be obliged to carry out numerous cost benefit analyses to justify each tender. Such a separated approach to analysing costs and benefits of procurement of services through longer term fixed contracts could also be a potential false economy in efficiency of procurement of services. While the individual procurement may be carried out in the most efficient way possible, it would most likely fail to be able to take into account the efficiencies and complex interactions of units being able to provide multiple combinations of different services. An approach which enables the consideration of the efficiency of costs across all services at the same time would allow for this dynamic and would likely lead to an overall more efficient outcome. Such an outcome is more likely in an approach such as all services being procured in daily auctions, which is ultimately our recommended approach, as per the two-phased approach noted above. Therefore caution is needed if a decision is made to move towards longer term fixed contracts instead of close to real time auctions.

We believe that there is a suitable enduring approach on the basis of daily auctions with longer term volume certainty through TSO forecasting, and longer term price certainty through CfD contracts in the proposed "layered risk management" approach outlined previously. While we have proposed that the transitional approach in Phase 1 should be based on continuing the tariff arrangements for the services required, we would have concerns about the implications this would have in continuing the current arrangements in parallel with the future arrangements, and that care is needed in developing how the current arrangements can continue.

For example, from an economic efficiency point of view this would segment the system services procurement into two approaches for different services, albeit in a less concerning way than would be the case with fixed contracts given that they are both approaches based on the providers having choice in the services it provides closer to real-time and which do not lock units out if they do not gain a position in a contract.

In addition to contract-based approaches applying to instances of securing further confidence for investment, and for managing potential market power, there may need to be flexibility to include such approaches as alternative options even for those services that do not have those needs and have well established procurement under the intended auction approach, if certain issues and scenarios were to arise. For example, it may be assessed that for a particular service it is suitable to transition it to an enduring auction procurement approach at a certain point in time, but then at some point in the future after this the situation may change due to unit or transmission line outages causing a locational requirement to arise, or where in certain periods the auction has failed or has an invalid result. In these instances, the auction procurement approach may no longer be appropriate, or sufficient on its own, and contract-based approaches may be required.

The design of such contracts may need to be flexible and differ from the proposed enduring CfD design. For example, options could be considered such as:

- Continuing to run the auctions, but with layered contracts which apply the proposed enduring CfD approach when the auction result is valid, and which apply a different settlement approach based on payment against another metric, such as availability, when the auction has failed or has an invalid result to ensure that those which did provide the services up to the levels required are still paid; or
- No longer run the auction for the service if deemed unsuitable, then having a fixed contract procuring sufficient volumes of capability of services to cover various real-time requirements, with a settlement approach designed to apply against different metrics to those auction volumes proposed in the enduring approach, such as against availability volumes.

In general, and in both the enduring and transitional timeframes for services, there are multiple potential means through which location-specific procurement or potential exercise of locational market power can be managed. Some of this could come through considering locational constraints in the auction algorithm as explained earlier, or by having separate auctions to procure locational requirements, while other aspects of this could come through using the layered procurement approach proposed here. For example, in addition to a fixed CfD price for price certainty, such contracts could also include locational scalars which would work to incentivise the development of services in particular areas where they are most needed, or where there is insufficient competition and where further investment needs to be encouraged.

The combination of encouraging new investment in a location with insufficient competition, and on agreeing longer term fixed CfD prices for existing units in those locations, would have the intended effect of managing market power. It would do this by both creating downward pressure on prices which otherwise could be expected to be consistently at price cap levels in an auction-only approach due to lack of competition, and to increase competition for the

provision of those service requirements through new entrants. The intent would be that eventually over time such fixed contracts may not be needed, and a competitive auction-based approach could continue.

Consultation Question 18: Are there any further considerations in terms of Market Design?

We believe that there are significant risks related to market power mitigation strategies which could undermine the confidence in investment unless carefully considered, and therefore ask that they are considered at this High Level Design stage. Some measures we believe may be suitable have already been discussed, including potential gate closure times for prices prior to volume gate closure times in the auction design to prevent exercise of market power for those units which know they are likely to be constrained in system operations to provide the service. We have also discussed the use of longer-term contracts to both manage prices and to encourage more competition, especially where provision of services in certain locations is limited and therefore likely to be uncompetitive. However, we believe that it is important to establish a number of principles around other potential elements and tools of market power mitigation.

In general, we believe that mitigation strategies based on “output regulation”, rather than “input regulation”, would be preferable for the procurement of system services. We understand the rationale for applying “input regulation” approaches for non-energy actions in the balancing market, such as the application of the Bidding Code of Practice / Balancing Market Principles Code of Practice (BCOP/BMPCOP) to ensure cost-based settlement for those actions given the assessed levels of market power present. For system services, there is much more of a requirement to encourage investment in the provision of these services, and normally the bidding for these services would not be so closely aligned to a short run marginal cost of this provision (as the case could be made for energy), but rather to the value of the provision of this service. Given such focus on value-based bidding and encouragement of investment, we believe that cost-based bidding approaches such as a BCOP/BMPCOP would not be suitable for system services, even if similar levels of market power are found in the procurement of these services. We believe that the mitigation measures already discussed, and more focus on an “output regulation” approach which manages instances of the exercise of market power rather than preventative management, would be more suitable.

In addition to this, we understand that auction price caps, and controls on overall expenditure for services, will be an important element of consideration for the RAs. While the details of these can be developed further in the Detailed Design, we believe it is very important to provide appropriate levels of certainty to encourage investment that a number of principles around these are established at this High Level Design stage. We believe that it is important that principles and policies around the instances in which price caps would be changed/lowered would be important to establish at this stage, to avoid an unknown risk of when changes could be made to the caps from reducing certainty and discouraging investment.

We believe that an approach which considers the cost of all system services and all procurement stages together, rather than considering the costs of each service and procurement separately, would be important. For instance, even if the price for a particular service is consistently very high and frequently at price cap levels, so long as the overall costs across all services are within the bounds of what is considered suitable then there should be a general policy of not changing price caps in these instances. This would provide an important element of certainty which should encourage investment.

The overall costs considered for the application of these changes in price caps we believe need to be considered sufficiently high that they reflect the value of these services to the electricity system, and potentially to wider society. We believe that value-based bidding in a way that encourages increased investment in the services required will be an important signal to maintain, and therefore any cost bounds placed on the procurement of services should generally allow for efficient market-based outcomes to continue without regulatory intervention. Of course, when it is assessed that the costs being incurred are being driven by inefficient outcomes in excess of what is deemed a suitable level of value to drive the required investment and quality of service provision, especially in considering the cost across the entire system services procurement, then the use of price caps as a lever to manage the costs to the end consumer would be entirely appropriate and necessary.

Finally, in relation to additional considerations, as previously mentioned at the outset of this response, as the design is developed, it is important to maintain an awareness and an alignment between all revenue streams (energy, capacity, system services and renewable supports). While not explored in this response, an important aspect of this will be the interaction of system services with any future capacity mechanisms, given the Clean Energy Package provisions on the future of capacity mechanisms.

Question 6 Supplementary Information:EirGrid Grid Code Purpose Statement*GC.4 PURPOSE*

GC.4.1 This Grid Code is designed to cover all material technical aspects relating to the operation and use of the Transmission System, and (insofar as relevant to the operation and use of the Transmission System) all material technical aspects relating to the use of Plant and or Apparatus connected to the Transmission System or to the Distribution System.

SONI Grid Code Context

The context of the SONI Grid Code is noted in its Introduction:

INTRODUCTION

1. The Grid Code is designed to permit the development, maintenance and operation of an efficient, co-ordinated and economical Transmission System, to facilitate the Transmission System being made available to persons authorised to supply or generate electricity and in conjunction with the arrangements in place in the Republic of Ireland generally to facilitate competition in the generation and supply of electricity on the Island of Ireland and is conceived as a statement of what is optimal (particularly from a technical point of view) for all Users and the Transmission System Operator (TSO) itself in relation to the planning, operation and use of the Transmission System. It seeks to avoid any undue discrimination between Users and categories of Users.

SEM Trading and Settlement Code Context

The SEM Trading and Settlement Code Introduction sets out its context:

It is a condition of the Market Operator Licences that the Market Operator shall enter into and at all times administer and maintain in force a code which:

1.sets out the terms of the trading and settlement arrangements for the sale and purchase of wholesale electricity in the Pool;

*2.is designed to facilitate the achievement of the objectives set out in paragraph 1.3 below;
and*

3.contains modification procedures which provide that any modifications to the Code (but not necessarily, to the Agreed Procedures) must be subject to the prior approval of the Regulatory Authorities and which enable the Regulatory Authorities to propose modifications to the Code.

Capacity Market Code Objectives

A.1.1.1 Capacity Market Code Objectives

A.1.1.2 This Code is designed to facilitate achievement of the following objectives (the “**Capacity Market Code Objectives**”):

- (a) to facilitate the efficient discharge by EirGrid and SONI of the obligations imposed by their respective Transmission System Operator Licences in relation to the Capacity Market;
- (b) to facilitate the efficient, economic and coordinated operation, administration and development of the Capacity Market and the provision of adequate future capacity in a financially secure manner;
- (c) to facilitate the participation of undertakings including electricity undertakings engaged or seeking to be engaged in the provision of electricity capacity in the Capacity Market;
- (d) to promote competition in the provision of electricity capacity to the SEM;
- (e) to provide transparency in the operation of the SEM;
- (f) to ensure no undue discrimination between persons who are or may seek to become parties to the Capacity Market Code; and
- (g) through the development of the Capacity Market, to promote the short-term and long-term interests of consumers of electricity with respect to price, quality, reliability, and security of supply of electricity across the Island of Ireland.

DS3 System Services Agreement Definitions and Interpretation clause 1.4

1.4 In the event of inconsistency between the provisions of this Agreement and the Grid Code, the Distribution Code, the Network Codes or the Metering Code (as the case may be), the provisions of the Grid Code, the Distribution Code, the Network Codes or the Metering Code (as the case may be) shall prevail to the extent of such inconsistency unless the contrary intention is explicit. For the avoidance of doubt, the Providing Unit must be both capable of operating in accordance with the Grid Code, the Distribution Code, the Network Codes or the Metering Code (as the case may be) and capable of operating in accordance with the provisions of this Agreement, but may be instructed to operate in either of these modes by the Company.

Question 11 Supplementary Information:

Summary of the views on auction design options, extracts from TSOs' response to the System Services Future Arrangements Scoping Paper [SEM-20-044](#):

Criteria	Before Day-Ahead	After Day-Ahead	Ex-Post	High Level Commentary
Closest alignment between system and market;	Low	Low	High	Ex-post cannot directly influence ex-ante market trading; Before Day-ahead and Hybrid allow trading in most liquid markets to reflect services; After Day-ahead only leave intraday trading available.
Best value outcome (whether or not that is also least cost outcome)	Medium	Medium	High	Ex-post would have no additional redispatch costs, but using constrained position would likely increase cleared price; Before and After Day-ahead would have lower cleared prices from unconstrained auctions but higher redispatch.
Flexible for future change (addition of services etc.).	High	High	Medium	Ex-post relies on outputs from other systems; Before and After Day-ahead are standalone auction platforms giving more flexibility.
Aligns with real-time operation.	Low	Low	High	Ex-post considers actual constrained position of units; Before and After Day-ahead options are unconstrained.
Can accommodate all types of product/suitable for all types of service.	High	High	High	All standalone auction platforms can accommodate any products.
Procures service volumes which meets technical scarcities (including locational requirements where they exist).	Low	Medium	Medium	Ex-post has simpler service capabilities, requirements, and constraints than co-optimisation but more complex than others; Before and After Day-ahead have simplest capability and no constraints, After can use the energy market result for more accurate estimate of requirements.
Ensures RES can be physically accommodated with minimum curtailment.	Medium	Low	High	Ex-post schedule considering most complex interaction between energy, unit technical data, and service provision; Before and After day-ahead have no constraints, Before allows all energy trading to more closely reflect service provision, After only allows some energy to do so.
Minimises redispatch away from a physically infeasible system service schedule	Low	Low	High	Ex-post only considers physically feasible options as an input; Before and After Day-ahead are completely unconstrained.
Auction losers are handled appropriately	Low	Low	High	In Ex-post only those who actually provided the service can succeed in auction; both Before and After Day-ahead have unconstrained auctions.
Reasonable solution time.	High	Medium	Medium	Have most time available to complete Before Day-ahead; After Day-ahead is simpler to solve but constricted timelines waiting on input from energy scheduling for requirements; Ex-post is not constricted by real-time deadline but less likely to ensure solution is available to inform next day offers.
Ease of use for all participants (e.g. small parties)	High	Medium	High	All options could allow non-BM-registered units; Ex-post allows more passive approach of maintaining availability; Before day-ahead allows energy trading in all timeframes to reflect service provision; After Day-ahead needs intraday trading to reflect service provision.
Pricing signals for investment	High	High	Low	Ex-post constrained scheduling is less transparent and forecastable; Before and After day-ahead are unconstrained.

Assessment of Before Day-ahead:

If the system services auctions are run before the day-ahead energy market, service providers will be able to reflect their auction results in all of their energy market trading, and may more easily trade to ensure that they can meet their system services obligations. This

could be achieved either by placing an explicit obligation on service providers to do so in their trades, or implicitly through a unit's FPN. The required service volume would be estimated day-ahead before a lot of the information from the energy market which would govern the real-time volume requirement would be known and therefore would be less accurate or may need to be more conservative than other means of estimating at day-ahead. This could lead to a large amount of redispatch subsequently to take account of technical constraints.

Assessment of After Day-ahead:

If the system services auctions are run after the day-ahead energy market, service providers can only ensure that they meet their service provision obligations through reflecting them in their PN submission following trading in the intraday markets. There is a possibility that this trading may differ significantly from a unit's position from the day-ahead energy market. However, if system service obligations can be reflected in intraday trading, the amount of redispatch required, to ensure that the required operational policy levels of system services are available, will be minimised. The required service volume is based on a day-ahead estimate, but one which uses the day-ahead market outcome and information from LTS scheduling, and therefore may be more accurate than other means of estimating at day-ahead.

Assessment of Ex-Post:

This option continues real-time operation of the system in largely the same way as currently, and ensures that only useable services, based on ex-post information, are procured. The main differences with this new mechanism is that it is a competitive process where volumes are determined based on merit order and defined service requirement volume, and prices are based on participant bids. Instead of the approach under the current mechanism where all units with an FPN or dispatch position which provide the services are paid (even if the total amount provided is greater than required), under this new mechanism only in-merit volumes up to the TSO volume requirement will be paid (those who provided the service but did not clear to meet the service requirement volume will not be paid). Also in the new mechanism the price will be established based on the marginal price of a merit order of the units who provided the service based on their submitted service prices and their physically feasible constrained ex-post position as volume, rather than a regulated tariff as under the old mechanism. This would have less explicit alignment between energy market positions and procured services, with relatively more complexity than the simpler ex-ante options. However, it would ensure only useable services are procured in a way which is more accurate and less complex than co-optimisation.