Via email to: Dylan Ashe (dashe@cru.ie); Owen Kearns (owen.kearns@uregni.gov.uk)

21st October 2021

Re: System Services Future Arrangements High Level Design Consultation (SEM-21-069)

Dear Dylan, Owen,

I am writing on behalf of the Demand Response Association of Ireland (DRAI), the trade association representing Demand Side Unit (DSU) providers in the all-island Single Electricity Market (SEM). By aggregating the otherwise passive electrical loads of individual consumers into substantial load portfolios, our members create predictable, reliable, and controllable assets, which provide a valuable source of Demand Side Flexibility (DSF) that can be actively used by system operators to meet the near-time needs of the power system.

Today, the DRAI represents approximately 600 MW of demand and embedded generation response across hundreds of industrial and commercial customer sites throughout the island of Ireland. These sites are managed by our members each of whom actively participate in the capacity, DS3, and energy markets.

DRAI members are committed to shaping the future of power system flexibility through advancing DSF on the island of Ireland. As Ireland strives to achieve its renewable generation targets for 2030, our promise as an industry-led organisation is to champion the development of innovative DSF solutions that are designed to address the system-wide requirement for flexibility.

The DRAI expresses a single voice on policy and regulatory matters of common interest to its members, and we welcome the opportunity to respond to the SEM Committee's *System Services Future Arrangements High Level Design Consultation* (SEM-21-069) and trust that you will consider it in your deliberations.

We also acknowledge the RAs' engagement with stakeholders during the consultation period and the productive conversations and interactions during that time. However, we ask you to note our concern that in our view none of the options presented will meet the needs of the future power system, so it may be necessary to step back and reconsider the approach being taken. We strongly urge that there is meaningful industry engagement as a core part of the next steps in designing and implementing the future arrangements.

On behalf of the DRAI we hope that you consider the points we have put forward, and we welcome future engagement on the matter.

Your sincerely,

Siobhán McHugh
DRAI CEO

Paddy Finn
DRAI Chair

Contents

CONTEXT OF DEMAND SIDE FLEXIBILITY AND SYSTEM SERVICES

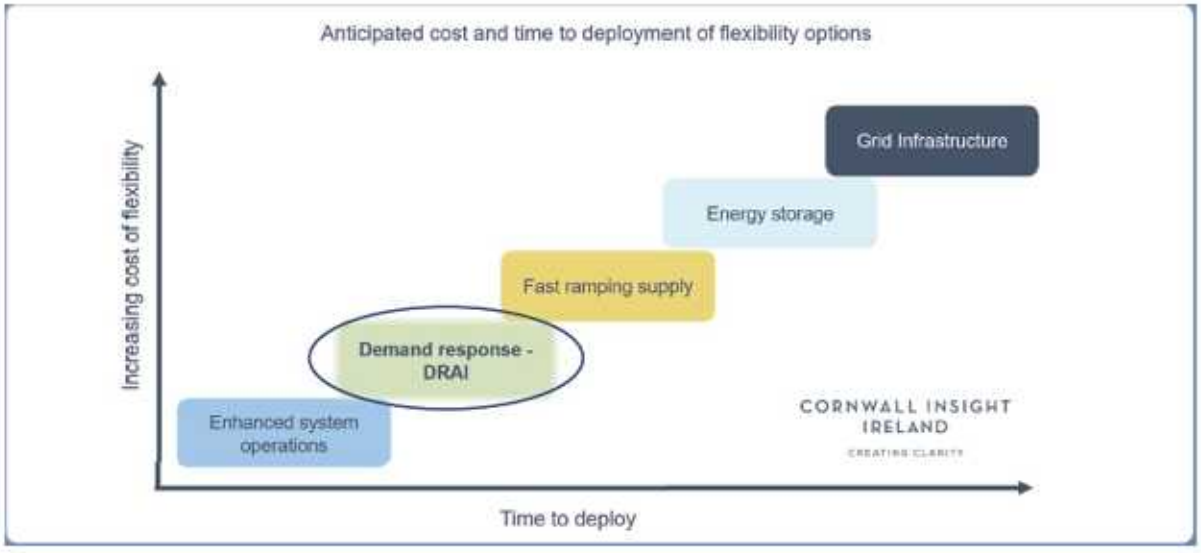
The electric power systems of Ireland and Northern Ireland are undergoing an unprecedented transformation. The generation mix is increasingly integrating non-synchronous, variable renewable energy sources (VREs), which inherently deliver a less predictable or controllable power system than do conventional generation. In addition, it is moving away from a linear 'one-way' flow of electricity from centralised, large generators to passive consumers, towards a 'two-way' system where generation and storage is increasingly distributed and embedded deep into the network.

As the system transforms, flexibility across the grid will need to dramatically improve in order to continue to deliver a safe and reliable service to all consumers. Fundamentally, large-scale activation of flexibility on the demand side is essential if we are to meet the 2030 up to 80% renewable energy share in electricity (RES-E) target.

Requirement for Flexibility

The graphic below shows the range of possible of flexibility improvement measures, indicating both the time to deploy and the expected increments in cost. It indicates that demand response services, such as those provided by DRAI members, provide a low-cost quick-to-deploy solution that can deliver a substantial portion of the required flexibility. For this reason, demand-side flexibility has the potential to play an increasingly important role in the transition to a low carbon economy.

Flexibility services provide the electricity system with a cost-effective solution to address the challenges within the Climate Action Plan. Looking forward to 2030, as the power system becomes increasingly dominated by VREs, grid flexibility will need to dramatically improve in order to continue to deliver a reliable service to all consumers. If no action is taken to increase flexibility the result is likely to be higher costs to the end consumer, resulting from increased energy market volatility and more expensive grid reinforcement requirements.



Facilitating Flexibility

The DRAI is committed to making a significant contribution to the low carbon vision, by facilitating the integration of the high levels of renewable generation envisaged in both Ireland's and Northern Ireland's energy policy, at fair cost and without the need for large up-front investment, long planning times and additional grid network changes. Our members therefore believe that the system services future arrangements should look to activate the full suite of grid flexibility across the curve, and exploiting the

full capability from the most-cost efficient forms. Baringa's *Store, Respond and Save*[1] report showed that procuring system services from 'zero-carbon' flexible technologies such as battery storage, demand side response, synchronous condensers and renewable generators could reduce power sector carbon emissions and deliver significant operational cost savings.

Benefits of Demand-Side Flexibility

Demand-side flexibility holds the potential to contribute significantly towards meeting the needs of Ireland's ever-evolving power system. However, since the inception of the DSU unit type in the SEM in 2007, the utilisation of some of their most beneficial characteristics has continued to be constrained by the lack of progress made by the TSO to appropriately account for their operational characteristics in the system scheduling tools. Continued efforts to force these unit types to conform to operational characteristics defined by conventional generation plant mean that the system only benefits from the limited subset of their capabilities that align with those of conventional generation plant, and results in unfair appraisal of their value to the power system. As an association, the DRAI advocates that the future arrangements for system services should fully exploit the potential of DSF in order to meet power system needs and deliver benefit for the consumer.

Some key benefits of demand-side flexibility include:

1. Delivery of reserve from no-load state

Demand-side flexibility delivers valuable DS3 System Services Reserve services from a no-load state. This avoids the considerable cost and carbon emissions associated with scheduling thermal plant to operate at their minimum stable generation thresholds, where they perform at their lowest thermal efficiency, in order to provide the reserve services needed to support zero carbon generation on the system.

2. Load-following availability of resources

Increasing the volume of non-synchronous renewable generation results in a corresponding reduction in the availability of essential grid services. This is due to the corresponding reduction in volume of conventional generation, which includes inherent characteristics that have traditionally provided these services. In contrast, the availability of demand-side flexibility remains broadly proportional to the total energy consumption on the power system, matching availability and expenditure with the time-of-need on the system.

3. High confidence of delivery of declared availability

Since demand units typically contain multiple sites in an aggregated demand-side portfolio, they have an inherent resilience and are not subject to a single point of failure, in comparison to a large generation set. For instance, in the case where one or more individual consumers fail to respond to an event, this will have a comparatively small impact on the delivery of a required volume. In contrast, a failure to synchronise or a forced outage of conventional generation results in a binary outcome, whereby required volumes are either delivered in their entirety or not at all. Recognising the reliable delivery characteristics of demand units can therefore reduce the system requirement for contingency, in the form of replacement reserve and ramping margin from conventional generation.

4. Retention of value in the economy

A lack of generator and battery manufacturers, and indigenous fossil fuel sources on the Island of Ireland results in the majority of energy, capacity, and DS3 System Services payments leaving the Irish and Northern Irish economies in the form of capital expenditure and fuel purchases. Conversely, payments to providers of demand-side flexibility result in a much greater share of electricity market expenditure remaining in the economy; returned to indigenous consumers that actively support the operation of the electricity system. In addition, given the supply chain stresses experienced in the wake of the Covid-19

[1] https://windenergyireland.com/images/files/iwea-baringastoreserespondsavereport.pdf

pandemic, and disruption due to Brexit, it is clear that the scarcity of components, fuels and essential industrial materials can have a strong negative impact on day to day production and operations.

5. Reduced life-cycle carbon emissions

The provision of demand-side flexibility is supplementary to the primary activities of the individual demand sites that provide it. It is provided using equipment and processes that already exist and, as such, the build phase of their life-cycle carbon emissions will have been amortised and are not related to their availability to provide flexibility services.

6. Positive promotion of consumer engagement

Engagement in providing demand-side flexibility services fosters awareness of the power system and provides participating consumers with a source of revenue that can be further invested in energy efficiency measures. The evolution of the demand response / aggregation business model in the coming years will enable aggregators to engage increasingly smaller customers, broadening consumer engagement in 'good energy citizenship'.

GENERAL COMMENTS ON THE CONSULTATION

The DRAI welcomes the opportunity to respond to the SEMC consultation. We see the development of new arrangements for system services as vital to the operation of the power system into the future and a means of allowing the electricity sector to contribute to the wider decarbonisation agenda. In future, the availability and provision of system services from conventional plant will become increasingly scarce as growing amounts of non-synchronous and intermittent generation are connected to the power system.

New and innovative sources of system services such as demand response and demand side flexibility have the potential to play an even greater role in providing services and it is important that the future design provides for this. It is critical that this consultation process delivers a design that meets future system needs in an efficient and economic way.

It is our view that the three options presented for the auction design will exclude a significant volume of resources from participation in the market, among them demand response and variable renewable generation whose ability to predict their full capability is limited day ahead. These resources can viably deliver essential characteristics and services, but would be precluded from doing so by the timing and design of the auctions proposed.

The DRAI view is that optimal market design needs to accommodate the characteristics of different technologies. Changing power system characteristics will necessitate a combination of new technologies and better use of existing resources to solve increasingly complex challenges. The market and service design should incentivise the most economically efficient use of resources by capturing the key strengths of various technologies, among them demand response, storage and renewable generation.

A similar paradigm shift achieved massive success in the integration of wind generation on the power system.

KEY ISSUES FOR DEMAND SIDE FLEXIBILITY

In relation to the current consultation, the DRAI would like to draw attention to the following key areas which we believe impact on the ability to fully exploit the capability of DSF in the provision of system services:

- **Non-discrimination**. Given the legal protections guaranteeing non-discrimination for different types of electricity market participants in EU Regulation 2019/943, we emphasise the need to facilitate participation of a broad range of technologies, which can offer cost-effective sources of system services, in the design of the new arrangements.
- **Co-ordination and alignment with the distribution network**. The interaction between distribution and transmission system operators needs to ensure that initiatives on the distribution network are consistent with the design of market-based system services.
- **Procurement Timing**. The DRAI view is that service procurement should be as close as possible to real time. Shorter procurement timelines will allow greater participation and integration of different providers, most notably wind and demand side resources, whose ability to accurately declare and offer availability improves as procurement moves closer to real-time. We do not believe that Secondary Trading would overcome this barrier and therefore do not support it as a form of mitigation against the issues posed by day ahead procurement.
- **Product Granularity**. Granular trading periods (in the order of 5 minutes – 30 minutes) as well as late gate closures (5 minutes – 60 minutes) are essential to maximising the provision of services from low-cost but variable resources such as demand response and renewable generation, as demonstrated in other markets internationally.
- **Co-optimisation**. Our view is that market-based procurement of system services should be co-optimised with energy closer to real time to allow the efficient participation of DSF and variable renewable sources. We acknowledge that this is not tackled in the consultation, nor does it form part of the options presented. However, we believe that the market interactions and impacts can best be dealt with via a co-optimised solution.

RESPONSE TO SPECIFIC CONSULTATION QUESTIONS

The following section provides responses to the specific questions posed in the 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?

The DRAI support the development of long-term arrangements to provide sufficient certainty to investors and to market participants. We note the need for clarity on the relationship between system services arrangements and the energy and capacity markets.

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

The DRAI supports the preferred Option 2 Rolling Application Process. As a basic principle the DRAI is in favour of access to market-based System Services procurement being made available to providers on the basis of achieving sufficient accreditation, rather than access based on procurement rounds. This is similar to the approach adopted for access to the Balancing Market, where a generator can only act as a Balance Service Provider under the Trading & Settlement Code when it has achieved its Operational Readiness Confirmation. If these same principles are applied to market-based System Services procurement, a provider would need to prove its service capability under business-as-usual Grid Code testing before accreditation and the market registration processes can be completed.

In the case of entirely new technologies we believe it is appropriate for them to continue to be brought to market through the Qualification Trial Process (see also response to question 3).

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

In our experience initiatives such as the Qualification Trials Process (QTP) have been highly effective in facilitating the testing of new technologies/services/rules in a manner that does not introduce risks to system resilience. The DRAI is therefore fully supportive of such trial procedures. The QTP concept has proven to be an effective approach to enable the adoption of system service provision from technologies that were not previously facilitated through the existing arrangements. The QTP will continue to have an important function and it is important that the entry criteria into such trials do not place unnecessary barriers on potential participants.

Given the complex interactions between the system service, capacity and energy market arrangements it will be important that as holistic approach as possible is taken for trials and testing to help ensure that changes required to meet 2030 targets, and beyond, can be efficiently implemented.

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

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

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

Within a new market-based model for system services, providers will become participants rather than tenderers. They therefore should have the right to engage fully in the process, to suggest appropriate changes that will facilitate their technological innovations and capabilities, and to review all proposed changes. The DRAI supports the introduction of a Single System Services Code.

The DRAI is in favour of a rules-based committee, similar to the T&SC Modifications Committee, where there is a formal process for modifications to be raised, assessed, and adjudicated by the Regulatory Authorities, is appropriate. The DRAI suggests that this committee should be separate to the T&SC Modifications Committee, as it will deal with technical issues of Grid Code compliance and products which are outside the scope of the activation of Balancing Services. It should be accessible to representative organisations and indeed new innovative technology providers who might not yet be System Service providers.

In relation to the potential amalgamation of the different Panel meetings, the DRAI supports Option 2, the development of a System Services Code Panel. We note also the need for alignment of timelines in relation to the Grid Codes(s). It is important that matters impacting participation and/or qualification for the system services market which are governed by conditions of the Grid Code are dealt with in a timely manner.

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

Article 18(1) of EU Regulation 2019/943 states:

> *"Charges applied by network operators for access to networks, including charges for connection to the networks, charges for use of networks, and, where applicable, charges for related network reinforcements, shall be cost-reflective, transparent, take into account the need for network security and flexibility and reflect actual costs incurred insofar as they correspond to those of an efficient and structurally comparable network operator and are applied in a non-discriminatory manner. Those charges shall not include unrelated costs supporting unrelated policy objectives."*

We therefore note that we do not believe that Option 1 is compliant i.e. the achievement of non-grid development policy through a form of Use of System (UoS) charge.

As a general principle the DRAI supports the continued recovery of ancillary services charges via a levy on demand customers. We recognise that transition to market-based system services procurement will mean that the quantum of those costs becomes less predictable, in which case network tariffs may no longer provide a suitable mechanism to recover System Services costs.

The DRAI does, however, consider that mechanisms available to the TSO may be more appropriate to managing this risk. We therefore suggest that an annual fixed market-based charge on demand could be introduced recover these costs, akin to the Imperfections Charge which was introduced to recover the dispatch balancing costs associated with re-dispatching generation.

We support Option 2 presented in the consultation paper.

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

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

Flexible demand and generation have a role as a potential alternative to investment in capital infrastructure to resolve particular distribution system issues. The DSO needs to be able to interact with the TSO to ensure that such initiatives are complementary to the design of market-based system services.

The DRAI supports both DSOs having the required resources to monitor, dynamically manage, and reinforce where necessary their respective distribution networks so as to minimise the restrictions on distribution connected aggregated resources providing services to the wholesale market in general. Instruction sets for distribution-connected generation (the times or a description of the system conditions where a distributed resource is restricted in delivering response to the wholesale market) are a barrier to the provision of system services, and should be minimised or resolved where possible.

In relation to the consultation questions posed and options of a Provider-led versus DSO or TSO-led model, we note that there would appear to be insufficient detail and common understanding across stakeholders around the precise nature of the proposed relationships and interactions between contractual relationships, physical service delivery and procurement, and the various system operator responsibilities under their respective licences. We therefore urge that our considerations around the need for clear roles and substantial alignment between processes and actors be taken into account in designing the detailed future arrangements.

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

No comment.

Question11: What are stakeholders views on the Auction Design options and SEMC Recommendation?

The DRAI advocates that auctions should be aligned with the Real-Time Commitment scheduling process within the TSO, co-optimising energy and demand. This will require coordination with energy offers in the Balancing Market arrangements around Gate Closure, and coordination of the equivalent Gate Closure of System Services offers. There are fundamental trade-offs between energy and system services provision and requirements. If there's no explicit provision for co-optimisation to be done centrally with minimum overall cost as the goal, then each participant will be forced to try to make their own profit-maximising optimisation, based on imperfect information, leading to higher overall costs.

It is the DRAI's view that system services procurement should be as close as possible to real time. Shorter procurement timelines will enable greater participation and more optimal integration of different providers, including sources such as wind and demand participation, whose ability to forecast service provision improves closer to the point of delivery. DSUs' ability to accurately declare and offer services improves as procurement moves closer to real time. The proposed Options 1 and 2 do allow for this and so will result in lower volumes of demand being able to participate in system services, reducing competition and increasing the total costs borne by consumers.

DSUs offer solutions that can be deployed with short lead times, and which could be utilised to deliver a substantial portion of flexibility required. Restricting gate closure times to the day ahead timeframes suggested will preclude a significant proportion of demand resources from being able to participate and therefore exclude an efficient and economic means of service provision. We believe that this is contrary to the objective "to deliver a competitive framework for the procurement of System Services, that ensures secure operation of the electricity system with higher levels of non-synchronous generation."

Granular trading periods (in the order of 5 minutes – 30 minutes) and late gate closures (from 5 minutes – 60 minutes) are essential to maximising the provision of reserve from low-cost but variable resources such as demand response and renewable generation. The combination of fine granularity and late gate closure needed for effective co-optimisation has a significant additional benefit: it means that aggregators have a very accurate picture of what response their customers will be able to provide during each interval, and so can safely offer a high proportion of that capability. This means that larger volumes of system services can be offered at lower cost.

Secondary trading aims to ameliorate some of the timing-related limitations, however it is the DRAI view that it is preferable to develop a robust design that does not rely on secondary trading to resolve issues – the evidence from experience with secondary trading in the capacity market has not been promising.

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

In general, the DRAI believes that the process to design the future arrangements for system services is missing the opportunity to learn from the successes and failures from other jurisdictions. While the power system on the island of Ireland is world-leading in many respects, this does not mean that there is nothing to be learned from elsewhere.

For example, international experience in markets such as those in New Zealand, a market with similarities to the SEM (low inertia on an isolated power system), and the FCAS (Frequency Control Ancillary Services) market in Australia, shows that where there are short gate closures and granular provision of services (e.g. 30 minutes, rather than an entire day), aggregators and variable sources of generation have higher confidence – and the TSO can have equivalent confidence in them – regarding their capability to deliver reserves.

In contrast, if for example such resources had to make an offer by day-ahead gate closure, then they would be relying on a longer-range forecast, with a lot more uncertainty, and would only be able to offer

the minimum capability that they were very confident would be available during the interval. The same resources would end up providing much less service capacity to the market, leading to the system operator having to procure services from other, higher cost (and potentially higher carbon emitting) resources, such as generators, and concentrating market power concerns. Closer to real-time procurement therefore opens up these markets to greater participation from inexpensive sources of reserve and can create savings for consumers.

The following two examples provide real-world experience of the participation of demand response in system services markets internationally.

Example 1: Australian FCAS (Frequency Control Ancillary Services) Market

A market participant operating in the FCAS market analysed 9 months (January to September 2021) of high resolution data from over 60 customer demand sites participating in the provision of frequency response system services. They modelled the volumes they could safely offer day-ahead, in 30-minute blocks, and compared this with what they could actually offer in the current FCAS markets, which have 5-minute granularity and near-real-time gate closure. The table, right, shows the average change in offer, broken down by industry.

Load type	***Offer change from moving to day-ahead***
Cold storage	*-22.6%*
Data centres	*-10.9%*
Food manufacturing	*-20.6%*
Health	*-17.9%*
Industrial gases	*-11.2%*
Manufacturing	*-19.9%*
Mining	*-10.1%*
Supermarkets	*-42.5%*
Water treatment	*-19.5%*

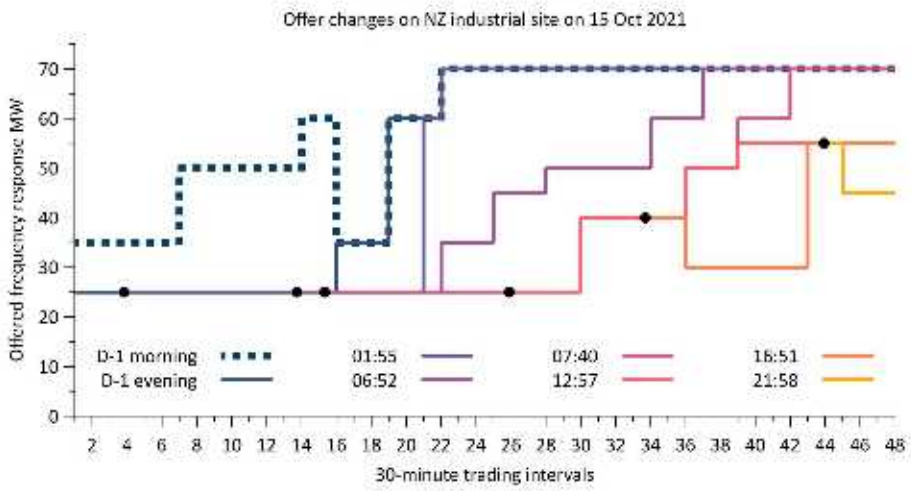
Since it is a critical system service, providers will only offer the volume of response that they are confident their aggregated portfolio will be able to deliver. Moving to day-ahead gate closure forces them to use much longer-range forecasts (9-33 hours ahead, rather than a few minutes), which have far greater uncertainty, reducing the volumes they can safely offer. This means that 10-40% of the frequency response capability actually available from these customers would be wasted.

Example 2: New Zealand Ancillary Services Market

A market participant operating in the New Zealand ancillary services markets examined the availability declarations and re-declarations of a particular customer site over the course of a trading day.

In the graph overleaf, the dotted line shows how the offer stood at the time day-ahead gate closure would occur. However, the offer was repeatedly revised as the customer changed their production schedules. The black dots show when the offer was updated intraday, and the different coloured lines show the subsequent offer volumes.

This was an unusually busy day, but intraday changes to production schedules are not at all unusual. There is nothing that the market participant can do to force a customer to stick to a day-ahead schedule. Indeed, it would make no sense to attempt to do this: the whole point of demand-side participation is that the customer is providing system services as a secondary activity. This is quite different to services provided by a dedicated generator or battery, where the schedule is determined by the electricity markets. The main purpose of this customer's assets is serving their primary business. If providing system services in any way undermined the efficiency of their primary business, the customer would rightly prioritise their primary business and not bother providing system services.



If the market participant was required to commit its system services provision day-ahead, without the ability to revise the offers to match changing production conditions, it would only be able to offer a much lower proportion of the response actually available at this site. It could not use its day-ahead forecast, as that would leave too great a risk of being unable to deliver due to changed production conditions. So it could probably only offer 25 MW of the 70 MW that is usually available on the site.

This is why it is important for demand-side participants to be able to make offers based on the best information available close to the time of delivery. Requiring them to lock in their offer day ahead effectively wastes a large proportion of the potential resource.

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

Where a market moves to volume-based price-competitive procurement of services, the providers of those services need information from the single buyer, i.e. the TSO, as to the volumes of the services expected to be required.

Within the context of the existing DS3 System Services design, this was of less importance to participants, given that payments were made to all technically capable providers based on an existing tariff. Ultimately, however, this potentially can lead to "over-heating" on the supply side of the market. It has been difficult for providers of System Services to understand the basic supply/demand balance of the market.

The Clean Energy Package contains requirements for TSOs and DSOs to provide information to support investment decisions. System services are no different. Correspondingly, alongside the System Services design, it is important that the TSO provide information to support investment decisions for system services providers, similar in scope to the Generation Capacity Statement but with a focus on System Services. We note the SEMC proposal to require the TSOs to publish a document that would, at an early stage, help to identify System Service scarcities required to operate the system at ever-increasing levels of SNSP, as we move toward a 95% - 100% SNSP target in 2030. We believe the publication of such a document is essential for clarity around future needs and levels of investment required.

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

Secondary trading would seem to attempt to alleviate some of the timing-related issues caused by some market design options. As referenced in relation to our preferences on auction timing, the DRAI believes that secondary trading will not resolve the issues it may be introduced to address, and should not be used to justify choosing a design option with known deficiencies. The DRAI does not support secondary

trading as part of the design and does not agree that it would facilitate the participation of providers who rely on closer to real time forecasts.

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

The DRAI understands the idea of Commitment Obligations and Scalars – to incentivise reliable service provision and decrease the competitiveness of unreliable providers.

However, the CRM has shown that the use of commitment obligations is problematic in a centrally dispatched market, specifically around actions which are outside of the participant's influence and where they do not have the ability to manage the associated risk. We would caution that the application of commitment obligations should be designed carefully to ensure there are no perverse outcomes for participants where they are not the party with the ability to manage the risk.

The use of scalars has proven to be a beneficial tool in other market contexts, providing clear signals and building confidence. We support the use of well-defined scalars for system services.

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

Introducing the concept of Firm Access in the system services market would bring a huge amount of complexity. It needs careful consideration to balance the need for "usable" service provision, incentivising investment where required (from both a network and a provider perspective) and ensuring that there is fair and transparent access to the market, with appropriate ability to manage risk.

At this point, it is not possible to comment further on this aspect of the design without detailed considerations of the potential impacts alongside the market design options, as well as understanding how firmness would be decided – the actions of the TSO, and potentially DSO, are key to this and there is a risk that service providers would be disadvantaged by actions which they cannot control, and have no sight of in advance of trading.

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

Layered procurement is a prudent approach given that certain types of services cannot be procured daily (and may not be efficient to do so e.g. voltage services). We also recognise the need to apply a sequence of procurement activity (where it is not possible to procure multiple services simultaneously in a co-optimised manner) so that services can be contracted taking account of system requirements and constraints. It is also essential that there is careful consideration of the complex interactions between the system services and energy market to ensure fair and transparent outcomes. Providers should be in a position to incorporate their energy market opportunity costs in their system services offers.

We would signal also that the role of the DSO(s) is critical in terms of distribution-connected demand sites being fully able to participate in the market for system services. To this end it is important to ensure that timing and alignment between the provision of services and the allocation of capacity for distribution-connected sites is considered within the detailed design.

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

It is the DRAI view that the three options presented for the auction design will exclude a significant volume of resources from participation in the market, among them demand response and variable renewable generation whose ability to predict their full capability is limited day ahead. These resources can viably deliver essential characteristics and services, but will be precluded from doing so by the timing and design of the auctions proposed.

CONCLUDING REMARKS

At this point it is worth reflecting on the purpose of this consultation, and ultimately on what the examination and forward-looking design of system services arrangements is trying to achieve. We all recognise that the power system is changing, the environment in which this is happening is one where how we use power is moving towards a decarbonised future. This needs to be balanced against the need to provide value for the energy consumer and for the economy as a whole.

As an industry, we need to be clearly focused on what we are trying to achieve in the development of future arrangements for system services. The SEM Committee's assessment criteria are a useful set of guiding principles in selecting preferred options for the high level design. However, simply choosing a design that satisfies a majority of these ten criteria does not mean that we have landed on the optimum solution, or even a good one. Some of these are pass/fail criteria and in our opinion the critical issue here is a design that procures the best fit of services to meet the needs of the power system in the future.

The DRAI view is that the market-based procurement of system services should be co-optimised with energy closer to real time to allow lowest cost procurement and the efficient participation of DSF and variable renewable sources. Other markets (e.g. New Zealand, Australia) demonstrate that close to real time procurement opens up low-cost provision of reliable services from DSF, reducing prices for consumers and limiting potential market power concerns. The reliability of closer-to-real-time declared services from DSF is evidenced in SEM with the strong performance of provision of frequency-based system services by DRAI members under DS3 to date.

The DRAI believe that significant further engagement with industry participants is needed in order to fully consider and address the extremely complex issues at stake in this consultation. The enduring arrangements must meet the needs of the future power system, this requires changes that are transformational rather than incremental. We need to look to the future and design the best possible future arrangements, rather than looking only at what could be achieved by small changes to systems and processes that exist today. Achieving future targets will be best served by considering what will deliver the most benefit and not restricting what is possible to a solution that involves least deviation from the status quo.

In relation to the questions posed in the consultation, we have provided our views insofar as possible, recognising that the interplay between different design options and considerations will influence the topics where views are sought. Our views are therefore subject to additional detail being available throughout this process and into detailed design. We strongly urge the Regulatory Authorities to ensure that meaningful industry engagement is a core part of the next steps taken in designing and implementing the future arrangements.