

# **ED3 Sector Specific Methodology: Consultation Response**

## **Smarter Grid Solutions**

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### **About Smarter Grid Solutions**

Smarter Grid Solutions (SGS) is a Mitsubishi Electric company. For over 17 years, SGS has been developing and delivering Distributed Energy Resources Management Software (DERMS).

The company's innovative and proven Active Network Management (ANM) technology enables power companies to grow their existing grid capacity to connect more renewable energy and respond to rising electricity demand. This is more cost-effective, sustainable and timely than building new grid infrastructure, helping to make the cost of a low carbon transition more affordable for power companies and their customers.

SGS also offer several consultancy services to support developers, governmental agencies, and utilities to develop strategy and assessment of Distributed Energy Resources (DER). Our consultancy team is experienced and equipped to help with any challenge. We use various sophisticated in-house models and analytical techniques together with expert knowledge and real-world experience of DER grid integration to provide an excellent service.

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# 1 Executive Summary

Smarter Grid Solutions welcomes the opportunity to respond to Ofgem on the topic of the Electricity Distribution Price-Control (ED3) and participate in the ED3 Sector Specific Methodology Consultation. The ED3 price-control window falls at a critical stage in the decarbonisation of the electricity supply industry, reflecting a period of grid reinforcement, digitalisation, and connection activity that is required to achieve a low-carbon, flexible grid. What DNOs deliver across this window, and how they are incentivised to deliver, will play a significant part in whether our industry meets achievable net-zero ambitions.

Smarter Grid Solutions is supportive of the plans that Ofgem has set out in the ED3 Methodology and has based this consultation feedback on our expertise in smart grid operations, harnessing flexibility, and facilitating accelerated network connections. Our response highlights specific areas where we recommend further attention and clarification of roles to avoid mixed messaging and ensure clear instruction to DNOs on desired direction and outputs. We highlight the important role for Active Network Management (ANM), not as an alternative to reinforcement as implied in the draft methodology, but as an accelerator for connections that will often be a temporary enabler ahead of reinforcement. Failure to recognise this by focusing on reinforcement at the expense of ANM will significantly delay connection timescales and omit a key enabler for not just faster connections but for many of the DSO operational functions such as voltage control and flexibility dispatch.

Our response focuses on the following topics from the methodology, reflecting our areas of activity and expertise:

- Accelerating grid connections, effective reinforcement, and the role of non-firm connections
- Voltage and losses optimisation.
- DSO and the role of flexibility within maturing markets.

We welcome the opportunity for Ofgem to contact us for any clarifications and offer to hold a dedicated session to further discuss aspects of this response, in particular the role of Active Network Management.

## 1.1 Smarter Grid Solutions: Context for Response

**Extensive Experience Deploying and Supporting the ANM Journey (Connections).** We have worked with DNOs and DER Developers for over 17 years to facilitate the connection of generation onto increasingly congested networks. Our DER Management System (DERMS) platform has

enabled over 1.5GW of accelerated and lower-cost connections to GB distribution networks since first deployment in 2009. It is through the real-time monitoring and control of networks that our DERMS platform enables Active Network Management (ANM) and flexibility dispatch. ANM is the core enabler for the 'Curtailable Connections' access product that was defined following the Access Significant Code Review (*Decision Published 2022*). Curtailable Connections formalised and standardised the DNO offering of 'Flexible Connections' which was previously offered by most DNOs.

**Maturing Curtailable Connections while minimising curtailment.** Through our ongoing engagement with both DNOs and connecting DER Developers/Operators, we understand that with Curtailable Connections reaching a stage of maturity, there is now a drive to minimise curtailment where possible whilst still ensuring the deployment of Curtailable Connections reflects connecting customer's preferences and that network capacity and headroom is efficiently utilised.

**Evolving nature of curtailment to accelerate connections.** Our recent work with DNOs has delivered the *Technical Limits* functionality, accelerating generation and load connections to the distribution network where transmission system constraint was previously delaying connection timescales. This follows similar principles to Curtailable Connections: in this case managing import/export across the T-D boundary within secure limits, achieved by curtailing export/import at the Technical Limits customers.

**Optionality for connecting customers is crucial.** Our view is that in terms of connections it is most important to have a range of different network access products. Different network access products will be of preference to different connecting customers, and importantly they should have optionality to choose between inter-trip, timed access, temporary curtailable connections (ahead of reinforcement) or perpetual curtailable connections (in cases where high cost of reinforcement is undesirable). It is feasible to deploy these different solutions and still coordinate between them – clear rules of primacy are key to this, and technology must continue to seek ways of coordinating and minimising restriction to participating customers (generators, batteries and flexible loads)

**Further improvements are possible, and essential.** Even with these ANM-enabled connection products, there is an acknowledgment that GB networks are operated against relatively conservative limits and there are still areas where improvement could reduce the curtailment or restriction experienced by customers. Technical Limits is a good example of opportunity for improvement, where at present the limits applied are still based on seasonal worst-case conditions; more dynamic monitoring of transmission system status and headroom would provide capacity uplift beyond that released through current approaches to Technical Limits.

## 1.2 Areas of Response

Smarter Grid Solutions supports the majority of the proposals that Ofgem has put forward in the draft methodology, however there are topics that will benefit from further deliberation before business plan guidance and determinations are issued. We highlight some of these topics and areas of focus below.

There is a clear need to ensure network investment is delivered to reinforce the network and deliver the capacity needed to leverage generators and flexible batteries sitting in the connection queue. At the same time, grid access and connection products such as Curtailable Connections are a crucial enabler to accelerating renewable growth and connecting sources of flexibility to meet CP2030 objectives. The utilisation of the ANM infrastructure that enables this flexibility will be a lasting component of the energy system, even post-reinforcement, ensuring that the grid can be effectively managed and grid access maximised for renewables and flexibility providers. A good example of this is under abnormal conditions such as grid outages, where even firm customers may have restricted access; with support of ANM it will be possible to manage capacity to the real-time capacity of the reduced network and maximise grid access without need for operator intervention. ANM infrastructure will also be key to delivering the improved monitoring and control capability for emerging applications such as voltage control and losses management.

The following sections summarise areas of the methodology where we have particular support and in some cases suggestions for further consideration.

### **Active Network Management**

We believe that the methodology has some conflicting messaging regarding ANM, and oversimplifies ANM as an alternative to reinforcement, as opposed to an operational tool where accelerating connections is one value case (via Curtailable Connections), but there is also functionality to support voltage optimisation objectives highlighted as priority in the methodology.

**Curtailable Connections provides optionality to developers and in most cases a post-reinforcement go-firm date.** The introduction of Curtailable Connections in ED2 (as an output from the Access Significant Code Review) enshrined optionality for connecting customers faced with grid constraints and reinforcement: to take an ANM-enabled curtailable connection that has earlier connection date, or to await reinforcement. The curtailable connection offers typically involve a go-firm date, as they only offer curtailment as an interim step whilst the network is reinforced.

In some cases where a portion of high cost of connection is passed to the connecting customer, the customer may elect for a permanent curtailable connection as their preference. Ultimately, in most cases it is not a case of ANM vs Reinforcement, but presenting ANM-enabled curtailable connection as an interim measure that does not act against need for reinforcement. Some

terminology in the methodology consultation suggestions an option between ANM or reinforcement, but as we highlight here, in most recent cases of ANM deployment, distribution network reinforcement is ultimately used.

**ANM is not just about distribution network constraint management.** References to ANM in the context of DSO Incentive and Time-To-Connect metrics presents it as a solution to constraints that the DNO has agency over. However increasingly, in addition to managing distribution constraints, ANM systems are managing constraints from the transmission system – either directly managing local transmission assets such as capacity-constraints at Grid Supply Points (GSP), or indirectly managing wider transmission constraints via Technical Limits applied at the GSP. So whilst implemented by DNOs, these solutions are addressing the wait for reinforcement of transmission assets. It is important to understand the role that DNOs play in accelerating these connections when connections timescales are not defined by a DNO dependency.

#### **Enhanced Forecasting and Strategic Network Planning.**

**The role of forecasting and targeted planning will be crucial to prioritise investment in a resource-constrained reality.** Enhancing the ability to forecast network need in both operational and long-term timescales unlocks significant benefits across connected customers and all rate-payers. There is a reality that given the pace of change and connection activity on networks, it will not be possible to build out all necessary infrastructure immediately, and thus prioritisation will be required. Accurate and representative forecasting of network need is a crucial step in the process of assessing how the relative benefits of prioritised investment and flexibility (and timing of this need) can be of biggest benefit in facilitating connections, maintaining secure networks, and in the most cost-effective manner.

**Releasing operational forecasts to network users can influence and inform behaviour of generators and sources of flexibility to support the network.** As well as longer-term forecasts there is benefit in the improvement of short-term operational forecasts, and providing visibility of such forecasts to network users. This allows network users to optimise their own operational schedules to ensure they can meet their own need within the bounds of factors such as restricted network access. Incentivising DNOs to provide such operational forecasts will help enable network users to contribute to maximising flexibility in grid operations.

#### **Voltage Control**

**Monitoring and Control infrastructure deployed to support Curtailable Connections (ANM) is a key enabler for new voltage control use cases.** The renewed focus on DSO voltage control is welcomed as we see this as an area that has been nascent but will become an increasingly important factor in addressing operational complexity, releasing headroom, delivering social

benefits (conservation voltage reduction), and supporting wider system operation for NESO. Voltage control that involves co-ordination and scheduling/control of connected generator/battery assets and network assets (such as transformers) is enabled by the improved monitoring and real-time control that is already deployed for ANM and Curtailable Connection Use Cases. It is important that due consideration is given to the coordination requirements between voltage control use cases and existing network control use cases that manage increasingly sophisticated networks. The SP Electricity North West *QUEST* project has done much to demonstrate coordination between ANM, voltage optimisation, and CLASS voltage reduction services, coordination that could be adopted widely by all DNOs.

**Voltage control can deliver different use cases across the network – this must be considered in context of DNO incentive and reward.** There must be carefully considered delineation of different voltage control use cases when setting DNO direction and incentives. For example, noting distinction between voltage control provided to the NESO as a flexibility service (or obligation) and voltage control to benefit distribution system operation through connections facilitation, losses management or conservation voltage reduction to minimise customer demand.

#### **Maturing Flexibility Markets**

**There is a lasting role for flexibility and enhanced customer participation in network operation – flexibility services are an important enabler to meet other network operation objectives (voltage optimisation, minimising curtailment and maximising access to capacity).** We consider that the role of flexibility as a crucial tool for operational management of the network and are pleased to see that Ofgem has recognised this from its position in the ED3 methodology. We believe flexibility can have an important role in ensuring cost-effective network investment and releasing capacity. We believe more focus should be given to the role of flexibility to increase network access/headroom in operational timescales. Essentially working alongside ANM and Curtailable Connections, to ensure that curtailment can be minimised.



## 2 Response to Consultation Questions

### 2.1 Long-Term Integrated Network Development Plans

**Q5. What are your views on the guidelines for proactive investment decision-making across all DNOs?**

SGS broadly supports this initiative, there is a clear requirement for network build in the coming years. Ofgem's focus on the importance of strategic locational planning in proactive investment is well founded and should ensure that anticipatory investment is low regrets. Ofgem has set out good indicators for network need, however we believe that in most low-regrets cases demand should be prioritised as a marker for investment over generation. This is because a future network powered by renewables will require a total installed capacity of generation that exceeds maximum demand to manage renewable capacity factors. Prioritising demand as a marker for investment avoids oversizing the network and consumers over-paying for network build.

We note the proposal that in assessing proactive investment, DNOs consider the risk of non-firm connections experiencing excessive curtailment "over acceptable thresholds". At present, DNO assessment of curtailment is relatively limited, however we have seen improvement in DNO internal capability to assess curtailment levels. Today assessment of curtailment is to provide connecting customers with estimation of impact to inform their decision to accept a connection offer; this consideration of proactive investment must see DNOs expand their study capability to look at how curtailment levels will evolve with new connections and future network development. This would also benefit from greater definition of the 'acceptable thresholds' which will inform such investment.

### 2.2 Incentive for Larger Connections

**Q26. Do you think we should financially incentivise the Time-To-Connect metric in order to accelerate connections and achieve the right outcomes? Are there other changes we should consider? How would any change sit alongside the current incentives?**

SGS is interested in the evidence that has been presented to Ofgem that shows DNOs could significantly accelerate connections in response to an incentive. There is potential that such an incentive may encourage DNOs to greater consider the options such as ANM that may accelerate connections, even if seen as an interim action ahead of reinforcement.

It is important that any incentive considers the causes of slower connection timescales, as these are not always in areas of DNOs direct control. In our work with the DNOs, we observe that delays to generation and battery connection timescales have often sat outwith the power of DNOs to

directly manage, often reflecting supply chain challenges, planning constraints, or transmission system constraints. An incentive/penalty scheme should only be applied where it is clear that the DNO has a strong opportunity to influence the outcome. Such a metric will bring all DSOs into the same format of reporting for Time-To-Connect, whereas today DSO Incentive reporting may include similar metrics albeit potentially recorded via different methods.

Some elements of the supply chain can be managed through strategic long-term planning, and Ofgem has rightly placed more focus on managing these elements through the strategic planning requirements.

Whilst some connection timescale factors sit outside of DNOs immediate control, there is evidence that through enhanced collaboration with other parties, DNOs can still influence timescales. An example is the introduction of Technical Limits as a means to accelerate distribution connections impacted by transmission system constraints. Incentivising Time-To-Connect may provide further drive within DNOs to identify new methods of accelerating connections using smarter interventions.

If introducing Time-To-Connect, it is important to note that under Curtailable Connections, connecting customers have the option to opt for a permanent non-firm connection, thus Time-To-Connect must be based on a connection date, regardless of firm or non-firm nature of the connection (as the customer may have opted for non-firm connection).

**Q28. Do you agree that we should not pursue the options we have set out that we would not consider further, ie incentivising flexibility and the SO:TO incentive? Why?**

Ofgem correctly acknowledges the different approaches for flexibility or flexible/curtailable connections to accelerate customer connection timescales. We do not agree with the statement that use of flexibility under ANM schemes could 'prioritise flexibility at the expense of network build' (4.73). Under Curtailable Connections, all connecting customers have optionality to opt for ANM-enabled connection as a temporary measure (ahead of a 'go-firm' reinforcement date), or a permanent measure. This reflects the importance of optionality for the connecting customers and that existing mandated processes offer that optionality.

Whilst not introducing a flexibility-specific incentive for connections, we believe that the Time-To-Connect incentive should require DNOs to illustrate the range of solutions utilised to accelerate connections, and the scale to which these are offered and deployed across connection offers.

It should be clear that if flexibility (directly remunerated service, or flexible ANM connection) can facilitate the desired outcome then the DNO should not be penalised for using it; however, the incentive should be on the outcome, not the method of achieving it.

Similarly, for the SO:TO incentive, there is a desire to achieve the output of accelerated connections, but that is already covered within the Time-To-Connect incentive. However, DNOs showing evidence and metrics of the methods that they have implemented involving SO or TO coordination should be an important part of the Time-To-Connect incentive.

**Q29. Notwithstanding the proposals we have set out under 'Redefining Connection Types', do you have alternative proposals for how to incentivise timely connections and improve the quality of service for larger connections?**

Whilst connections incentives typically focus on the assignment of capacity to customers in absolute terms (MW), in reality the introduction of Curtailable Connections and Technical Limits has shifted focus from the absolute MW capacity of a connection to the time-varying access to network capacity in MWh terms.

An important factor in Quality of Service is the DNO ensuring that it is implementing solutions and operational interventions that benefit connected customers, maximising the release of MWh capacity and in effect minimising the curtailment that customers will experience. We have already acknowledged that curtailable connections is an important solution for accelerating connection timescales, but DNOs must show that they are minimising curtailment to the best extent possible. For example, this may involve moving customers from inter-trip type connections over the more granular curtailment schemes, or facilitating trading of merit-order positions that allows customers to maximise their access to grid capacity when needed. We note that this may be better situated within DSO incentives as it relates to ongoing operation of the system rather than the connections process.

## **2.3 Digitalisation and Data**

**Q51. Do you agree with our proposed approach on all five themes? Why?**

### Strategic outcomes and internal capability

We support the intention to drive DNOs to be more strategic and to bring the Digitalisation Strategy Action Plans (DSAPs) into a more coherent and aligned approach. We also support the initiative to ensure that digitalisation is better aligned with these strategic outcomes and contributes to consumer value.

We acknowledge that there is a case for the DNOs to build internal capability in relation to digitalisation but caution that there are certain capabilities that are not cost effective for DNOs to develop and maintain in-house. This could include examples such as solution-specific expertise, or internal solution development/configuration that requires a high level of specialisation and the

application of which is sufficiently limited to make the recruitment and retention of such skills uneconomic.

#### Data Sharing Infrastructure Participation & Interoperability and Coordination

We strongly support the benefits that can be unlocked through interoperability and data sharing. Interoperability is a critical factor in digitalisation and the role it will play in the net-zero transition for networks. It is key enabler for DNOs to implement best-in-breed solutions to address their challenges whilst avoiding vendor lock-in across the full digital ecosystem.

Standard formats to data sharing is crucial for third parties to efficiently utilise DNO datasets, avoiding a scenario where all DNOs publish standard datasets in a different format, adding overhead and complexity for third parties looking to leverage DNO datasets. Improved data sharing enables network users to target connections, add value to network, and optimise their operation to reflect network need/availability.

We note the importance of enhanced data sharing between DNOs and TOs/NESO to better coordinate network operations – this is a key enabler to ensuring primacy, avoiding duplication/conflict and overall whole-system efficiency in operations.

#### Ethical and Proportional Use of AI

We support continued focus and reporting on how, when and why AI is used in the energy system. Transparency is important here, with the proposed reporting on governance measures welcome. Given relatively nascent nature of AI applications (particularly for operational applications), it would be challenging for Ofgem to implement specific license conditions which would have risk of not meeting evolving need as AI usage matures.

From our experience delivering mission-critical software products for DNOs, certain classes of AI have been ruled out entirely to ensure secure and robust processes in development and deployment of our software. DNOs must similarly identify the suitable classes and methods of AI that can safely be used by their teams across different functions of their businesses.

DNOs must be highly sensitive to the use of proprietary, sensitive or confidential information when using AI solutions and this must be reflected in governance measures. Misuse of AI can release sensitive information into the public domain and a recent example within SGS has seen a member of our team being able to bring back confidential power system information via a well-known public GenAI tool, reflecting a previous third-party release of that information to the GenAI tool. Uncontrolled exchange of data with public Large-Language Models can bring sensitive or confidential information into the public domain.

### Asset Visibility and Dynamic Data

We strongly support the initiative to drive improvements in both asset visibility and associated dynamic data. This can directly support the stated aim of increasing system value through congestion forecasting, enabling flexibility market participation and coordination with NESO, improved demand and generation forecasting, and faster connections or restoration times.

There will be an important role for third parties to provide solutions that utilise DNO asset and dynamic datasets, where third parties may be able to move more quickly in the development of new solutions to benefit system users in areas such as connections, commercial modelling for flexibility, or event forecasting (commercial, constraint, operational).

### **Q52. Do you agree with the need and role of the independent expert panel on interoperability? Why?**

Interoperability is a critical factor in digitalisation and the role it will play in the net-zero transition for networks. It is key enabler for DNOs to implement best-in-breed solutions to address their challenges whilst avoiding vendor lock-in across the full digital ecosystem.

Whilst we welcome the concept of an interoperability panel to provide recommendation on interoperability best-practice, we note there will be no direct mandate for DNOs to implement these recommendations or show that interoperability is being delivered. Thus we question to what extent an interoperability panel will improve or accelerate the adoption of common standards and protocols across the industry.

## **2.4 Innovation**

### **Q54. Do you agree that we should maintain the current NIA Eligibility Criteria? Why?**

We support the retention of the NIA fund and believe the eligibility criteria has been fit for purpose in driving innovation to support the energy system transition. The eligibility criteria to 'support the energy system transition' has a broad reach and encompasses innovations across commercial, technology, and process themes.

The specification that in the context of customers, innovation must benefit vulnerable customers does potentially exclude innovations that could be to general customer benefit. Ofgem should consider removing this statement, or amending it to state *"facilitate energy system transition and/or benefit to consumers especially those in vulnerable situations"*

There is an important role for NIA as the main form of innovation funding that sits outside the SIF framework, allowing DNOs greater flexibility to deliver projects at different cadence and timescale rather than be restricted by SIF requirements.

**Q55. Do you agree with our suggested approach for assessing and setting NIA? Why?**

Further definition is required to state what Ofgem would define when 'company does not have in place the essential mechanisms in place for effective innovation'. Any updates to expectations on NIA reporting for DNOs must have clear and standard requirements across all DNOs.

We welcome the opportunity for Networks to request an allowance above the base percentage, with justification. This ensures that good innovation concepts that have strong justification for NIA funding can progress.

## **2.5 DSO Network Planning**

**Q62. What additional data, digital tools, or visibility improvements are needed to enable DSOs to deliver proactive, spatially targeted network planning in ED3? Please provide examples of gaps or best practices.**

Whilst ED2 has made some improvement with the integration of operational concepts such as flexibility into longer-term planning, there is a need to improve this in ED3 and factor in the proactive nature of the planning task. There is a need for DNOs to move beyond planning network in MW terms and look at the true operation of the network in MWh terms. To achieve this, we are seeing some DNOs deploying tools to assist with time-series analysis to support assessment of investment options. Such tools can better reflect the fully flexible and dynamic nature of networks, ensuring more optimised network investment.

**Q63. How should DSOs incorporate flexibility services and connection process improvements into their network planning approach to ensure timely, efficient, and predictable connections? Should this be incentivised, and if so, how?**

It should be standard practice for DSOs to consider where flexible approaches can help to accelerate connections, or achieve any other customer or network benefit. DSOs should discuss these options with connecting parties transparently and ensure that the information allows them to make an informed decision. A key part of that is understanding areas like curtailment risk and providing customers with data to perform their own evaluation.

DSOs should consider what is ultimately in the interests of consumers when considering flexibility that is remunerated through market mechanisms as this cost is shared with all consumers rather than by the connecting party.

DNO planning activities should be cognizant of the flexibility services and operational actions (such as ANM) when performing planning tasks. The response to Q62 outlines improved time-series analysis, with simulation of flexibility/ANM delivery, as a key enabler to this.

Time To Quote and Time To Connect will already incentivise better network planning to ensure timely and efficient connections, therefore if introducing planning incentives for flexibility there is potential overlap between Connections Incentives and Planning Incentives.

## **2.6 Flexibility**

### **Q65. How can we best ensure that flexible connections aren't deployed at the expense of network reinforcement?**

There is low risk of flexible/curtailable connections being deployed at the expense of reinforcement. given that 'flexible connection' type arrangements are now enshrined in the 'Curtailable Connections' access arrangements, which were introduced as an output from the Access Significant Code Review.

Curtailable Connections provide optionality to developers and in the majority of cases a post-reinforcement go-firm date. Curtailable Connections provide connecting customers faced with grid constraints and reinforcement with the option: to take an ANM-enabled curtailable connection that has earlier connection date, or to await reinforcement. In the former, the curtailable connection offers will include a go-firm date, as they only offer curtailment as an interim step whilst the network is reinforced. Hence, in most cases network reinforcement is the longer-term action, with the curtailable connection an interim action to accelerate the connection date.

In some cases where a portion of high cost of connection is passed to the connecting customer, the customer may elect for a permanent curtailable connection as their preference. Ultimately, in most cases it is not a case of ANM vs Reinforcement, but presenting ANM-enabled curtailable connection as an interim measure (and not acting against need for reinforcement). Some terminology in the methodology consultation suggestions an option between ANM or reinforcement, but as we highlight here, in most cases distribution network reinforcement ultimately happens.

### **Q66. How can we best ensure that DER/CER are not prevented from accessing wider flexibility markets due to the use of ANM or lack of NESO-DSO coordination?**

There have been efforts to ensure that there is coordination between ANM and wider flexibility/service markets, such as the work delivered from the Open Networks project looking at 'primacy' rules that dictate how to best coordinate different actions/services.

We believe that improved data exchange between NESO and DSOs is critical to delivering primacy and ensuring that the actions taken are the best combination to maintain secure network operation and maximising network access for sources of flexibility.

The technology implemented in the ANM infrastructure that enables Curtailable Connections has the capability to vary principles of access rules and utilise other market data to reflect primacy rules or to prioritise DER access to system-wide flexibility if required. From our experience the limitation has been the pace at which NESO and DSOs have defined and implemented the primacy rules that aid coordination.

Primacy work to date has established relatively static rules dictating which services/actions take priority in an area (for example, ANM or System-wide balancing). Whilst this has helped address potential conflict, it is possible to enhance network access across all services through more dynamic rules or headroom-based approaches that better reflect the specifics of network or market need at a particular point in time. Such approaches could significantly improve wider network/market access for DER; however, to enable these there must be a) a willingness to define and implement more dynamic primacy rules and b) the operational and market data exchange between NESO and DSOs.

## **2.7 Voltage Management**

**Q68. Do you agree with the proposed voltage management responsibilities, for DSOs? Are there any aspects you disagree with, or any additional responsibilities we should consider?**

We agree with and support the proposed voltage management responsibilities, encouraging DSOs to implement improved voltage management. There is correct emphasis on the role of improved monitoring to understand voltage headroom and footroom, but to then deliver true benefit the control of network or customer assets to optimise voltage must be delivered.

With improved visibility of network operation through the voltage levels, infrastructure to provide autonomous and real-time control of the network has a role to play as key facilitator for this functionality. Autonomous control is essential to remove onus from Control Room Engineers and allow fast response for local use cases across the network and voltage levels – the scale of control actions that may be needed for voltage management applications cannot be delivered by operators in the loop. Autonomous, fast-acting control is essential to ensure control actions are taken when



required by the network, and can reflect the changing status of the network (changing topology, fast-ramping changes in behaviour from flexibility sources such as BESS).

Various objectives and outcomes from voltage control have been outlined in the methodology, and we stress the importance of DSOs understanding how to best coordinate voltage control across these different and potentially competing objectives.

Whilst there is important emphasis on the role of network/DSO assets to manage voltage (such as tap-changers and AVCs), the infrastructure implemented to deliver flexibility and ANM introduces opportunity to leverage the latent capability of connected customers such as BESS and generators, where services such as reactive power support can be provided.

**Q71. Do you support our proposal to include the reduction of reactive power injection on the transmission from distribution networks? Are there additional implications of this on the operation of distribution networks we should consider?**

There is potentially a role to play for functions such as tap-stagger to provide reactive power reduction/support to the transmission network. However, this should be an outcome-based assessment and only delivered by DNOs if it can be delivered securely and in such a manner that the contribution is of material impact to the transmission system. Further guidance should be sought from DNOs that have implemented such solutions.

**Q72. For each of the options outlined for Providing Flexibility what are the advantages and disadvantages, and which would be your preferred option, including any that we have not considered?**

Option 2 is the option which ensures that the voltage-reduction actions are delivered when truly required by NESO (and that proven by a needs threshold being exceeded), which means that when not called on by NESO, voltage control methods are available to DSOs for them to dispatch and benefit the distribution system (for example for demand-reduction to benefit customers such as in the SP Electricity North West *Smart Street* project).

Option 1 and Option 3 present the risk that service is over-used by NESO and in doing so it limits the ability for DSOs to utilise voltage control to further benefit the distribution system. It also increases the risk that frequent reduction in voltage has other operational implications for the distribution network.

**Q73. Do you have any comments on the proposal for the creation of a new incentive for the provision of flexibility through demand reduction?**

Care must be taken if introducing a new incentive for voltage-demand reduction to ensure that it does not incentivise operational behaviour that has adverse implications for other factors such as distribution-benefitting flexibility or minimising curtailment from non-firm connections.

**Q74. Do you support the requirement for a published voltage management strategy from each DSO, with an annual reporting requirement?**

We support this requirement. We recommend that Ofgem provides clear guidance on expectation for the metrics and outputs expected from this reporting.

## **2.8 Losses**

**Q75. Do you agree with the proposed working-level definition of loss optimisation as a cost-based, system-wide approach to managing distribution losses?**

We support cost-based approach as a quantifiable method that allows assessment against other factors that can be quantified. Though more consideration may be required to ensure all alternative/competing factors in the losses optimisation assessment can be similarly quantified.

**Q76. Do you support Ofgem's focus on loss optimisation over loss reduction in ED3? Why?**

We support the proposed move away from 'Losses Minimisation' to 'Losses Optimisation' which better reflects the complexity and at time competing objectives that a DNO/DSO faces.

Cost-base may not always be the ideal measure of optimisation, although it is perhaps the most quantifiable.

## **2.9 DSO Incentive Framework**

**Q81. Do you agree that the proposed aims for the DSO incentive framework appropriately reflect the core functional areas for ED3 (flexibility services, network planning, voltage and loss management)? Are there any additional priority areas that should be included, and how should these be measured?**

We support the core functional areas for DSO in ED3.

In addition to these core areas, whilst the methodology acknowledges that other incentives (such as Time To Connect) will already cover areas like curtailable connections, there is an important role for DSOs to ensure operational actions are taken to deliver ANM and maximise access to grid capacity in operational sense (where the Time-To-Connect incentive is planning-domain actions).

Similarly, the reporting of curtailment and ANM metrics (and how curtailment is being minimised) is an important part of the DSO role. This could fall within the role of the incentive framework to 'support DSOs to deliver greater operational efficiency' in the context of flexibility and ANM.

**Q83. Are the current parameters (Stakeholder Satisfaction Survey and Performance Panel) an effective way of measuring DSO performance? How do you view the role of Regularly Reported Evidence (RRE) in complementing these assessments?**

The process of running a Stakeholder Satisfaction survey is somewhat undermined by the DSOs having the opportunity to decide who they send it to. We believe RRE should be expanded where possible to allow ongoing reporting of metrics, balanced against the addition burden for the DSO and the cost of associated extra work in reporting.

In terms of reporting metrics on number of customers on non-firm type access arrangements, it is recommended to report on both the number of *operational* customers (i.e. those commissioned and exporting/importing on the network) and the number of contracted customers (i.e. those that have accepted such an offer but are awaiting connection).

**Q84. How can the DSO Incentive be designed to complement, and not duplicate, other mechanisms such as the Connections Incentive, BMCS and the Interruptions Incentive Scheme?**

This is a complex question that will require detailed analysis to ensure the outcomes achieved are the ones desired.

Whilst the Connections Incentive will cover the key metrics of Time-To-Connect to gauge success across areas such as ANM and flexibility, the DSO Incentive can reflect the work undertaken by the DSO team to assist Curtailable/Flexible connections once operational: improved forecasting, technology investments or decisions to maximise access to grid capacity, operational actions or use of flexibility to minimise curtailment, all as examples of how DSO Incentive can focus on the *operational* aspects of flexibility.