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Network Price Controls

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By email only

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ED3 Sector Specific Methodology Consultation

Dear Network Price Controls team,

Thank you for the opportunity to respond to your consultation on the ED3 sector specific methodology consultation.

Who we are

NESO lies at the heart of the energy system as an independent, public corporation responsible for planning Great Britain's electricity and gas networks, operating the electricity system and creating insights and recommendations for the future whole energy system.

At the forefront of our efforts is delivering value for consumers. We work with government, regulators and our customers to create an integrated future-proof system that works for people, communities, businesses and industry.

NESO's primary duty is to promote three objectives: enabling delivery of a cleaner, affordable and reliable energy system for current and future consumers. NESO will take a whole system approach, looking across natural gas, electricity and other forms of energy and will engage participants in all parts of the energy ecosystem to deliver the plans, markets and operations of the energy system of today and the future.

Our key points

- The energy system in Great Britain contains interconnected Transmission and Distribution networks. Changes in one can significantly affect the security, operation and planning of the other. This interaction has become increasingly evident in the last decade. It is now essential that developments, investments and operational decisions on the Distribution network complement, rather than compromise, the Transmission System and vice versa, with consumer benefit and value at the heart of those complex decisions and actions. This

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includes areas such as the connection of distributed energy resources (DERs), network expansion, flexibility services, and large demand disconnections.

- Digitisation and data interoperability is also critically important in delivering consumer benefit by contributing to the success of key activities including Regional Energy Strategic Plans and supporting continuous improvement in planning and operational activities. Accurate and reliable data is critical for processes such as forecasting to inform investment decisions and guide planning decisions. We welcome proposals to adopt common methodologies and consistency across organisations, including the adoption of the Data Sharing Infrastructure (DSI).
- Whole system strategic planning plays an increasingly important role during the RIIO-ED3 period. To unlock the full benefits of these plans, DNOs need to be set up to work effectively with NESO, particularly within the RESP framework. Clear definition and understanding of roles and responsibilities across the sector are essential for all stakeholders. It is also important to ensure that the timings of inputs and outputs are carefully coordinated and aligned to deliver the expected outcomes.
- Whilst we recognise that the consultation outlines the continued importance of flexibility in the next price control period, it is important to make sure that a change in focus to network build does not introduce a risk of losing benefits from work done as a result of the “flexibility first” approach in RIIO-ED2. It is not an either/or scenario, and the development of future network build also supports the connection at the Distribution level of additional flexibility capacity.
- We welcome the proposed clarity on Distribution System Operator roles and responsibilities, including network planning. Strategic planning should also incorporate processes to enable network maintenance and planned outages, coordinated with NESO and Transmission stakeholders to provide a strategic outlook across the six-year outage planning horizon. This would have to be supported by clear guidance on codes, processes, tools and incentives to enable a holistic and integrated approach.
- We also agree with the proposed voltage management responsibilities for DSOs and would welcome continued engagement on the development of effective incentives in this area. Alongside voltage management, network planning and outage planning should be core functional elements of the DSO incentive framework.
- For activities related to system restoration events we note that there is a need for an agile approach to ensure funding is readily available from an Electricity System Restoration Standard perspective.
- Given the scale of the investment anticipated for the RIIO-ED3 period, in developing the incentive framework, Ofgem should ensure that funding is demonstrably linked to timely and measurable outcomes, underpinned by robust accountability for delivery against plan. Incentives should be proportionate to the scale and complexity of investment, operate

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transparently and provide clear signals to the supply chain to support the timely expansion of infrastructure.

We look forward to engaging with you further. Should you require further information on any of the points raised in our response please contact Laura Thomson, Regulatory Policy Manager at laura.thomson@neso.energy.

Yours sincerely

Zoe Morrissey

NESO Director of Legal & Regulation

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Appendix 1 Consultation Question Responses

Long-term integrated network development plans

Q2. Are the proposed objectives for the long-term integrated network development plans appropriate?

Response:

Our response is centred around ensuring network developments do not adversely impact the security, operation, and planning of the whole system, as well as ensuring value for money for the consumer.

NESO discussions with various DNOs have confirmed that when DNOs expand their networks (specifically with cables), reactive compensation is generally not considered beyond that needed to ensure the quality of supply within statutory voltage limits is maintained for customer connections. This results in a net increase in capacitance (or MVArS) on the DNO network increasing system voltages and is typically managed via tap changes that 'shift' the reactive power onto the Transmission System. In turn, this gives rise to elevated voltage control costs for consumers, while also reducing our margins for system security.

The general sentiment here should be that capacity enhancements should not adversely affect the system parameters/control of the whole system. For example, the resultant MVAr change should be 0 or favourable to all system needs.

Q4. Do you agree with the proposed use of tRESP outputs in DNOs' network impact assessments?

Response:

1. We agree with the exception of two minor clarifications. The description of the tRESP Critical Planning Assumptions (CPA) output in the final point of section 3.15 should be adjusted for the text in bold so that it reads as follows. "Consistent planning assumptions (CPA) for electric vehicles, energy efficiency **related to domestic appliances and lighting**, and **domestic** heat pumps."
2. The tRESP scope has prioritised Distribution impact and where standardisation adds the most value. NESO is currently developing detailed user guidance for the CPAs. Ofgem should clarify that the DFES 2025 output to be used with tRESP means the DFES produced in 2026 with 2025 inputs, not the DFES produced in 2025.

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In addition, NESO and Ofgem are working together on the approach for DNOs to use NESO's "strategic investment" outputs to inform proactive and strategic investment by DNOs. We would expect further clarity in this area in the Sector Specific Methodology Decision (SSMD), aligned to the scope of the tRESP strategic investment publication. This clarification must include the benefit to a development that comes with being given a status of "Strategic Energy Need" e.g. the benefit in relation to timely joined-up network planning, but not a guaranteed connection, with no removal of the requirement to apply for a connection.

We agree with how the tRESP is called out as an input to the Long Term Integrated Network Development Plan, noting that more detail on this needs to be developed in this in the SSMD and business plan guidance / data tables including the new planning inputs assurance template, and we would welcome being involved in the review and development of those.

In terms of the naming of the plan, we would support reviewing the names of the Long Term Integrated Network Development Plan (as proposed in the SSMC) and the Network Development Plan (licence condition 25b) requirement, to more clearly distinguish the links and differences in their scope and objectives i.e. Long Term Integrated Network Development Plan to 2050, across load, asset health, resilience and environment, linked to the business plan, with the Network Development Plans as required under LC25b (ten years ahead, focused on load-rated using LTDS as its baseline and scope so not below primary substation).

Adapting for additional investment needs during the ED3 period

Q11. What are your views on the assessment of the adaptability mechanisms, and should additional criteria be included?

Response:

We broadly agree with the assessment of the adaptability mechanisms in Table 2 of the SSMC but would suggest that the current framing of the RESP re-opener as "RESP recommends additional Strategic Investment Needs (SIN)" could be interpreted as either including or excluding wider changes in Pathways. The language and intent should be reviewed and aligned with the definitions and interpretation in the full RESP Methodology and the language on proactive vs strategic investment. For example, is it the intention that this could trigger changes related to revised volume of interventions required on the low voltage Distribution networks for electric vehicles and low carbon heating, and not just larger projects of strategic value.

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Q14. What are your views on the proposed timing of the RESP reopener windows in years 2 and 4 of ED3?

Response:

In the recent "Open letter to industry from Julian Leslie on Strategic Energy Planning"¹ published on 20 November 2025, NESO provided an update on the timeline of the SSEP following the release of new energy generation cost data by DESNZ. By re-running the calculations to allow for this new data, the publication date of the SSEP will be extended by several months. Consequently, we believe that only one RESP reopener window will be needed during the ED3 period.

Redefining connection types

Q19. Do you have views or suggestions on how redefining connection types, with potentially more types being introduced, will be able to be operationalised at this level of granularity?

Response:

Our response is centred around ensuring new connections do not adversely impact the security, operation, and planning of the whole system, as well as ensuring value for money for the consumer.

Noting the increasing trend of reactive power contribution from the Distribution Networks over the last decade, which correlates with DER growth, NESO discussions with various DNOs have confirmed that when connecting DERs via cables for example, the connection compliance is assessed at the connection point (end of the cable). This results in a net increase in capacitance (or MVARs) on the DNO network increasing system voltages and is typically managed via tap changes that 'shift' the reactive power onto the Transmission System resulting in elevated voltage control costs for consumers, while also reducing our margins for system security.

The general sentiment here should be that new connections and any associated enabling works should not affect system parameters/control. For example, in the above case, the resultant MVAR change should be 0 as a result of the new connection.

¹ [NESO Open Letter on Strategic Energy Planning](#)

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Digitilisation and Data

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

Response:

Yes, we agree with the approach set out across these themes, particularly DSI participation, interoperability and coordination and asset visibility and dynamic data.

We welcome recognition of the need for greater interoperability, data sharing and asset visibility which are key to successful collaboration across NESO and DNOs to achieve activities required for Clean Power 2030. Inconsistencies in data and methodologies across organisations remains a barrier to the use of reliable data in planning and decision-making. Standardised data sets which are comparable and well understood across the industry will be essential for ensuring the success of key whole-system activities in the ED3 price control such as RESP.

Strategic Outcomes and Internal Capability

We suggest that strategic outcomes should also include whole-system cost efficiency, which requires leveraging all network capabilities to deliver benefits across the whole network.

DSI Participation

We welcome the proposal to consult on mandatory DNO participation in the DSI from MVP stage, and with the proposed MVP roadmap, expected in 2026. We encourage proactive engagement to identify the required data in preparation for sharing via the DSL, as early engagement, ahead of MVP launch, will help to secure benefits and deliver consumer value.

We support the use of the RIIO-ED2 digitilisation re-opener to fund necessary investments, including operational data sharing initiatives.

Prioritisation of real-time operational data sharing, as well as dynamic and static data from DNO wider network areas including Active Network Management (ANM) and wider network data, would also support coordinated system operation.

Addressing contractual barriers, such as those seen with TIDE's Operational Data Sharing (ODS) is also essential to achieving industry-wide data sharing.

Interoperability and coordination

We support Ofgem's focus on interoperability, which is critical for CP30 and whole-system operation. Currently, a lack of data standards and system interoperability creates challenges and inefficiencies resulting in complex workarounds, and risks inaccuracies. Interoperability beyond markets, and including operational coordination, for example, on outages, restoration and resilience would be beneficial across all timescales. The lack of standards also limits the ability to increase participation of decentralised energy assets in operating the system. To achieve interoperability, harmonisation and standardisation of APIs, data models, and taxonomy are essential for national solutions and consistent data sharing. This requires collaboration, coordinated effort, clear governance and incentives for DNOs and could leverage existing forums including ENA open networks.

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Interoperability is critical to NESO’s ability to access distributed flexibility opportunities and operate a clean energy system. It must go beyond current market-focused interpretations and cover all timescales and functional areas. While the ENA’s work on defining a standardised API has advanced inter-DNO interoperability for flexibility market participation, it has not fully addressed NESO–DNO interoperability. To enable seamless data exchange and coordinated system operation, a standardised national solution is needed to harmonise NESO–DNO ANM data exchange and ensure NESO’s requirements are incorporated at the pace required.

Wider harmonisation and standardisation, from a technical/operational perspective is required to streamline the roll-out of national solutions and initiatives that deliver enhanced visibility and access to both DERs and CERs. This requires establishing consistent, harmonised frameworks for data sharing between DNOs/DSOs and NESO, moving away from fragmented, DNO-specific approaches.

Investment focus on NESO–DNO interoperability (especially for data standards) will reduce future digital costs as data volumes increase, where manual reconciliation will no longer suffice. NESO supports the independent expert panel to advise and monitor interoperability, but this must be complemented by 'direct mandates' for faster delivery. The panel should prioritise real-time operational datasets as the foundation for interoperability.

Consistency of data nametags, models and taxonomy across different organisations and among different timescales is key (such as planning and real-time operation).

This requires a coordinated, cooperative effort and the right set of incentives for DNOs to share data which requires recognising the interoperability challenge, and a commitment to progress operational data sharing harmonisation at pace along with NESO.

Asset visibility and dynamic data

The shift in focus in ED3 from static to near real-time data, as well as improving the baseline of static data, is very welcome. Requirements should be agreed at an industry level and harmonised across all DNOs to ensure consistency and avoid conflicting obligations. The priority should be secure, reliable real-time data exchange, enabling significant benefit, improved network operations, better demand forecasting and enhanced situational awareness.

This capability will unlock benefits and improve efficiency in network operations, demand forecasting and situational awareness. To achieve this, we would seek industry’s support to accelerate real-time data exchange through standardised approaches across these functions. Examples of the minimum data which we suggest should be considered are set out in the table below.

DERs	<ul style="list-style-type: none"> • Active and reactive powers, • Voltage at connection point, • Circuit breaker status.
DNO sub-Transmission network (as defined by GC0139)	Power lines and under-ground cables: <ul style="list-style-type: none"> • Active and reactive powers, • Circuit breaker statuses.

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	<p>Power transformers:</p> <ul style="list-style-type: none"> • Active and reactive powers at both primary and secondary(ies), • Tap changer position, • Primary and secondary(ies) circuit breaker statuses. <p>Reactive compensating equipment:</p> <ul style="list-style-type: none"> • Reactive power, • Circuit breaker status. <p>Busbars:</p> <ul style="list-style-type: none"> • Voltage, • Circuit breaker statuses. <p>Loads:</p> <ul style="list-style-type: none"> • Active and reactive powers, • Circuit breaker statuses. <p>ANM (or intertrip) schemes:</p> <ul style="list-style-type: none"> • Active power, • Any signal that is used to activate/deactivate an ANM constrain. • ANM set-point signal that ANMs send to assets under its control whenever an ANM constraint is active (often a MW set-point for DERs).
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We recommend that DNOs propose proportionate dynamic visibility measures based on consultation with stakeholders, including NESO, who require access to this data, with cost-benefit analysis reflecting whole-system needs to assist in prioritisation of implementation. Current cost-benefit framing could risk limiting the potential of DER asset visibility. As DNOs have visibility of all DERs connected since 2019/20, albeit with lower refresh rates than that which NESO currently has, it would be beneficial to ensure that this data is shared across industry.

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Alongside Flexibility Market Asset Registration improvements for static asset registration, actions to enhance dynamic asset visibility should also be a priority. Consideration also needs to be given to the approach to avoid limiting DER visibility to enable sharing to deliver whole-system cost efficiencies.

DSO Network Planning

Q60. Do you agree with our proposed scope for the DSO's role in network planning for ED3, including leading long-term integrated development planning and enhancing forecasting? How should DSOs ensure that future iterations of these plans align with emerging strategic inputs such as the RESP and SSEP?

Response:

Yes, we broadly agree with the proposed scope for the DSO's role in network planning but would make the following comments.

- Given that some DNOs have progressed further in implementing DSO functions than others, clear boundaries will be needed to prevent duplication between the activities of NESO and the DSOs. Areas within which this is potentially an issue include MW and future MVar dispatch.
- We also believe that it is important to ensure consistent, clearly described DSO roles and responsibilities to avoid varying levels of interpretation across the sector. We also suggest that consideration is given to the benefits that a well-defined DSO SQSS would provide to outline demand security requirements beyond Distribution Licence conditions and Engineering Recommendations P2 (EREC P2)
- Strategic planning must make allowance for network maintenance and planned outages, coordinated with NESO and Transmission stakeholders.
- To support this holistic approach, clarification is required covering areas such as codes, processes, tools, and incentives.
- Ofgem should provide further guidance on its expectations of DNOs in relation to the multiple current use cases of DFES. These encompass both medium-term forecasts of the *expected network* outcomes linked to security of supply obligations and medium to long-term scenarios to net zero informed by the strategic direction set by RESP Pathways. For example, should DNOs include both forecast and pathway-informed scenarios in their DFES going forward, what is the level and nature of alignment to RESP for each outcome, etc.
- Ofgem should clearly message that the full RESP v1 (multi vector, across demand and supply) will reflect within it the outcome of the SSEP v1 (electricity and hydrogen, generation and storage), so that DNOs should use the RESP v1 as their strategic input.

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Q61. How should DSOs best coordinate with other parties (e.g., NESO, local authorities, IDNOs, gas networks) to deliver whole-system outcomes through network planning? Are there specific governance or data-sharing arrangements that should be strengthened?

Response:

There are currently arrangements being established for some DNOs/DSOs to share asset-level availability data ahead of time for NESO to use in outage decision-making and planning. Understanding the value of this data-sharing for decision-making will help determine the benefit of proposing that this is more widely rolled out across all DNOs/DSOs.

Formalising data-sharing governance and Service Level Agreements at the industry level is essential to ensure clarity of expectations and commitments across stakeholders. The DSO should manage the data-sharing role, given their regular contact with DER providers across their network. Constraint management and outage planning coordination would be many times more complex if NESO had to manage the embedded participants and communications with these.

NESO expects to work with DNOs/DSOs through the System Access Reform programme to identify and implement process improvements.

Q62. What additional data, digital tools, or visibility improvements are needed to enable DSOs to deliver proactive, spatially targeted network planning in ED3?

Response:

As visibility of DNO/DSO assets increases to a national level, processes and tools must be developed to convert raw data into usable formats for stakeholders. NESO is piloting this with NGED and UKPN via a specific NAP tool, which could be expanded nationally. DNO/DSOs will also need to consider the implications of increased data sharing on their own systems and processes, including the expectation that all DNOs introduce SCADA data acquisition for half-hourly monitoring of primary substations and above, and smart-meter informed methods for Low Voltage load assessment, if these are not already in place.

Forecasting plays a crucial role in network design, planning, and operation, including the early identification of system risks. DNOs/DSOs currently utilise different forecasting methodologies, presenting challenges when attempting to use this data to inform planning and decision making across long, medium, and short term timescales.

There is a need for DNOs/DSOs to develop and deploy common and reliable forecasting methodologies that will better inform RESP and more general system planning/operation activities.

Dynamic data from DERs and the wider area network is also fundamental to resolving this issue. Sharing of this data with NESO is essential to enable accurate forecasting, coordinated system operation, and secure dispatch decisions. Without this visibility, whole-system efficiency and resilience are more difficult to achieve.

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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?

Response:

DSOs should be incentivised based on delivery, rewarding timely connections and network reinforcement. Flexibility should be seen as a strategic tool rather than the used for its own sake, with clarity being given on when network reinforcement would be considered alongside, or instead of flexibility provision.

Flexibility continues to be a vital element in the energy system of the future, and incentives need to balance this carefully.

Signals need to be clear to support investment with appropriate mechanisms, such as output delivery incentives to encourage on time delivery. Incentives encouraging a whole system holistic approach to planning should also be considered.

Flexibility

Q64. Do you agree that changes are required to the CEM tool to implement our proposed approach in ED3? Are any other changes needed?

Response:

Yes, we agree. Any evaluation model should be revisited to support any new approaches and outcomes. The key is to understand the trade-off between flexibility services and network build, ensuring consistency across industry participants and critically, continued engagement of flexibility service providers.

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

Response:

The incentivisation model for both flexibility and reinforcement must be fit for purpose, with targeted and sufficient funding and appropriate timescales for network reinforcement included in long-term plans beyond Clean Power 2030. Overreliance on ANMs and flexibility may be unsustainable and risk system operability and security. These should be used as tools to complement, rather than replace network reinforcement.

We also recognise that there are currently connected assets with non-firm connections. If new customers are connected with reinforced network, consideration should be given as to whether currently connected assets should be changed to firm connections.

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Incentives that require demonstrating the suitability of prioritising flexibility provision over network reinforcement and build could be used to ensure the best outcome for the consumer. This could set out a responsibility on DSOs to proactively identify when reinforcement is the right solution and then incentivise them to deliver it. This would be achieved through activities such as enhanced forecasting, visibility of need and long-term planning to determine when network issues are structural and reinforcement would better address this, rather than flexibility management. This aligns with the proposed expanded DSO role in long-term integrated planning.

As proposed in the consultation, DSOs could provide transparent justification for use of flexibility to defer reinforcement and encouraged to demonstrate that any deferral of build is time-bound, efficient and based on whole-system value. Output Delivery Incentives or another appropriate mechanism that tracks and rewards or penalises divergence around those parameters could be used to ensure that delivery of the necessary build is incentivised within a framework that shifts the focus, to a proactive approach that identifies and delivers the right solution – flexibility or build – at the right time.

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?

Response:

Dynamic data-sharing is critical, and a clear understanding of how Active Network Management (ANM) schemes interact with services is needed, with business rules to avoid conflicts and the ability to amend ANM functionality dynamically. A joint industry working group could help ensure consistent operation of DNO ANMs.

In the Market Facilitator draft delivery plan there is an action to review flexible connections, and it also outlines how conflicts will be managed to support NESO-DSO operational coordination. We are fully committed to working with the Market Facilitator to support implementation of flexibility markets rules.

Fractal Flow is an engineering solution proposed to alleviate the risks associated with the current lack of coordination between NESO-DSOs². It will create a unique platform to provide increased visibility of network behaviour to inform operational decision-making. To maximise its impact, we would like to see this solution progressed as a priority, with successful approaches established as industry-wide standards adopted consistently across all DNOs.

Dynamic data sharing is critical. Real-time visibility of ANM flows and expanded Operational Data Sharing (ODS) scope including wider area network data should be considered alongside network model sharing. These capabilities enable NESO to forecast LV load and generation accurately, simulate DNO networks to identify conflicts and avoid dispatching assets behind DNO constraints, improving system security and efficiency.

² [SIF R3 Discovery - Fractal Flow \(Partner\) | National Energy System Operator](#)

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Q67. Are further incentives required to encourage the use of flexibility in line with our approach for ED3?

Response:

We support the consultation position that networks should be built out to ensure that Distribution network capacity is not a blocker to the uptake of the CERs and DERs required by the wider system. This is critical to ensure that there are sufficient distributed energy assets for Clean Power 2030. However, DNOs should also be incentivised to ensure that they are connecting sufficient distributed flexibility to their networks in the right locations (in line with SSEP) to meet CP30 needs at a national level. These requirements should be considered as part of DNO decision making around the connection of distributed flexibility assets with support flexibility schemes. Decisions on network build vs flexibility should not solely consider local flexibility use cases but also national flexibility use cases.

Both flexibility and network reinforcement should be incentivised, with significant investment and stakeholder buy-in required. Further incentivisation is likely needed but must be balanced with reinforcement incentives.

As outlined in our response to question 65 we think that incentives should be designed to deliver the right solution at the right time. We would welcome further engagement with Ofgem and industry on the design of these critical mechanisms to deliver whole-system consumer benefits.

It is also important that all DNOs collaborate with NESO, directly and via the Market Facilitator, as flexibility can only be effectively exploited with structured and strategically aligned cooperation. Where organisations are incentivised to prioritise different objectives, the resulting mismatch and misalignment slow down joint efforts to implement solutions that allow tangible delivery progress.

Voltage Management

Q68. Do you agree with the proposed voltage management responsibilities for DSOs? What metrics or KPIs should be used, and should these be codified or incentivised?

Response:

Yes, we agree with the proposed responsibilities. Improving monitoring is important in order to measure the impact of voltage management and ensure there are no unintended consequences. Improving DNO awareness of the impacts of the Distribution network on the Transmission network would help them to uphold their obligations related to whole energy system requirements.

We agree with enhancing management to ensure voltage stays within SQSS limits. Controlling the power factor within a defined range at the DNO/TO interface would be an important measure in managing Transmission level voltages. Having greater control of reactive power at a more granular level (i.e. at each GSP) would also make the Transmission network more resilient.

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We welcome the requirement to provide flexibility by temporarily reducing voltage as instructed by NESO. Ideally, DSOs would provide flexibility in MW or MVar at GSP level, rather than NESO procuring services from the DNO network. We would welcome further engagement on how best this can be achieved.

There is a growing need for sustainable and complementary voltage control capability from DSOs to halt and reverse the adverse impact on whole system security and consumer cost. This year, across Europe, we have seen how voltage control can and has led to total system losses (e.g. the 2025 Iberian Peninsula blackout, and the 2025 North Macedonia blackout), demand disconnection, damage to equipment, and elevated consumer cost (as a result of BM instructions), with reactive contribution from the Distribution System a significant contributing factor.

As system operators, DSOs not only play a critical role in managing voltage within their own network, but their actions can drastically affect Transmission System security and operation. DSOs have recently initiated a modification request to relax their statutory limits due to control challenges on their network. Our view is that DSOs should be investing in and leveraging their voltage control capabilities rather than seeking relaxation of the limits, which would further reduce security margins.

We agree that improved voltage control capability from DSOs will yield a better quality of service from DSOs, reduce Transmission System impact, improve overall system security, and reduce consumer cost.

NESO are required (under our license and SQSS) to ensure voltages at User connection points (such as DNOs) remain within the SQSS limits. The historic top-down flow of power from Transmission to Distribution negated a need for such a requirement for the reverse flow from DNOs. However, the rapid evolution of the Distribution Networks (particularly over the last decade) has led to extensive network expansion, large volumes of DERs connecting, and more efficient loads, all of which have contributed to the reversal of power flow across the T-D boundary (specifically reactive power).

There are currently no license or code requirements in place for DNO reverse reactive power flow, and DNOs can transfer unlimited reactive power (up to asset MVA design ratings). This has had a knock-on impact to the Transmission system security whereby excessive reactive power contributions from the Distribution System are contributing to voltage control challenges, resulting in reduced security margins and significant consumer cost.

We are very supportive of the introduction of a reactive power envelope at the T-D boundary, noting that this is a Grid Code requirement for Generators (ECC.6.3.2) and EU Grid Supply Points (ECC.6.4.5.1), but not existing Grid Supply Points. A reactive power envelope for GSPs at the T-D boundary will provide clear criteria to design, plan, and operate the network to, delivering greater certainty and predictability to all parties. Our view is that the target reactive power envelope for all GSPs should match that for EU Grid Supply Points under ECC.6.4.5.1 (0.9 lead and lag) within the

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Grid Code, to enable consistency and fairness across all Transmission System users and within DNO networks.

Noting that day-to-day system operation is becoming more complex, we need to ensure that this complexity is reduced as far as practicable, and ensure the system is operable and predictable for all control room staff (DSO and NESO). As a result, we would caution against leaving voltage control requirements open to interpretation and/or defining the requirements on a GSP-by-GSP basis across DSOs as this could result in bespoke solutions being implemented across the system, reducing the desired and valuable consistency, predictability, and controllability from a whole system planning and operation perspective. Furthermore, we should be cognisant that while one-time targeted Transmission investments could be suitable for short term needs, such investments would defer regional challenges for a period but will not secure a long-term resolution for our current and future voltage whole system control needs. Furthermore, we should be cognisant that one-time targeted Transmission investment has a time limited benefit, deferring regional challenges for a period. The root cause of increasing reactive power flow at the T-D boundary is not addressed, resulting in further future investment.

A common target power factor approach is viewed as the optimum solution for fairness and consistency across Transmission System users, and from a sustainable enduring system design and operation perspective, providing certainty across the industry. Other international system operators (e.g. Tennet of Germany, and Svenska Kraftnät of Sweden) have already implemented similar operational envelope solutions. It may be appropriate to allow a transitional period to enable DSOs to meet this target as it could require investment to implement. We should be mindful not to be too prescriptive on how DSOs meet/control within the target envelope, enabling DSOs to innovate and define how this may be achieved (e.g. via DER control, demand control, reactive equipment etc.).

There is a need for DSOs to support the development of interim solutions in regions where reactive power contribution from the Distribution to the Transmission System is excessive, to optimise short-medium term system security to reduce consumer costs ahead of the aforementioned transitional period.

Reliable operational metering is critical to ensuring situational awareness and decision making for all control rooms. There are currently no requirements to maintain/calibrate operational metering across the whole system, noting that settlement metering (Elexon) is routinely calibrated and maintained, and this should be explored further to ensure a consistent approach is taken.

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Q69. In your view what would be appropriate metrics or KPIs by which the success of delivery of these responsibilities could be measured? For each of these metrics or KPIs, should this target be codified in a licence condition or otherwise incentivised?

Response:

In relation to the proposal to provide reductions within five minutes of an instruction from NESO, recent OC6 demand control tests show that on average DNOs implement voltage reduction in seven minutes, similar to the average established by a Grid Code review in 2011.

Measuring this could be done through an annual OC6 demand control test. Although this is not currently a requirement on DNOs, all have tested the voltage reduction capability for the last four years in collaboration with NESO. We would welcome a further reduction in time to implement voltage reduction where it is good value for consumers.

A further way of testing reactive power control capabilities could be carried out in real time periodically between the DSO and NESO. DSOs could also report their reactive capability availability per GSP in a similar way to Generators via GenVar submissions.

Depending on how it is implemented, the time to implement voltage reduction could be set out in the Grid Code.

Our view is that the reactive power envelope requirement should be codified via the Grid Code, through the retrospective application of ECC.6.4.5.1 to all GSPs, with a suitable transition/grace period to enable compliance.

KPIs could include MVARs absorbed/injected into the Transmission System per month overlaid with NESO/DSO instructions to determine performance.

Our view is that once DSOs have established voltage control capabilities/the transition period has elapsed, DSOs should target operation to unity power factor at each GSP (unless otherwise agreed mutually between the DSO and NESO), with NESO able to instruct operation within the envelope (0.9 lead – 0.9 lag), and vice versa. It may also be appropriate (once the control capabilities have been established and proven) for DSOs to provide reactive power capability like that currently provided by generators under the System Ancillary Services (Grid Code CC.8) to NESO. Instructions from NESO to embedded generators bound by the Grid Code (e.g. BELLA and BEGA connections) should be taken into consideration via settlement metering. Also noting that penalties or payments to NESO may be appropriate where DSOs demonstrate a lack of control and/or request injection/absorption from the Transmission System (e.g. a 2 way service agreement with a whole system benefit). This may negate the need for a direct incentive (due to ongoing payments) and provide consistency and fairness across all Grid Code Users.

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Depending on the metric or KPIs chosen, some may be best codified in licence. We would welcome the opportunity to work with Ofgem and DNOs/DSOs further to determine and agree these.

Q70. How can we support DSOs in getting access to useful 3rd party voltage data from assets such as EV chargers?

Response:

Data that is to be shared and utilised across industry needs to be available in a common format to support interoperability. Ofgem should incentivise using existing 3rd party data for monitoring voltage where it is accurate, reliable and cost-effective for the consumer.

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?

Response:

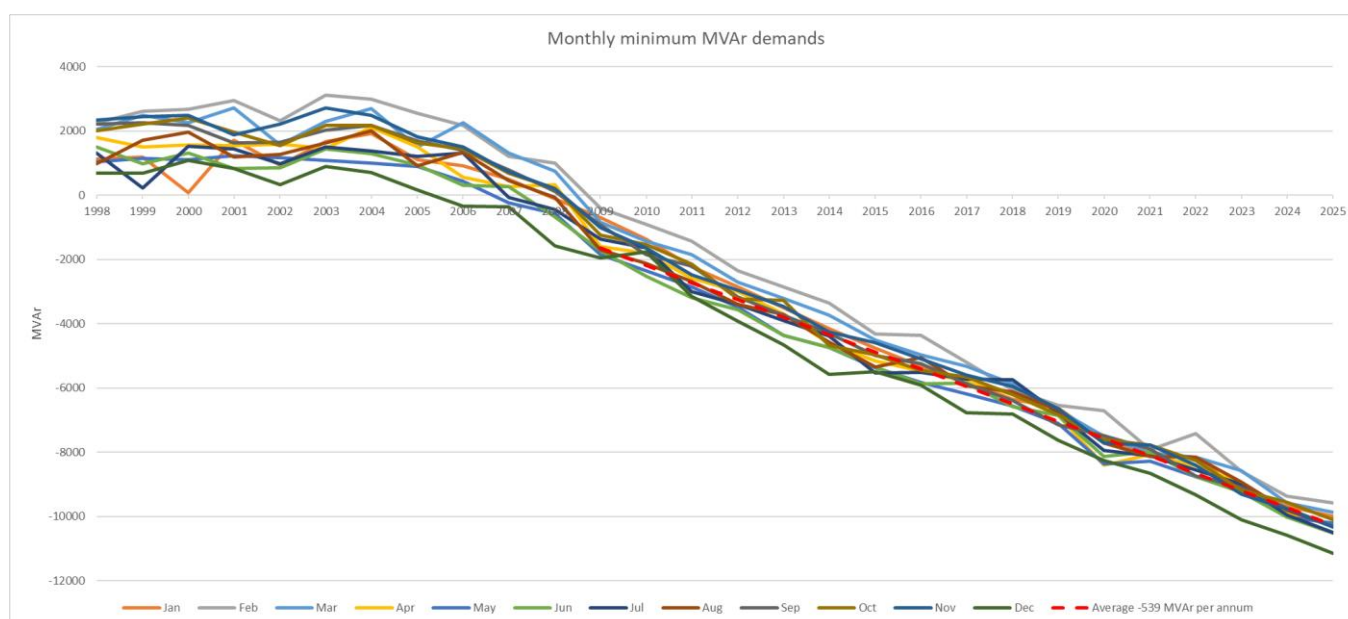
Yes, NESO supports Ofgem's proposal to include the reduction of reactive power injection on the Transmission System from Distribution networks. We would welcome further engagement across DNOs to understand the implication of this for the Distribution networks from a whole-system perspective, in the same way the collaborative work was done in the Transformation to Distributed Energy (TIDE)³ programme.

Reactive power injection from the Distribution network has changed from a net ~2GVAR absorption to a net ~11GVAR injection from 1998 to 2025, a swing of 13GVAR, as shown in the graph below. This change has drastically reduced the voltage control margins on the Transmission System, resulting in reduced system security and significant consumer cost in managing this.

³ [Transformation to Integrate Distributed Energy | National Energy System Operator](#)

Public

Our response to Q70 details our view on DSO voltage control requirements, and enduring solution to the current unregulated reactive power transfer challenge. We do acknowledge that DSOs are also facing their own voltage control challenges.



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?

Response:

Our preferred option would be option 1, where the voltage flexibility service is available to NESO on request, with no restrictions on when or how frequently it can be called (beyond any technical limitations such as recovery time).

The flexibility achieved through demand reduction via voltage reduction should not result in increased reactive gain and export to the Transmission System as this could incur additional operational costs to manage voltage at Transmission level.

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

Response:

We would welcome further engagement with Ofgem and DNOs/DSOs on the design of any new incentive for the provision of flexibility through demand reduction. Whilst we are fully supportive of more flexibility being available on the whole electricity system, we would like to make sure that any new incentives do not undermine existing markets and initiatives underway, and as stated in our response to Q72 not result in increased reactive gain and export to the Transmission System as this could incur additional operational costs to manage voltage at Transmission level.

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

Response:

NESO fully supports this requirement for each DSO to publish a voltage management strategy and provide annual reporting. From a holistic whole-system approach, alignment between NESO's voltage management operability strategy and DSOs strategies, would be welcomed.

Losses

Q75. How should we embed loss optimisation into ED3 and what are some of the challenges with this?

Response:

It is important that any actions taken to minimise losses, do not adversely impact whole system security, operability, and planning as well as consumer value. We agree that losses are difficult to measure/manage.

Losses are also directly linked to the presence of reactive power. The incentive to reduce losses could therefore result in a net reduction in reactive power, which could be detrimental to voltage control across the whole system i.e. by increasing transfer to the Transmissions system.

Focussing on energy theft and meter inaccuracies may be the most efficient and fruitful route to reduce losses.

It should also be noted that there is an excessive volume of generation connected to the Whole Electricity System, and losses require more of these generators producing electricity at any one time, improving system strength and therefore SQSS. Losses also indicate the presence of reactive power, which can be beneficial to voltage control.

We agree with the sentiment of 5.119 whereby loss optimisation should be considered in decision making.

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Calculation and reporting of losses should follow a standardised methodology across all DSOs to ensure fairness.

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 agree with the consultation position that ED3 DSO incentive framework needs to evolve for ED3 to include promoting whole-system coordination across Transmission, Distribution, and local energy systems. A new RRE related to whole system coordination could help to address this to prioritise progression of associated activities and would complement other RREs driving towards the desired ED3 outcomes.

Q82. How should the incentive framework evolve to reflect the DSO's more proactive role in network planning, operational use of flexibility, flexibility market development and whole-system coordination?

Response:

Network planning and outage planning should be included as core functional areas. The framework should reward outputs measured on a holistic, whole-system basis and include clear incentives for forward-thinking outage planning.

The ED3 DSO incentive framework should be linked to outcomes that are timely and measurable, with robust accountability measures for delivery. Incentives should be proportionate to the scale and complexity of the investment needed and should incentivise collaboration across industry to deliver integrated planning and operations. The framework should recognise that development, investment and operational decisions on the Distribution network will have an impact on the Transmission network, and we welcome the objective that DSOs consider whole-system coordination across these national, regional and local energy systems.

As data is critical to the coordination across networks, the DSO incentive framework could also incentivise accurate, reliable and timely data that supports maturing digitisation.

Climate Resilience

Long-term goal and stress testing

Q92. What are your reflections on the stress testing methodological framework for the first phase (see Climate resilience stress testing methodological framework annex)? Does it align with your expectations of the responsibilities of a DNO and current capabilities? Can you foresee any support or changes that might improve its effectiveness? Do you have any views on priorities for future phases of work?

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Response:

We agree that there needs to be an overarching climate resilience goal which sets out the level of resilience that DNOs should plan and operate their system to. As noted in the SSMC, this resilience goal should support and align with the resilience standards which will be set by DESNZ.

We agree that in the interim, it is useful to understand the current level of climate resilience and quantify the level of investment required to maintain this level of resilience in the future. However, we would welcome further clarity on how this work will feed into the setting of resilience standards by Government, the stress testing required from the Regional Energy Strategic Plans. We think that this is important to minimise duplication of effort and ensure a coordinated and efficient approach to ensuring system resilience.

In relation to the methodological framework, we would welcome further information on the frequency that Ofgem expects DNOs to undertake stress testing, as key analytical techniques such as the development of fragility curves, will change as network companies upgrade their asset bases, and become out of date.

Resilience Re-opener

Q109. Do you agree with our proposal approach to introduce a resilience re-opener? Why?

Response:

We are supportive of the introduction of a resilience re-opener in RII0-ED3 which broadly covers enhancing the security of Critical National Infrastructure sites owned and operated by DNOs, changes to emergency measures, updates to resilience standards and codes and stress testing.

Through its license conditions, NESO is also required to propose recommendations that could improve the resilience of the energy system. We propose that this re-opener also covers the implementation of recommendations proposed by NESO, that require DNO activity and that have been accepted by DESNZ and Ofgem. We propose that this re-opener has an annual re-opener window, to align NESO's licence conditions that require the submission of resilience reports and recommendations on an annual basis.

In relation to incorporating ESR activities into the resilience re-opener, many of the referenced restoration sections relate to planned and unplanned outages or interruptions affecting localised events, as well as general preparedness for incidents impacting daily operations. These are part of the Guaranteed Standards of Performance (GSoP) for Distribution Network Operators (DNOs), which are linked to compensation payments to customers if standards are not met. Although these situations are considered business as usual, it is recognised that category 1 and 2 events are becoming more common. Localised events could potentially escalate into an NPO, highlighting the need for increased focus and priority on resilience measures to prepare for such occurrences.

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From both Electricity System Restoration and Electricity System Restoration Standard perspectives, we believe that agility in funding related to capability enhancement that enable quicker and efficient system restoration is essential within the ED3 funding framework. Rather than relying solely on an annual reopener or an incurred cost model, there should be mechanisms to ensure immediate reimbursement or prompt instalment agreements when resilience or restoration needs arise, particularly due to evolving energy landscape, weather patterns or other external risks to the GB network.

Additionally, payments should not be subject to significant thresholds; for instance, smaller claims related to resourcing or personnel should not be hindered by disproportionately high minimum costs. This approach could be integrated into the UIOLI framework.

While addressing electricity system restoration under a resilience reopener may provide futureproofing for larger investment projects, it does not fully resolve the need for agile processes to address lower-cost, less capital-intensive requirements identified in urgent situations e.g. control room personnel.

Streamlining and increasing the flexibility of these procedures will facilitate faster approvals and project completions, ultimately enhancing the efficiency and reliability of system restoration efforts. This approach ensures that, even if incidents cannot be prevented, any disruptions can at least be quickly restored, minimising the impact on customers and operations.

Sector security response:

We welcome the proposed approach to introduce a resilience re-opener which will provide the framework to respond to risk and ensure energy system resilience.

The requirement for a resilient energy system has been repeatedly voiced through a number of government, quasi-governmental bodies and industry publications, all of which have highlighted the criticality of the energy sector – e.g. Resilience Action Plan, Cyber Security & Resilience Bill, Strategic Defence Review and National Security Strategy.

For the energy sector, the North Hyde Review highlighted a number of areas that require improvement and that will require investment in resources in the short and medium term to respond to new or amended resilience standards, it is essential that DNO's can respond appropriately, in a timely manner to address risk and resilience.

NESO have a number of responsibilities (both new and pre-existing) around whole energy system resilience. Where risks are identified, there must be appropriate frameworks in place to allow the sector to meet required levels of resilience and address risk.

- For example, NESO will apply the criticalities methodology to assess and classify Critical National Infrastructure sites for the energy sector. We expect that controls for CNI sites should be commensurate with the classification and asset owners

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would need to invest appropriately. We envisage the next CNI review timescales to be compatible with the resilience re-opener.

- A number of NESO's new licence obligations will surface risks and look to recommend mitigations to meet required standards of resilience. This cannot be achieved without the investment framework that facilitates the delivery of outcomes to address these recommendations.

To achieve whole energy system resilience, there must be a mechanism to drive meaningful and timely change in response to these recommendations, some strategic, others more tactical. This will allow DNOs to react quickly to changes in requirements

We are currently working alongside DESNZ and Ofgem to understand the appropriate funding mechanism for 'High Impact Points of Failure'. We would welcome clarity and alignment of any such mechanism with the proposed methodology.

Resilience Re-opener

Q110. Do you agree with our proposal approach to introduce a resilience re-opener? Why?

Response:

Yes, NESO agrees with the proposed Cyber Resilience Business Plan submissions and its alignment with NIS.

We welcome the streamlining of Cyber Security investment, reporting and compliance.

Change to cost categorisation will drive better outcomes with cyber resilience prioritised alongside other key deliverables. However, we welcome the decision for UIOLI investment to be used by exception to accelerate outcomes which are bleeding edge or relatively unproven.

We believe that the reopener should remain due to the pace of change in this area – changing policy and the ever-increasing threat as well as the expectation of managing risk more dynamically and addressing additional recommendations in a timely fashion mean that organisations will be expected to adapt and improve their cyber resilience efforts. However, we agree that submissions at this point should be by exception.

The Cyber Security and Resilience Bill has come with additional and potentially more complex requirements for operators to comply with. We would like to see more information on how Ofgem plan to incorporate the CSRB within the Price Control Deliverables, especially if the re-opener is removed.

End of response