

Strategic Planning of Networks
Ofgem
10 South Colonnade
London
E14 4PU

National Grid ESO
Faraday House
Gallows Hill
Warwick
CV34 6DA

RIIOElectricityTransmission@ofgem.gov.uk

Julian.Leslie@nationalgrideso.com
nationalgrideso.com

25 August 2023

ESO Response to: Ofgem's Consultation on Centralised Strategic Network Plan - Consultation on framework for identifying and assessing transmission investment options

Dear Konark

We are pleased to be able to submit our response to the Ofgem consultation on the on framework for identifying and assessing transmission investment options, as part of the Centralised Strategic Network Plan (CSNP).

Who we are

As the Electricity System Operator (ESO) for Great Britain (GB), we are at the heart of the energy system, balancing electricity supply and demand second by second.

Our mission, as the UK moves towards its 2050 net zero target, is to drive the transformation to a fully decarbonised electricity system by 2035, one which is reliable, affordable, and fair for all. We play a central role in driving GB's path to net zero and use our unique perspective and independent position to facilitate market-based solutions to the challenges posed by the trilemma.

Our transformation to a Future System Operator (FSO) is set to build on the ESO's position at the heart of the energy industry, acting as an enabler for greater industry collaboration and alignment. This will unlock value for current and future consumers through more effective strategic planning, management, and coordination across the whole energy system.

Summary of our response

The ESO strongly supports the proposals outlined in the consultation for transforming the framework for identifying and assessing transmission investment options. We already have one of the most progressive approaches to electricity transmission network investment planning in the world, however recognise that this approach needs to change to help us as a country meet the scale of investment needed as we strive towards a decarbonised energy system at a fair cost for all.

We would like to thank you for the collaborative approach you and other colleagues in Ofgem have taken so far in developing these proposals. As we further develop the methodology for the CSNP, and as we transition to the FSO, we stand ready to fulfil our new role as central planner for the GB energy system.

We have responded to the twenty-four specific consultation questions in the Appendix to this letter. In addition, there are a number of high-level points that we would like to make:

Spatial Planning. In the Electricity Networks Commissioner's recommendations for *accelerating electricity transmission network deployment* report¹, there is a clear recommendation for the FSO to develop a *Strategic Spatial Energy Plan (SSEP)*. This clearly has a strong interaction with the CSNP, and we would welcome the continuation of our discussions with DESNZ to get clarity as soon as possible on how the SSEP will fit with the CSNP if the recommendation is taken forward. We are already proposing that the CSNP will include spatial elements – such as environmental assessments designed to aid later planning processes. It is not clear at this stage whether the expectation of the SSEP in relation to production and demand locations fundamentally changes the shape and processes of the CSNP.

Roles and Responsibilities. It is important for all parties involved in network planning that roles and responsibilities are clearly defined within the regulatory framework. We believe that changes will be required to the licences of the FSO and industry parties to ensure that the FSO's role as central planner is recognised and that there is a clear delineation of responsibilities, especially with regard to compliance with the Security and Quality of Supply Standard (SQSS) and design functionality. While the CSNP process can be outlined in the FSO licence and then further detailed in the System Operator - Transmission Owner Code (STC), achieving clarity over security responsibilities is key to the effectiveness of a centralised plan. We are also clear that Transmission Owners (TOs) will continue to play a pivotal role in providing options and solutions to the requirements of the network and in the oversight and maintenance of their networks, and with their local insight and intelligence a key role in the CSNP processes.

Whole Energy System. We must also be mindful that as the FSO our remit will be wider than electricity, and our responses below should be read in that context. We envisage the CSNP becoming the plan for all energy transmission networks in early days of the FSO.

We look forward to engaging with you further. Should you require further information on any of the points raised in our response please contact Paul Wakeley, Head of Strategic Network Development, paul.wakeley@nationalgrideso.com.

Our response is not confidential.

Yours sincerely

Julian Leslie
Head of Networks

¹ <https://www.gov.uk/government/publications/accelerating-electricity-transmission-network-deployment-electricity-network-commissioners-recommendations>

Appendix 1 – Response to the Centralised Strategic Network Plan: Consultation on framework for identifying and assessing transmission investment options

CSNP outputs and products

Question 1: Do you agree with our broad regulatory approach to establishing the FSO's obligations to deliver the CSNP products?

We agree with the proposed regulatory framework to deliver the CSNP.

The licence condition should outline the primary obligations for the CSNP, with the detailed requirements set out in the governance and / or methodology documents. This will allow the governance arrangements to adapt more promptly to changing stakeholder requirements.

We welcome and advocate that the CSNP regulatory framework arrangements are developed with key stakeholders including ourselves.

Stage 2 – Identifying system need

Question 2: What are your views on the types of system need that we have proposed are covered by the CSNP? Are there any gaps?

We agree that the CSNP should expand the scope of system needs and this is an area where we are already developing our capabilities. Our specific comments on table 1 (on page 16) are provided below:

- i. As part of the CSNP methodology, we expect to agree study guidelines and validate TO and third-party analysis where applicable, across all system needs analysed in the CSNP. This will capture voltage and stability requirements in addition to thermal needs.
- ii. For thermal constraints, we expect the FSO to lead the GB analysis to identify system needs and communicate these to TOs and third parties, with appropriate data, to allow them to analyse and propose options. On the role of the TO, we envisage that they will lead analysis to develop options on their own network to meet the CSNP system needs communicated by the FSO. This analysis goes beyond load flow assessment as it includes contingency analysis and any required analysis as defined in the SQSS.
- iii. For both high and low voltage needs, we expect the FSO to apply a consistent approach. This will support our ambition to identify and address system needs concurrently and consider options that could meet multiple needs. We expect the FSO to lead the analysis to specify the requirements and continue to publish a transparent methodology. For our operability needs in general, we also see a key role for the TOs to submit options and to continue to undertake connections feasibility analysis on their respective networks to support FSO-led market procurement.
- iv. The Electricity Ten Year Statement (ETYS) Appendix D currently provides fault level analysis, for a single Future Energy Scenario (FES), for winter peak demand and minimum demand. The analysis is undertaken by the relevant TO and shared with the ESO for publication. We agree that the TOs should continue to take the lead to analyse fault levels on their own networks and we expect the ongoing ESO-led connections reform project will improve the assumptions used by the TOs to undertake their analysis. We will work collaboratively with our stakeholders to understand what information is valuable to publish as part of the CSNP.
- v. Power Quality is assessed by the TOs in detail as part of the local connection process and we believe this is the best place for these assessments to be undertaken. For wider system requirements including system strength, which affect aspects of power quality and other system performance measures, the FSO will continue to lead the analysis to specify requirements. We agree that the FSO also has a role for setting the longer-term wider system operability insights.
- vi. We agree that the FSO will lead the coordination of the holistic assessment for strategic connections (i.e. those tied to technology targets sets by the UK government and the devolved administrations for

Net Zero) on the wider system and will manage a more coordinated connection process for these connections. The TOs will lead on the corresponding customer connections / operability studies.

- vii. Asset Replacement – we agree that TOs should lead the analysis to determine asset health intervention for their own assets. The impact of asset replacement on the wider system should be reviewed and agreed with the FSO. For example, should the asset replacement be on a like for like basis or is there a wider system benefit for an alternative replacement – whether that's an increase or decrease in capability due to anticipated usage.
- viii. Network Resilience – We agree that the network should be planned to be resilient to changing climate conditions. As described in our response to Question 23, we believe that further thought is required as to the correct location of climate resilience in network planning. Any further enhancements required, for example to credible faults, would need to be reviewed and defined through the SQSS. The SQSS sets the specific criteria against which network investments will be developed, including those identified by the CSNP framework. The TOs will continue to have a key role in ensuring resilience of their assets to climate changes e.g. temperature changes, flooding risk.

(Appendix 1) ESO proposed CNSP products (page 57)

As part of the CSNP annual products, we believe power quality is incorrectly referenced as a near-term operability need. As discussed in our response to Question 2 (v) above, Power Quality assessments are a TO responsibility as part of the connections process. The FSO will continue to undertake stability assessments and procure options to increase system strength which would, in general, also improve power quality.

Question 3: Do you agree that the time horizon for system need assessment should be extended to 2050?

We agree that the time horizon should be extended to 2050 as a minimum, with our preference to have a rolling (e.g. 25 or 30 years) rather than fixed year planning horizon. This longer-term horizon should set out options for how the network could evolve based on different pathways to Net Zero. This will assist decision makers in understanding the impact on the system as it transitions to Net Zero.

This iterative long-term view is complemented by the annual process, which will consider any residual network and system needs which may emerge over a short (tactical) planning horizon, due to changes in technology and political / regulatory policies, for example.

As we expand our planning horizon, the FSO should apply the appropriate level of analysis across different time periods for the system needs. For example, over a 10-year period, the FSO would be able to undertake detailed analysis to drive investment decisions. However, beyond this, analysis could take the form of trends and strategic insights depending on the type of system need.

Question 4: Do you agree that the FSO should move to a year-round nodal assessment of system need as part of the CSNP?

We agree that the FSO should expand our view of system needs beyond just winter peak and we are already actively developing tools and capabilities to undertake year-round analysis.

Our power system analysis tools already capture system limitations at individual circuits, assets or nodes. From a thermal perspective, we have historically communicated through the concept of network boundaries. For voltage, which is a local network issue, we assess system needs on a nodal basis.

We see benefits in the FSO expanding how we communicate system needs to consider nodal perspectives where appropriate, as this would be beneficial where targeted mitigation is required. The communication of needs from a nodal perspective should be in addition to and not preclude the use of boundaries or regional approaches where they are more suitable.

Boundary assessments, for example, are useful to assess large power transfers between regions. For thermal system needs, for example, nodal bottlenecks are sometimes very sensitive and can shift from one node to another and in these instances, it would be better to consider boundaries rather than the individual nodal limitations.

A two-pronged approach will ensure that we can still use boundaries to assess large investments that bypass specific nodal bottlenecks while also expanding our view on the nodal constraints to explore targeted mitigation. We are already developing our capabilities in this area and will continue to engage with stakeholders on these developments.

Question 5: We welcome stakeholders' views on how the FSO can communicate effectively about future system needs?

We agree that providing effective communication on system needs is key in bringing forward options. This will enable third parties to consider how they can help address those needs. It is also essential that there are clear routes to market for those third-party solutions. The ESO is already working closely with stakeholders and Ofgem to ensure these are available. We will continue to review and take learnings from the approach taken for the Holistic Network Design (HND), Interested Persons, Network Service Procurements (also known as NOA Pathfinders) and Early Competition.

In addition, as we develop the CSNP methodology, consideration will be given as to how we appropriately seek, capture and incorporate stakeholder views, including communities, at the different stages of the CSNP framework.

Stage 3 – Identify Options

Question 6: What are your views on the FSO establishing minimum design requirements for high-level design of options and are there areas where exceptions are needed?

For effective analysis, it is necessary for there to be a minimum design requirement for high-level options. This will allow all options to be assessed as equally as possible in the analysis stage.

We support the view that the FSO should establish this minimum standard and that the methodology and industry codes are an appropriate vehicle.

Question 7: Do you have views on our proposals for considering environmental and community impacts as part of high-level design of options?

We agree with the proposals for considering environmental and community impacts as an integral part of the CSNP. As highlighted in the consultation, assessment and engagement on environmental and community impacts on the high-level design options, in the form of a Strategic Environmental Assessment (SEA) and plan-level Habitats Regulations Assessment (HRA), may assist to accelerate future stages of investment projects.

We would also like to see the CSNP have status in planning to further contribute to accelerating infrastructure development. For example, through being referred to in the Energy National Policy Statement.

We are also developing our approach on how to consider community impacts as part of the high-level design options, building on best practices and learnings from the HND. We are working with stakeholders to identify, develop and implement an appropriate approach.

We agree our approach to considering environmental and community impacts should be outlined in the methodology document along with our engagement strategy. We will engage with our stakeholders and experts to determine the most appropriate way to do this, as well as where and how stakeholder views can most effectively contribute.

Question 8: Do you have views on our proposal for the FSO to independently decide which network needs it may lead the high-level design of?

We agree with not defining strategic investments up front. If the definition is to be used, it is important that we understand why some investments are being designated in that way – for what purpose or reason. We believe it is appropriate for the FSO to be able to submit high-level options into the process, for example where other parties have not brought forward a broad enough range of solutions or when there is benefit from a holistic design (as taken with the HND).

Question 9: Do you have any views on our proposal for the FSO to set how and when third parties can be involved within the CSNP?

We agree that the FSO should consider as wide a range of options under the CSNP as possible, including options that would be delivered by third parties. Many third-party options are already considered in the economic assessment undertaken in the Network Options Assessment (NOA), and through our constraint management pathfinders. However, we need to ensure all potential solution types can be considered.

Planning processes are based on assumptions about the cost and availability of different solutions in order to determine which solution type is likely to be the best option for consumers. This applies whether the solution is delivered through third party services or the construction of assets. To develop this further, the FSO will work closely with third parties to enhance our planning assumptions on technologies, future costs and delivery of different solution types. In doing so, we need to be mindful of competition law and the needs of third parties, such as confidentiality of intellectual property and appropriate funding for contributing ideas. The FSO will also work with stakeholders (including third parties) and Ofgem to ensure that wider industry frameworks are appropriate, and that competitive routes to market are available.

Question 10: Do you have any views on our proposals on data exchange to enable the implementation of the CSNP?

We agree that a review will need to be undertaken to identify what data exchanges are required between all parties to deliver the CSNP products. This includes any potential changes to the relevant codes and standards and agree that early engagement with the industry is key. In order to identify any consequential changes to the codes and standards, the CSNP governance document and methodology will need to be further developed.

We will use our best endeavours to ensure that code changes move as rapidly as possible through industry governance, and we ask the support of the regulator in this regard.

Stage 4 – Decision-making tools including Cost Benefit Analysis (CBA)

Question 11: Do you have any views on our proposals regarding the principles to be followed in the CSNP decision-making framework?

We agree the FSO should develop a CSNP methodology (covering the stage 4 decision-making approach) based on the principles set out in the consultation.

Question 12: Do you have any views on our proposals on the decision-making framework for selecting potential projects to address longer-term system needs?

We agree with the proposal that the FSO should establish a clear assessment methodology for selecting options to enter the potential projects funnel which will address longer-term system needs across different pathways. Striking an appropriate balance between the future system needs, costs, and environmental and community impacts will be a key objective as we develop the methodology. We also agree that the approach should be set out in the CSNP Methodology.

In addition, we would welcome a more nuanced discussion on how the pathways should be weighted when used in planning.

Question 13: Do you have any views on the decision-making framework to bring potential projects into the 'delivery pipeline' for nearer-term needs?

The principles for determining how projects move into the delivery pipeline will be crucial and we agree that approach should be set out in the CSNP Methodology.

As mentioned in the consultation, the decision-making framework to bring any potential projects into the delivery pipeline will be multi-faceted including certainty in the system need and confidence in delivery of the project.

This transition should not be for a defined, fixed period as different projects will have varying levels of activity to ensure the project is delivered on time to meet the system need. This period should be steered by the system criticality and project delivery timescales rather than being fixed or pre-defined.

Question 14: We would welcome views on our proposal to not re-evaluate projects that are in the delivery pipeline, and whether a materiality trigger is appropriate and what criteria might be used.

We agree with the proposal to not re-evaluated projects that are in the delivery pipeline.

A materiality threshold could lead to a lot of uncertainty in the project delivery phase. Instead, as in the Accelerating Strategic Transmission Investment (ASTI) regulatory framework, there should be accountability and ownership from the project delivery body with incentives for timely delivery of the project.

Furthermore, the materiality threshold could be a hinderance when the network is required to deliver projects, in tight timescales, to facilitate any future UK energy targets.

Therefore, should a materiality threshold be set, it should only apply under a limited and defined set of conditions, which are set out in the CSNP Methodology, such that any breach of the threshold does not pose a risk to all other projects in the delivery pipeline.

If the decision is taken to allow re-evaluation, there should be a clearly defined and consistent methodology including timescales for carrying out the assessment with the appropriate governance around it. This could build on the impact assessment process we have developed for changes requested to the holistic network designs.

Question 15: Do you have any views on our proposal on inclusion of environmental and community impacts in the CSNP CBA?

We agree with the proposal that the CSNP Methodology should explain how it assesses the impacts of network options on the environment and communities. We are developing a framework that will allow us to incorporate environmental and community impacts into our current options assessment process. We have built on the current HND and HND Follow up Exercise (HND FUE) methodology and have been evaluating other methods for carrying out our multicriteria assessment for onshore and offshore options with stakeholder input.

Question 16: Do you have any views on our proposal for the CSNP to include a methodology for assessing and taking forward system operability issues?

We agree that the approach for assessing and taking forward system operability solutions should be set out in the CSNP Methodology. We are currently developing future markets for thermal, voltage and stability as part of our markets roadmap and expect to procure long-term operability needs through the long-term markets under development. Further detail on the reactive power market proposal and the market design project conclusion slides can be on our website².

Question 17: Do you agree with our proposal for the ESO to review its current approach to assessing short and long-term solutions and for the FSO to set out its approach in the CSNP Methodology?

We agree it is important to be able to assess different types of solutions fairly. We will build on the work undertaken on the assessment approach as part of the Network Service Procurements (also known as NOA Pathfinders) and work with our stakeholders to identify how this can be achieved.

Question 18: Do you have any views on our proposal for FSO to develop capabilities to consider different combinations of options and how this should be implemented?

We strongly support the proposal for the CSNP to take a more whole system, integrated approach to maximise efficient utilisation of networks.

² <https://www.nationalgrideso.com/industry-information/balancing-services/reactive-power-services/future-reactive-power>
<https://www.nationalgrideso.com/document/249851/download>

We already consider multiple options and different combinations of solutions for the electricity transmission system as part of the NOA. In the HNDfUE and the second transitional Centralised Strategic Network Plan (tCSNP2), we plan on taking a step further by considering how the location of flexible demand, potentially hydrogen electrolyzers, can reduce the amount of transmission network required to connect offshore wind in Scotland. We are also piloting a more joined up and forward-looking approach to seabed leasing for offshore wind and network planning with The Crown Estate in relation to their Celtic Sea leasing round and will learn from and develop this further for future leasing rounds.

This also links to the Electricity Network Commissioner's recommendation for a Strategic Spatial Energy Plan, which will have a key role in facilitating co-optimisation of demand and supply with networks if introduced.

We agree that the FSO should further develop these capabilities to allow appraisals of different combinations of energy systems and network options and this also aligns with our new advisory role to government. It is important that the FSO builds this capability early to ensure that as an industry, when it is the right time, we can move at pace whilst not taking unnecessary risk.

Cross cutting CSNP policy areas and interdependencies

Question 19: Do you have any views on our proposal to include a requirement, as part of the new CSNP licence condition, for the FSO to make recommendations on additional interconnection and OHAs opportunities between GB and other markets?

We welcome the opportunity for the FSO to make recommendations on additional interconnection and Offshore Hybrid Assets (OHAs) opportunities between GB and other markets. This represents a logical development to our current interconnector market analysis, in particular the interconnector analysis undertaken as part of NOA (the NOA for Interconnector analysis), and also the needs case analysis that we undertake to support Ofgem's Cap and Floor windows.

For the CSNP to provide a robust, holistic appraisal of long-term strategic needs, it will be necessary to consider not only onshore and offshore network development, but also the potential benefits of additional interconnection and OHAs. The analysis will consider the impact on constraint costs, the broader impact on GB consumers such as social economic welfare, environmental and community impacts, as well as system operability issues. The FSO will be able to help Ofgem make informed decisions regarding where, when and how many additional interconnectors and OHAs will be beneficial to achieve the UK's 2050 Net Zero Target in the most effective and efficient way possible.

We note that the FSO will not own all aspects of the process and engagement with the corresponding overseas Transmission System Operator (TSO) will be required.

Question 20: Do you agree with our proposal that the FSO should use reasonable endeavours to support relevant stakeholders as part of the offshore asset development process?

We agree that the FSO should continue to collaborate with interested parties as part of the offshore asset development process. We are piloting a more joined up approach to seabed leasing and network planning as part of the Crown Estate's offshore wind Celtic Sea seabed leasing round and will learn from and develop this further for future leasing rounds. As recognised in the consultation, whilst the FSO does not own all aspects of the offshore asset development process, we are further developing our ways of working in line with the individual remit and objectives of each stakeholder.

Question 21: Do you agree with our proposals that the FSO assess third-party options under CSNP and recommend delivery by competition where proposed solutions meet the relevant competition criteria?

We agree that the FSO should consider as wide a range of options under the CSNP as possible, including third party solutions, as set out in our response to Question 9. We have already introduced competitive routes to market for some third parties through our Network Service Procurements (also known as NOA Pathfinders).

We are also working closely with Ofgem to establish competitive routes for the delivery of transmission infrastructure, once enabled through the Energy Security Bill. As part of that process, we agree that the FSO should recommend to Ofgem projects that meet the relevant competition criteria.

Question 22: What are your views on whether changes to the SQSS or obligations on licensees are needed to support the CSNP – where specifically are these changes needed and when do they need to happen by?

We agree that changes are necessary. However, the SQSS provides a very clear minimum security standard for the network and as part of this clarity, it does not attempt to apportion responsibilities. As a standard rather than a code it would also not generally be appropriate for it to do so. While it would be possible to rewrite it in this way, particularly if its governance were reviewed at the same time, we feel it would be better to review the licence conditions that obligate transmission parties to adhere to the SQSS to capture the roles and responsibilities within the CSNP process, and also to look at how further detail of the process and responsibilities could be provided in the STC. It is further worth noting that although the SQSS is a standard that is treated as a code, it is not subject to licensed governance, nor does it have a licensed administrator. Also, its obligations currently are only on transmission licensees (the ESO, TOs and Offshore Transmission Owners (OFTOs)) to comply with its named current version. It is possible that this will be addressed under the ongoing Energy Code Reform work.

In terms of a timeline or requirement for framework provisions to be in place, licence changes should be made before the introduction of CSNP requirements as they will empower the process. Development of the STC to add detail to this, which will be particularly to do with ways of working and stakeholder interactions, could be done in parallel with the set-up of the CSNP functionality. This would allow the delivery of a more engaged solution and learning from the set-up and design to be incorporated. This would also help to reduce the potential for delay as a code change of this nature would be likely to take a minimum of six months to deliver.

Question 23: Do you agree that the FSO should evaluate the climate resilience of the long-term whole-system CSNP?

We agree that the network should be planned to be resilient to changing climate conditions.

We would encourage and welcome further discussion on how climate change factors should be incorporated into the different stages of the CSNP. Moreover, as the FSO will have the responsibility for the Office of Resilience and Emergency Management, this requirement needs to fit with those obligations.

We also note that the delivery body should also consider localised climate resilience as part of the detailed design process.

Question 24: Do you agree with the proposed position on the treatment of connections in the CSNP?

We have recently consulted on our initial recommendations for a reformed connections process and plan to make final recommendations by November 2023. The response to this question is based on our initial recommendations so may evolve or change following consideration of consultation responses.

We anticipate all individual connections are covered by our proposed reformed connections process, which includes an early application window and two formal (stage) gates. In the reformed connections process a batched and co-ordinated network design process for connections would take place within the application window, taking into account and informing CSNPs. This could include connections-related anticipatory investment. The reformed process will be a discreet and separate process to the CSNP but under the umbrella of and strongly linked to it.

As a result, we do not expect the CSNP to cover either significant new connections or strategic connections exercises in future from a connections process and connections process assessment perspective. The CSNP should however consider the impact of significant new connections and strategic connections exercises on the wider system and inform the connections process for those connections, with a strong link between the CSNP and the reformed connections process.

It should be the reformed connections process that designs the connection for the projects contained within those aspects of the CSNPs. It may be possible/desirable for the CSNP to guide or stipulate elements of the connections design for those projects though. For example, without designing the connection for offshore wind farms, which would be left to the reformed connections process, the CSNP could indicate the region in which those offshore wind farms should be connected (etc) for discussion with other relevant parties such as The Crown Estate and Crown Estate Scotland.

Therefore, we do not necessarily see the need to make a formal distinction between the connection of strategic and significant projects and the connection of all other projects in a reformed connections process. If dovetailed with the CSNP, there should be the ability to design for such projects in a sensible manner within the same reformed connections process, without having the CSNP separately designing the connections for a subset of those projects. This and the interactions with a reformed connections process could still be set out within the CSNP Methodology and/or CSNP Governance document(s).