

System Services Future Arrangements

NIE Networks' Comments on SEM Committee Scoping Paper (SEM-20-044) of 8 July 2020

9th October 2020

Introduction

NIE Networks welcomes the opportunity to engage with the Regulatory Authorities (RAs) regarding the Single Electricity Market (SEM) Committee's proposed approach to a set of enduring arrangements for System Services beyond the current Regulated Arrangements, and strongly encourages further engagement regarding the issues raised within this response and throughout the process of developing the Future Arrangements. NIE Networks also thanks the SEM Committee for the opportunity to make a presentation during an industry workshop on the topic on 26 August 2020.

NIE Networks is the owner of the electricity transmission and distribution network and operator of the distribution network in Northern Ireland, transporting electricity from the point of generation, including 1.6GW of renewable generation, to over 880,000 customers including homes, businesses and farms.

Our role is to maintain and develop the electricity infrastructure across Northern Ireland, connect customers to the network and ensure that our equipment is safe and reliable. As meter operator, we also provide metering data to electricity suppliers and the Single Electricity Market (SEM) operator.

NIE Networks has played a key role in realising and exceeding Northern Ireland's renewable energy target with approximately 47% of electrical energy consumed being generated from a renewable source. NIE Networks is committed to work towards delivering Northern Ireland's future energy targets including those in Northern Ireland's new Energy Strategy.

This response has been structured based on the questions raised within the Scoping Paper and responses have not been provided to some questions intentionally.

NIE Networks would highlight the following key points from its responses:

- NIE Networks supports the development of competitive arrangements for the procurement of System Services.
- With regards to further engagement, the DSO must be involved in developing all aspects of the Future Arrangements, in particular where distribution customers' participation is concerned. This approach, DSO input from the outset, minimises the risk of unintended consequences and likelihood of sub-optimal measures being applied retrospectively.
- In December 2019, NIE Networks submitted recommendations to the Utility Regulator to develop its capabilities concerning visibility and forecasting to increase access for distribution customers to provide System Services. Future Arrangements must be developed with this in

mind and be sufficiently flexible to adapt to increasing DSO capabilities which will ultimately benefit all customers.

- NIE Networks is progressing its FLEX project which will see it procure and operate Flexibility (Congestion Management) as a cost effective alternative to network investment. Within this project, NIE Networks is adopting good practices and standardised methods from the ENA's Open Networks Project described below. It should be noted that in Northern Ireland, congestion management services will almost exclusively be provided by customers connected to the distribution network as the vast majority of distributed generation and demand are connected at distribution level.
- System Services and Congestion Management are different products, with separate definitions, use cases and funding mechanisms and should be treated accordingly. It is therefore NIE Networks understanding that this scoping paper relates solely to the Future Arrangements associated with System Services and not DSO Congestion Management services. NIE Networks would also note its preference that where technically possible, providers should be able to stack multiple revenue streams (System Services, transmission and/or distribution Congestion Management), thereby maximising value for system operators, participants and all customers through efficiencies.

NIE Networks is a member of the Energy Networks Association (ENA) and its Open Networks Project¹, a world leading project aimed to facilitate the coordinated transition to Distribution System Operation. The Open Networks Project's membership consists of all DNOs and DSOs in Great Britain (GB), Northern Ireland and Republic of Ireland, respective Transmission Assets Owners (TAO), GB Electricity System Operator (ESO), regulator OFGEM, UK government department BEIS and advisory groups reflecting a cross section of industry.

The Open Networks Project's learn by doing approach has seen the identification, standardisation and convergence of good practice across all its work streams including notably the dedicated Flexibility work stream. In its FLEX project, NIE Networks is adopting well tested, and defined methods and processes agreed by System Operators in GB for the procurement and operation of Flexibility from Open Networks Project outputs.

In addition to its work on Flexibility, the Open Networks Project identified five 'Future Worlds' which represent different market, organisational and operational structures to access and utilise flexible Distributed Energy Resources to operate the transmission and distribution systems. These worlds are primarily differentiated by the responsibilities of the DSO(s) and the ESO(s).

The consultancy firm Baringa was commissioned to undertake a qualitative and quantitative assessment of the 'Future Worlds'. The outputs from this assessment² indicated that 'World B: Coordinated DSO-ESO Procurement and Dispatch' was one of the top performing worlds. While working closely together, 'World B' involves separate procurement and dispatch of System Services by the ESO and Flexibility services by the DSO(s) with coordination and conflict management mechanisms in place to manage any network or system risks efficiently. 'World B' was selected by Barina as the

¹ <https://www.energynetworks.org/creating-tomorrows-networks/open-networks>

² <https://www.energynetworks.org/industry-hub/resource-library/open-networks-2019-ws3-baringa-future-world-impact-assessment-report.pdf>

starting position for the future transition as it aligns most closely with today's arrangements. The short to medium term investment decisions associated with 'World B' are consistent with those for other pathways, allowing for future transition between worlds.

NIE Networks agrees with the conclusions from the assessment, that 'World B' was one of the best performing pathways overall. While requiring investment, significant increases in capabilities and evolution of processes, 'World B' is the most consistent with today's arrangements representing the least regrets pathway, minimising the risk for customers. On this basis, NIE Networks is following the 'World B' pathway which provides context for its responses to the following questions but does not preclude a transition to another pathway in the future.

Q1 Are there additional requirements in EU legislation or national policy that should be considered as key guidance for this project?

NIE Networks would suggest that the following legislation should also be considered as key guidance for this project.

- Article 16 of the CEP Electricity Directive (2019/944) 'Citizen Energy Communities'
- Article 17 of the CEP Electricity Directive (2019/944) 'Demand Response through Aggregation'
- Article 182 of Commission Regulation (EU) 2017/1485 'Establishing a Guideline on Electricity Transmission System Operation (SOGL)'

Article 16 of the CEP Electricity Directive (2019/944)

Article 16 (2019/944) requires Member States to enable Citizen Energy Communities with Paragraph (3 a) stating that *"Member States shall ensure that citizen energy communities: (a) are able to access all electricity markets, either directly or through aggregation, in a non-discriminatory manner;"*

Article 17 of the CEP Electricity Directive (2019/944)

Article 17 (2019/944) requires Member States to foster participation of demand response through aggregation with Paragraph (1) stating that *"Member States shall allow and foster participation of demand response through aggregation. Member States shall allow final customers, including those offering demand response through aggregation, to participate alongside producers in a non-discriminatory manner in all electricity markets."*

Article 182 of Commission Regulation (EU) 2017/1485

While the entirety of Article 182 should be considered, NIE Networks would draw particular attention to the contents of Paragraphs (5) and (6) detailed below which afford DSOs significant rights in relation to units connected to the distribution network providing reserves.

- Article 182 (5) (2017/1485) *"During the prequalification of a reserve providing unit or group connected to its distribution system, each reserve connecting DSO and each intermediate DSO, in cooperation with the TSO, shall have the right to set limits to or exclude the delivery of active power"*

reserves located in its distribution system, based on technical reasons such as the geographical location of the reserve providing units and reserve providing groups.”

- Article 182 (6) (2017/1485) *“Each reserve connecting DSO and each intermediate DSO shall have the right, in cooperation with the TSO, to set, before the activation of reserves, temporary limits to the delivery of active power reserves located in its distribution system. The respective TSOs shall agree with their reserve connecting DSOs and intermediate DSOs on the applicable procedures.”*

Requirements for TSO Coordination with DSOs

NIE Networks notes that the Scoping Paper appropriately references the requirement in Article 31 (6) CEP Electricity Directive (EU) (2019/944) regarding “[Distribution System Operator] coordination with transmission system operators”. NIE Networks would also highlight the requirements for TSO coordination with DSO(s) in European legislation, outlined below, and would stress that the legislative requirement for TSO engagement, cooperation and coordination with DSO(s) should also be an important consideration in future system service design.

In this regard, while the Scoping Paper references a number of paragraphs from Article 40 of CEP Electricity Directive (EU) 2019/944, NIE Networks would highlight that all its requirements are relevant to this project, including those in Paragraph (6), *“...Transmission system operators shall exchange all necessary information and shall coordinate with distribution system operators in order to ensure the optimal utilisation of resources, to ensure the secure and efficient operation of the system and to facilitate market development.”*

NIE Networks considers that the multiple references to TSO coordination with DSO(s) in European legislation are also relevant legislative drivers for the SEM Committee, in its consideration of the role of the DSO in developing the Future Arrangements.

Separate from legislative drivers, NIE Networks believes that fundamentally the SEM Committee’s consideration of the DSO’s role should be based in practicalities, where in Northern Ireland the DSO already has a significant role in the existing arrangements and 60% of System Service participants are connected at distribution level. Where distribution connected customers are concerned, the DSO must be a key party in the development of the Future Arrangements from the outset.

Q2 What should the role of DSOs be in the development of the new arrangements?

NIE Networks welcomes the recognition of the increasing role of the DSO by the European Commission and the subsequent consideration of the SEM Committee. Before providing its response, NIE Networks would highlight the following to provide background and context:

- Almost all demand (and demand customers) in Northern Ireland is connected at distribution level.
- 93% of renewable generation by MW volume in Northern Ireland is connected at distribution level.

- At present, 60% of System Service participants in Northern Ireland are connected at distribution level³, with this figure widely expected to increase further.

NIE Networks' role in the existing arrangements was retrospectively developed as distribution connected customers began to participate in providing System Services and other markets. The participation of distribution connected customers has grown significantly since then, with 60% of System Service providers in Northern Ireland now connected to the distribution network and this is expected to continue to grow.

Respecting that there is an established volume of System Service providers connected to the distribution network and that this is expected to grow further, it is imperative that the DSO has a central role in the development of the new arrangements. The following are important considerations.

- As DSO, NIE Networks is committed to being a neutral market facilitator in relation to maximising the access for distribution customers and includes enabling demand response and citizen energy communities to participate in TSO markets and provide System Services. NIE Networks is committed to working with the TSO and other stakeholder to develop the optimal arrangements.
- Diversity in customer behaviour is lost when it is subject to coordinated activation by another party, such as the TSO or an intermediary through markets or other arrangements. Diversity in customer behaviour is a fundamental assumption in distribution network design; and when lost, design assumptions and network security are potentially undermined, and the DSO must take action to maintain distribution network safety and security.
- As per Paragraphs (5) and (6) of Article 182 (2017/1485) SOGL, in cooperation with the TSO, NIE Networks has the right to set limits (temporary or permanent) or exclude the delivery of reserves located in its distribution system. NIE Networks currently exercises its rights in this respect, in the application of Instruction Sets to individual customers seeking to participate in any market where NIE Networks does not have control over activation and said activations have the potential to cause distribution network security, safety or power quality issues. The application of Instruction Sets has successfully delivered its objectives, securing the distribution network while facilitating access for distribution customers to provide System Services where they otherwise would have been unable to do so.
- NIE Networks recognises that while Instruction Sets successfully delivered their objectives, there is scope to develop the capacity allocation process and release additional capacity for distribution connected customers. NIE Networks has made recommendations to the Utility Regulator to develop a system that is: 1) automated to manage the anticipated future increase in numbers of distribution connected customers participating in System Service and other markets; and 2) dynamic, meaning that the system forecasts and allocates available capacity to customers closer to real time based on agreed principles of access. In doing so it is likely that this will increase capacity available to distribution connected System Service providers when compared to the current Instruction Set process.

³ Source: SONI/EirGrid

- NIE Networks will continue to act to secure the distribution network and this must be considered a fundamental feature in the design of the Future Arrangements including qualification, procurement and operation.
- NIE Networks would highlight that its actions are not limited to the provision of System Services but participation by distribution customers in any market or arrangements that are subject to activation by a party or trigger other than NIE Networks and includes wholesale and balancing market participation.
- In December 2019, NIE Networks put forward recommendations to the Utility Regulator (UR) to develop its DSO role as a neutral market facilitator by increasing its visibility and capability to assess network capacity and allocate this capacity to distribution customers providing System Services more closely to real time thereby maximising the utilisation of available network capacity.

To implement these recommendations, NIE Networks will require additional allowances, and in due course NIE Networks will be seeking approval of these allowances from the UR.

- At a high level, in the absence of network reinforcement, congestions on the distribution network will inevitably present a barrier to the uninhibited access to provision of System Services from distribution customers. Through development of its visibility and forecasting capabilities, NIE Networks seeks to maximise the utilisation of available distribution network capacity and the available System Services to the TSO from the distribution network maximising customer benefits.

In summary, the DSO must have a central role in the development of the Future Arrangements as well as in operation of the new arrangements, particularly where it relates to participation by distribution customers. The Future Arrangements development process must be cognisant of the finite capacity of the distribution network and its ability to host existing and growing volumes of distribution generation, customers providing System Services and participation in other markets simultaneously.

Q3 Should any further assessment criteria be included in this Workstream?

Safety

NIE Networks would add Safety as an additional assessment criterion. Safety is a paramount consideration for NIE Networks and while it may not initially be obvious how transitioning to competitive arrangements might impact on safety, there can be risks created through unintended consequences.

The likelihood of unintended consequences is exacerbated when there is a lack of engagement between TSO and DSO. For example, NIE Networks would highlight the risk of a market including distribution customers, and without DSO input, producing outcomes which can result in power flows exceeding the ratings of distribution assets jeopardising security of supply and, for example where overhead lines are concerned, infringing clearance distances due to conductor heating.

Alignment with the DSO

NIE Networks would extend the definition of Criteria for Assessment (4) 'Alignment' to include Alignment with the DSO which encompasses the distribution network.

At a high level, alignment with the DSO concerns: 1) the Distribution network; 2) DSO processes and capabilities in facilitating access for distribution customers to provide System Services; and 3) DSO procurement of services such as Flexibility to manage its network.

Distribution Network

The distribution network has a finite capacity to host the existing and growing volumes of distribution generation, customers providing System Services and participating in other markets simultaneously which will require management to maintain network safety and security. The development of the Future Arrangements should have System Services being provided by distribution customers as a central design assumption and the DSO a key party in development.

NIE Networks consulted on the principles of access to distribution capacity for its customers providing System Services to the TSO and participating in other markets in its Greater Access to the Distribution System consultation⁴. The design of the interactions between (multiple) market outcomes and capacity allocation is central to developing a sustainable set of Future Arrangements for distribution customers.

DSO Processes and Capabilities

As discussed in Question 2, NIE Networks' role in the current arrangements provides consent and determines access for distribution customers to participate in markets and System Service arrangements at the qualification stage reflecting NIE Networks' objectives. With the response to Question 2 as background, the Instruction Set process was developed to secure the distribution network while facilitating customers providing System Services and was accepted by industry.

In order to minimise barriers to participation, alignment between the Future Arrangements and DSO processes (at present Instructions Sets and any future processes developed), must be a key criterion in determining the success of Future Arrangements. The development of the Future Arrangements (and auction design), must respect network capabilities and take account of their congestions with the ultimate goal of aligning 'market' outcomes with network capabilities.

As already outlined, NIE Networks is seeking to develop its visibility and forecasting functionality to maximise access for distribution customers to provide System Services and participate in other markets. Development of the Future Arrangements and NIE Networks capabilities should align to deliver optimal outcomes for customers.

DSO Procurement of Services

NIE Networks has commenced its FLEX project which will see the procurement of customers' Flexibility services for managing network congestions. NIE Networks believes that the development of the Future Arrangements should take full account of DSO considerations in this regard and not create unnecessary

⁴ <https://www.nienetworks.co.uk/getmedia/c226929a-3d68-4c2e-b5ab-17195267fdb/Greater-Access-to-the-Distribution-Network-in-Northern-Ireland-Consultation.pdf.aspx>

barriers to participation in both TSO and DSO procurement processes enabling participants to stack services and revenues where technically possible. This is discussed further in our response to Question 14.

Q4 Is the general approach to the Project appropriate and complete?

NIE Networks does not believe that there is sufficient detail within the Scoping Paper to conclude whether or not the general approach to the Project is appropriate and/or complete. NIE Networks welcomes the opportunity for further engagement on this point.

Q7 Do stakeholders believe the current qualification process, is the most efficient approach? Do stakeholders have any alternative proposals?

NIE Networks would seek clarification on the extent of the qualification being considered within this question and whether this encompasses DSO consent for participation and allocation of an Instruction Set or purely the technical qualification process to verify unit performance capabilities.

As DSO, NIE Networks' current role within the Regulated Arrangements falls within the qualification stage for units. Those connected to the distribution network are issued consent letters including an Instruction Set. Any proposals to amend this process must include the involvement of DSO from the outset.

In principle, NIE Networks believes that the qualification process should be streamlined, accessible and avoid any unnecessary barriers to participation. Low barriers to entry will promote participation, competition and liquidity, ultimately benefiting customers. NIE Networks believes that the qualification process should remain as open as possible to new technology types, as well as the demonstration of new services and communications techniques by new or existing technology types.

Q8 What are stakeholder views on the overall current governance arrangements including the contractual principles, the Protocol Document and the market ruleset? Should these be modified into an overall protocol document which captures all of the rules for providing and procuring System Services with increased regulatory oversight?

NIE Networks would note that any governance arrangements should not present a barrier to the TSO or DSO discharging any of their licence obligations for example, in relation procuring reserves or securing their networks.

Consideration should be given to, where appropriate, the requirement for an industry consultation process where modifications are proposed, with final approval resting with the SEM Committee.

Q9 Should System Services continue to be funded through network tariffs? Are there views on any alternative arrangements?

NIE Networks would note that while System Services are funded through network tariffs, this is specifically through System Support Services Charges and separate from Transmission Use of System (TUoS) charges as per Appendix 1 of the TUoS Statement of Charges.⁵

NIE Networks would note that any modifications to the funding arrangement should ensure the continued efficient procurement of System Services by the TSO and benefit to the customer.

Q11 What are stakeholders' views on the timing of auctions?

NIE Networks has incorporated comments on the timing of auctions in its responses to Q2 and Q14 below on auction design.

Q14 Do stakeholders have further views or proposals in relation to auction design?

NIE Networks' primary objectives are to maintain the safety and security of the distribution network; maximise network utilisation and access for distribution connected customers to participate in markets and provide the TSO with services. The auction design should reflect these objectives.

Consideration should be given to the segmentation of the 24 hour auction contract period into multiple blocks which could make System Services more accessible thereby promoting competition and driving greater value for customers. This approach would facilitate more tailored auction (volume) bids which more accurately reflect unit availability and facilitate participation by units with greater variation in availability e.g. Renewable Generation, Demand Side Response or Citizen Energy Communities as per the requirements in the CEP Electricity Directive (2019/944). Furthermore, the TSO could tailor its needs within a 24 hour period to reflect changing network conditions and generation compositions.

This approach would align more with current access arrangements for distribution customers through the Instruction Set process while a 24 hour contract period could present an unnecessary barrier to participation. It should be noted that at present, only 40% of distribution connected participants in Northern Ireland have an Instruction Set that permits 24 hour access and therefore the ability to fulfil a 24 hour availability obligation, potentially adversely impacting on the remaining 60% of distribution connected participants.

The detailed design of auctions should be developed in close cooperation with the DSOs as NIE Networks seeks to increase its capabilities with regard to visibility and network capacity allocation. The timelines for publishing or allocating network capacity closer to real time and System Service auctions should be designed in conjunction with one another to function efficiently and benefit all customers. The Future Arrangements should be sufficiently flexible to integrate increasing DSO capabilities over time.

Furthermore, NIE Networks would highlight its FLEX project, which is developing the end to end process to procure and operate Flexibility (Congestion Management). As described in detail by the Council for European Energy Regulators in their Paper on DSO Procedures of Procurement of Flexibility⁶

⁵ <http://www.soni.ltd.uk/media/documents/FINAL-TUoS-Statement-of-Charges-2019-20.pdf>

⁶ <https://www.ceer.eu/documents/104400/-/-/f65ef568-dd7b-4f8c-d182-b04fc1656e58>

(Ref C19-DS-55-05), the DSO has very specific needs in terms of location and time, which may only occur for a small number of hours per year and in which the DSO is completely reliant on the resources.

With the prospect of the same customers participating in TSO System Services and DSO Congestion Management services, TSO auction or contract design could have a significant impact on DSO outcomes. Designing Future Arrangements where only 24 hour contracts are available while the DSO may have narrower requirements could significantly reduce the likelihood of successful DSO procurement or significantly increase the price unnecessarily due to the opportunity cost of a 24 hour contract from the TSO. Ultimately, inconsiderate design will be to the detriment of all customers where higher cost solutions are implemented.

At present, in examples from Great Britain, DSO procurement of flexibility generally takes place far in advance of contract delivery, but in future timelines could reduce and the timing of DSO and TSO procurement and contract periods should align. Due to the smaller pool of participants in DSO procurement processes, it may be necessary that the DSO concludes procurement ahead of TSO procurement commencing to ensure DSO requirements are fulfilled.

NIE Networks, as DSO, would request close consideration of DSO developments and needs during the detailed design stage of the Future Arrangements. Where technically possible, NIE Networks believes that participants should be enabled to stack services and revenue streams thereby maximising value for system operators, participants and all customers through efficiencies.

Q15 Do stakeholders believe there would be benefit in maintaining the Fixed Contract Arrangements for future procurement runs?

NIE Networks believes that there would be potential value in maintaining the Fixed Contract Arrangements, particularly in relation to new or emerging technologies however clarification is required as to whether contracts of this nature would be compliant with the requirements of the relevant legislation on the timelines for the procurement of balancing capacity or reserves.

Other Comments

As discussed during the SEM Committee's workshops 26 August 2020 and 17 September 2020, regarding the procurement of specific Congestion Management services, NIE Networks would note the following.

NIE Networks recognises the important role that Congestion Management will play in securely operating electricity networks in Northern Ireland in future due to the challenges and capital costs of delivering new electricity infrastructure.

However, Congestion Management, as an alternative to network investment, is different to System Services as per their definition in the CEP with separate use cases and funding arrangements. The CEP Electricity Directive (2019/944) defines an Ancillary Service as a *"service necessary for the operation of a transmission or distribution system, including balancing and non-frequency ancillary services, but not including congestion management."* In essence, NIE Networks believes that System Services for system stability purposes are fundamentally different services from Congestion Management for investment deferral purposes and should be treated accordingly.

System Services are funded and operated on an all-island basis, and should Congestion Management be treated in the same manner consideration should be given to the potential for cross-subsidisation e.g. customers in one jurisdiction contributing to defer network investment in another thereby reducing the network component of customers' electricity bills in that jurisdiction.

When introducing Congestion Management as an alternative to network investment, the decision making framework must appropriately and fairly consider network investment and Congestion Management ensuring the optimal long term solution is delivered for customers.

NIE Networks would note that it has commenced its FLEX project, establishing the end to end processes for procuring and operating Flexibility (Congestion Management) in Northern Ireland and that in Northern Ireland, Congestion Management services will almost exclusively be provided by customers connected to the distribution network.

With respect to its FLEX project, Congestion Management and System Services, NIE Network believes that it is beneficial to enable participants to stack services and revenue streams, where technically possible, thereby maximising value for system operators, participants and all customers through efficiencies.

Conclusion

NIE Networks is seeking to support the development of arrangements that meet the Objectives and Assessment Criteria, work for all relevant stakeholders, respect network capabilities, and that are compatible and, where technically possible, enable stacking between other markets and revenue streams including DSO Congestion Management services.

NIE Networks welcomes the opportunity to respond to the SEM Committee's Scoping Paper on the Future Arrangements of System Services and believes the DSO must play a central role in the development of Arrangements. NIE Networks looks forward to further, detailed engagement with the SEM Committee and all other stakeholders on this matter.