

# Consultation

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## Centralised Strategic Network Plan: Consultation on framework for identifying and assessing transmission investment options

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We are consulting on how the Future System Operator (FSO) will identify future system needs and the associated options to develop a strategic network investment plan - the Centralised Strategic Network Plan (CSNP) - to help meet the government's decarbonisation and Net Zero targets. This consultation also sets out our initial view on how, and when, we expect the FSO to bring together the CSNP and associated publications. We would welcome responses from all industry, stakeholders and the public.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at [ofgem.gov.uk/consultations](https://www.ofgem.gov.uk/consultations). If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

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## 1. Introduction

### What are we consulting on?

1.1 The Centralised Strategic Network Plan (CSNP) is a new electricity transmission network planning output that will be delivered by the new Future System Operator (FSO)<sup>1</sup>. In the CSNP, the FSO will consider the onshore and offshore electricity transmission networks in Great Britain (GB) as well as cross-border electricity interconnectors and offshore hybrid assets, and make recommendations on how the system should develop to decarbonise the electricity system by 2035, which is critical for meeting the UK's overall 2050 Net Zero target.

1.2 We have previously set out our decision that the FSO should undertake gas strategic network planning, forecasting and market strategy functions<sup>2</sup> to enable it to undertake whole system planning and a holistic view of the energy system. The CSNP will develop to integrate and consider gas strategic network planning in the future.

### Our decision-making process

1.3 In November 2022 we published our decision on the initial findings of our Electricity Transmission Network Planning Review<sup>3</sup> ('ENTPR decision'). We are consulting on the next level of policy detail to implement our ENTPR decision. The broad scope and stages to deliver the CSNP are set out below in Figure 1.

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<sup>1</sup> This is the name currently given to the body that will be designated as the Independent System Operator and Planner (ISOP) under the Energy Bill that was introduced into Parliament in July 2022. References to the FSO in this document should be read as referring to that body. Subject to the passing of relevant legislation, the FSO will take on all the main existing Electricity System Operator (ESO) roles and the strategic planning functions on the gas network, enabling more coordinated, strategic and whole systems planning. Depending on a number of factors, including timings of the Energy Bill and delivery by key parties, the aim is for the FSO to be operational in 2024. The decision and rationale can be found here: <https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatoryprogrammes/future-system-operation-fso>

<sup>2</sup> [Proposals for a Future System Operator role - GOV.UK \(www.gov.uk\)](https://www.gov.uk/proposals-for-a-future-system-operator-role)

<sup>3</sup> <https://www.ofgem.gov.uk/publications/decision-initial-findings-our-electricity-transmission-network-planning-review>

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**Figure 1: Stages of the CSNP**



1.4 In May 2023, we published a consultation on Future System Operator supply and demand modelling<sup>4</sup>. This considered stage 1 of CSNP described in Figure 1 above.

1.5 We intend to publish our decision on the issues covered in the May 2023 stage 1 consultation and this consultation in autumn 2023. This is to ensure we have considered consultation responses on our proposals for stages 1 to 4 for developing a CSNP together. Chapter 8 provides further information on our next steps.

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<sup>4</sup> <https://www.ofgem.gov.uk/publications/consultation-future-system-operator-supply-and-demand-modelling>

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## Purpose of this document

1.6 This document consults on our proposals for stages 2, 3 and 4 of CSNP. It considers how the FSO:

- will use the information from its future energy supply and demand modelling (stage 1) to identify future electricity transmission system needs (stage 2)
- along with the Transmission Owners (TOs) and third parties, will develop network, commercial and operational options to address future system needs (stage 3)
- should assess the economic and technical viability of the options (stage 4) to form the outputs of its CSNP.

1.7 We partially consider stage 5 in this consultation which draws together the analyses from the previous stages into the CSNP development plan for the transmission system. However, further thinking in this area is needed alongside work to consider the handover of the CSNP to a delivery body (stage 6).

1.8 Stage 6 (Handover to a delivery body) considers how the CSNP solutions will be approved for funding, and who should deliver them. This is out of scope of this consultation. These areas are being developed as part of the Future Systems and Network Regulation (FSNR) workstream<sup>5</sup> which is expected to provide further information in autumn 2023 and our work on competition policy.

1.9 A summary of the timetable for this consultation is set out below. Chapter 8 provides further details on our next steps.

## Timetable for this consultation

Step 1	Step 2	Step 3	Step 4
Consultation open	Deadline for responses	Responses published	Consultation decision
28 July 2023	25 August 2023	14 September 2023	Autumn 2023

## Related publications

**Consultation on the initial findings of our Electricity Transmission Network Planning Review**, November 2021, (from here on referred to as ETNPR consultation)

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<sup>5</sup> <https://www.ofgem.gov.uk/publications/consultation-frameworks-future-systems-and-network-regulation-enabling-energy-system-future>

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<https://www.ofgem.gov.uk/publications/consultation-initial-findings-our-electricity-transmission-network-planning-review>

**Consultation on our Minded-to Decisions on the initial findings of our Electricity Transmission Network Planning Review**, July 2022 (from here on referred to as ETNPR minded-to decision consultation)

<https://www.ofgem.gov.uk/publications/consultation-our-minded-decisions-initial-findings-our-electricity-transmission-network-planning-review>

**Decision on the initial findings of our Electricity Transmission Network Planning Review | Ofgem**, November 2022 (from here on referred to as ETNPR decision)

<https://www.ofgem.gov.uk/publications/decision-initial-findings-our-electricity-transmission-network-planning-review>

**Consultation on FSO supply and demand modelling**, June 2023,

<https://www.ofgem.gov.uk/publications/consultation-future-system-operator-supply-and-demand-modelling>

## 2. Context for electricity transmission network planning

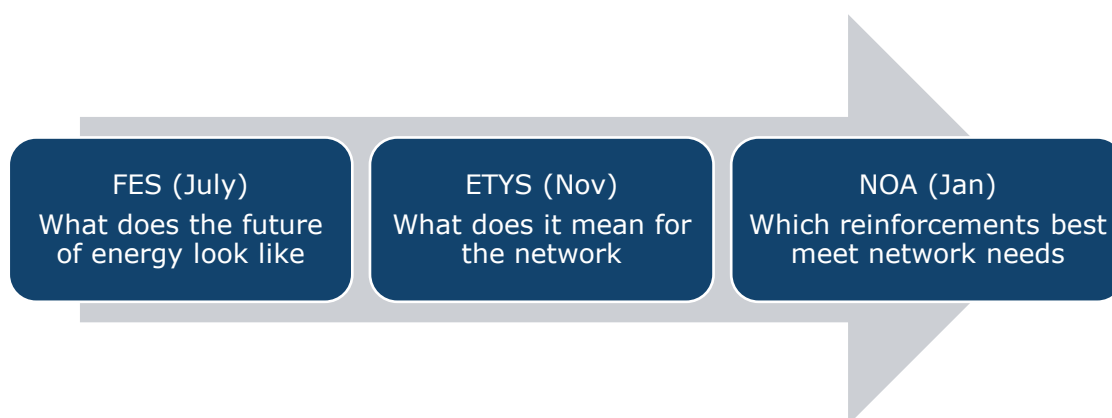
### Section summary

This section sets out the current arrangements for the Electricity System Operator's (ESO's) network planning of the National Electricity Transmission System (NETS).

### Overview of the ESO's current network planning process

2.1 The ESO has an important role in the development of the electricity transmission system. It currently runs an annual network planning process that inform investment in the onshore electricity transmission networks.

**Figure 2: ESO's annual network planning publications**



2.2 The core processes and annual publications depicted in Figure 3 are the:

- Future Energy Scenarios (FES)<sup>6</sup>: The ESO's annual energy demand and supply scenarios to 2050. They are used by the energy industry, for various functions, including network planning.
- Electricity Ten Year Statement (ETYS)<sup>7</sup>: The ESO assesses future system need by splitting the national electricity transmission system (NETS) into notional boundaries that define network areas from which power is either exported or imported across critical circuits. The ESO then models power flows across boundaries at peak winter demand for FES future generation and demand profiles, to identify the minimum required capability that complies with the NETS Security and Quality of Supply Standard criteria (NETS SQSS).

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<sup>6</sup> <https://www.nationalgrideso.com/future-energy/future-energy-scenarios>

<sup>7</sup> <https://www.nationalgrideso.com/research-and-publications/electricity-ten-year-statement-etys>



- Network Options Assessment (NOA)<sup>8</sup>: The ESO takes the boundary constraints identified in the ETYS then evaluates network development options put forward by the electricity TOs to address them. The ESO publishes its recommendations on network development solutions in the NOA.

## Work we have done to date

2.3 In 2021, we consulted on the CSNP development (the Electricity Transmission Network Planning Review Consultation, 'ETNPR consultation')<sup>9</sup>. In July 22, we consulted on our minded-to decisions on the ETNPR initial findings ('ETNPR Minded-to Consultation')<sup>10</sup>. In November 2022, we published our decision on that consultation ('ETNPR decision')<sup>11</sup>. The ETNPR decision confirmed the need for a long-term strategic approach to network planning and design of the holistic transmission system.

2.4 In May 2023, we published a Consultation on Future System Operator supply and demand modelling<sup>12</sup>, setting out proposals for how we expect the FSO to model future supply and demand to inform future network investments. This covers CSNP stage 1 and we expect to reach a decision on it later this year.

2.5 We have engaged with the ESO team and the electricity TOs to develop the proposals for CSNP stages 2 to 4 in this consultation. We have also worked with colleagues that are leading on interrelated workstreams such as the FSO, the FSNR, implementation of interconnection policy following the Interconnector Policy Review<sup>13</sup>, and the Offshore Transmission Network Review<sup>14</sup>.

2.6 After considering the consultation responses, we will publish a decision on the issues covered in this consultation, and the June 2023 stage 1 consultation, in autumn 2023. This is to ensure we have considered stages 1 to 4 for developing a CSNP together. Chapter 8 provides further information on our next steps.

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<sup>8</sup> <https://www.nationalgrideso.com/research-and-publications/network-options-assessment-noa>

<sup>9</sup> <https://www.ofgem.gov.uk/publications/consultation-initial-findings-our-electricity-transmission-network-planning-review>

<sup>10</sup> <https://www.ofgem.gov.uk/publications/decision-initial-findings-our-electricity-transmission-network-planning-review>

<sup>11</sup> <https://www.ofgem.gov.uk/publications/consultation-future-system-operator-supply-and-demand-modelling>

<sup>12</sup> <https://www.ofgem.gov.uk/publications/interconnector-policy-review-decision>

<sup>13</sup> <https://www.gov.uk/government/groups/offshore-transmission-network-review>

## 3. CSNP outputs and products

### Section Summary

The ESO has shared their view of the main CSNP outputs and publications with us. This section describes our views on how those outputs and publications should work.

### Initial ESO view on CSNP outputs and products

3.1 The ESO envisages that the FSO will deliver the first longer-term CSNP in 2026 and that it will be updated every three years.

3.2 The longer-term CSNP is a whole-system assessment. It will focus on onshore, offshore, and cross-border transmission network needs (out to 2050), as well as developments in gas transmission and hydrogen. Its broad purpose will be to:

- Undertake a longer-term strategic assessment of network needs, primarily for bulk transfer of energy, across electricity transmission, gas transmission and hydrogen with a time horizon out to 2050. It will select optimal projects for delivery (either by third parties or TOs) when the needs case is clear.
- Assess longer-term challenges in system operability, and consider how these can be resolved, eg changes to technical standards, innovation, third party solutions, or investments that also resolve bulk power transfer needs.
- Provide government with advice, and industry with recommendations, to inform planning the wider energy system together with networks.

3.3 The ESO proposes that there will be other CSNP products, updated annually, to optimise near-term network planning. The CSNP annual products will:

- Signal if there are opportunities for TOs or third-party options to address residual network constraints, looking up to ~12 years<sup>15</sup> ahead. This could result in short-term solutions being taken forward while projects are in delivery or indicate if existing solutions need to be enhanced.
- Give a build recommendation if the needs case of a potential project becomes clear ie move it from the 'funnel' to 'delivery pipeline' (see Figure 3 below).
- Review existing projects but only if there are significant changes in the project's parameters, eg delivery date, cost, capacity, or needs case.

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<sup>15</sup> 12 years broadly aligns to current network infrastructure build time - initial inception through to operation. This may be reduced, in which case this time period would be expected to reduce also.

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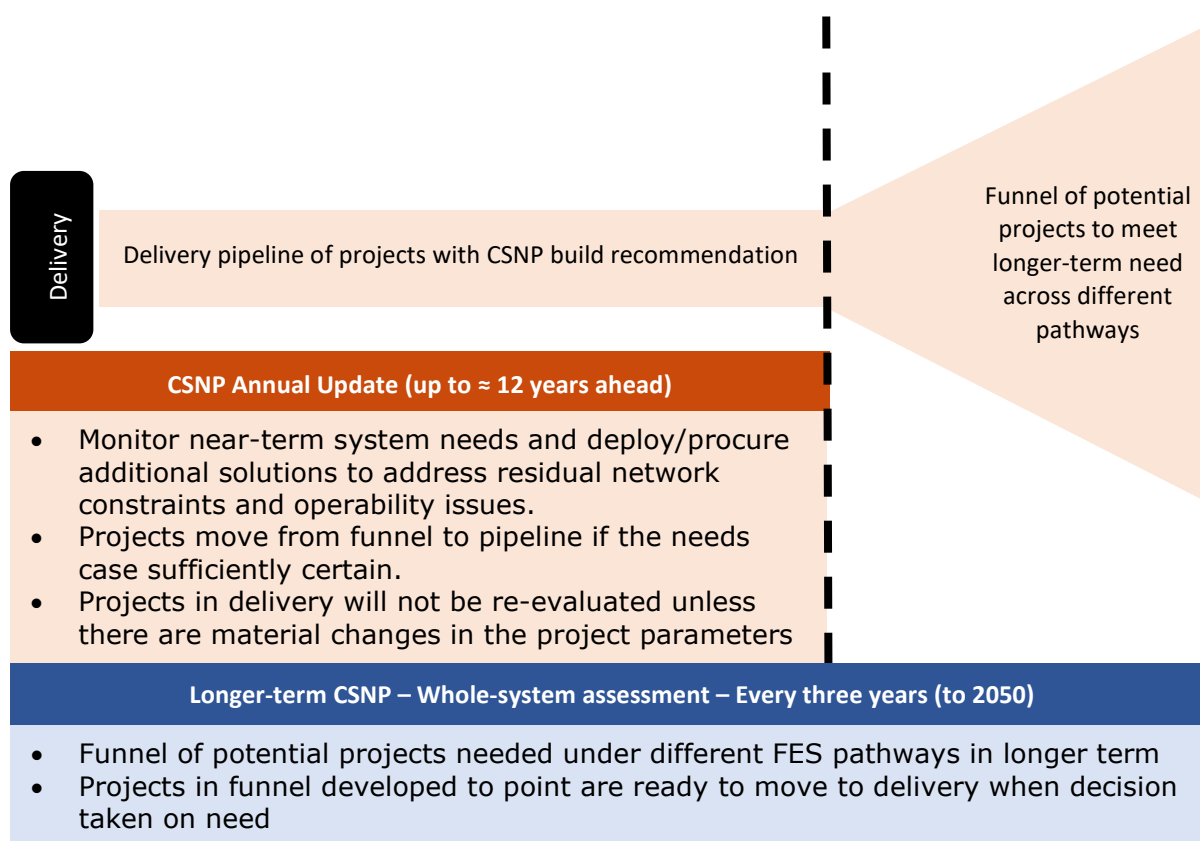
- Identify system operability needs for the period up to ~12 years ahead and take forward solutions via market or TO/third party delivery.<sup>16</sup>

3.4 Given the additional system requirements and extended time horizon covered by the CSNP, the ESO expects several “CSNP products” will be published and replace the current FES, ETYS and NOA publications described in Chapter 2. Appendix 1 outlines the proposed CSNP products, potential publication date, frequency, and the network planning publications they are expected to replace.

**Interaction of CSNP products to inform decision making**

3.5 The longer-term and annual CSNP products are depicted in Figure 3.

**Figure 3: Indicative CSNP products**



3.6 The longer-term CSNP establishes a ‘funnel’ of potential projects over different future pathways<sup>17</sup>. Over time, the range of potential projects will narrow as the forecast

<sup>16</sup> These system needs include voltage, stability, power quality and short circuit levels.

<sup>17</sup> Our consultation in May 2023 on Stage 1 of the CSNP discusses the options for multiple pathways. In this document we assume that there will be multiple pathways, but this assumption is subject to our decision on all stages of CSNP development, to be published in the autumn.

system need becomes more certain, so that the FSO is able to recommend projects to move into the delivery 'pipeline'.

3.7 Once a project is in the delivery pipeline, how the FSO's CSNP recommendation is approved and linked to regulatory funding decisions is being considered in our Future System and Network Regulation (FSNR) project (see Chapter 8).

## Next Steps

3.8 It is for the FSO to lead the final naming of the CNSP products and the optimal publication timings, but it should involve interested stakeholders, including ourselves and government.

3.9 We intend to set out the CSNP publication frequency and timing to hold the FSO to account for delivery in the FSO licence conditions we develop for the CSNP (see next section). We recognise that this is the first time this process will be run and may need to adapt. We propose to include formal derogation powers, within the licence, to direct an alternative delivery date of the CSNP products, if appropriate.

## The regulatory framework to create a CSNP

3.10 Over the next six months, we will work with stakeholders to develop the regulatory framework for the FSO to deliver the CSNP. We expect this to include:

- **New FSO CSNP Licence Conditions:** that will set out obligations for the FSO to deliver the CSNP and related products. The licence conditions will also establish the following associated documents:
- **CSNP Governance Document:** this will be an associate document to the licence, owned by Ofgem, setting out our expectations in specific areas (such as process, content, and role of a joint strategic governance group). The document is adaptable and amended by us subject to consultation.
- **CSNP Methodology:** this document will be required via the licence but be owned by the FSO and publicly detail the FSO's process to determine the key CSNP outputs. This document is expected to be adaptable and can be amended by either us or the FSO subject to consultation.

3.11 In the following sections of this document, we set out how we could implement the policy proposals using the regulatory tools above. Stakeholder feedback on this consultation, as well as consultations on the CSNP licence conditions, will be used to inform their development.

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3.12 As part of our work to establish the CSNP regulatory framework for the FSO, we intend to consider if any consequential licence changes to the TOs' licences are required and when these changes may need to progress.

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

## 4. Stage 2 – Identifying system need

### Section summary

This section sets out our proposals for the future approach adopted by the FSO for identifying system needs in the CSNP process.

### Introduction

4.1 A key stage of transmission network planning is identifying the impact of future changes in electricity generation and demand for the development of the NETS.<sup>18</sup>

4.2 The focus of the current network planning process is identifying boundary capacity deficits for moving power from generation to supply under the different scenarios over the next ten years (see chapter 2).<sup>19</sup> The electricity TOs use this information to develop network reinforcement options to increase future network capacity.

4.3 In our ENTPR decision, we said that the CSNP should cover all electricity transmission load-related network planning. So, the scope of the system need identified in the CSNP needs to expand beyond the current focus on boundary capacity constraints.

### Proposals for change

4.4 We propose that the FSO's approach to identifying system need is developed to:

1. cover a wider scope of system need
2. extend the analysis of system need out to 2050
3. move to a year-round nodal assessment of system need
4. enhance its associated publications, including stakeholder communication

### 1 – Covers a wider scope of system need

#### Background

4.5 In the ETYS and the NOA network planning framework, the ESO predominantly focuses on bulk power flow<sup>20</sup> requirements under the FES during winter-peak conditions to identify potential network boundary capacity limitations (typically because of thermal

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<sup>18</sup> The NETS is mainly made up of 400kV, 275kV and 132kV assets connecting separately owned generators, interconnectors, large demands and distribution systems.

<sup>19</sup> The ESO also publishes information on fault levels on the system in the ETYS.

<sup>20</sup> Bulk power flows refer to the capacity of the transmission system to transfer power from generation source to demand through contiguous parts of the network.

constraints<sup>21</sup>). Operability needs<sup>22</sup> are mostly identified separately. Analysis of some operability issues is led by the ESO through publications such as the ESO's NOA Pathfinders<sup>23</sup>, Operability Strategy Report (OSR)<sup>24</sup> or Voltage Screening Report (VSR)<sup>25</sup>. Other operational aspects are led by the TOs.

4.6 An issue with these assorted approaches to identifying system need is a risk of potential gaps, particularly around longer-term system need. At a time when the UK is experiencing a radical change in the generation mix, it is vital that future operational issues are anticipated proactively and addressed in the CSNP.

### **Consultation position**

4.7 We propose that the FSO incorporates a wider set of system needs in the CSNP for strategic load-related network planning, including network capacity and operability requirements, eg voltage and stability requirements.

### **Rationale for consultation position**

4.8 The FSO should expand the scope of system need identified in the CSNP to keep on top of the complex operational issues that may arise in future given the pace and scale of change in the generation mix. This will ensure the FSO is proactively anticipating the implications for load-related network planning.

4.9 It is important the FSO undertakes and coordinates an integrated assessment of system needs. This will ensure that when these system needs are used in subsequent network planning stages, the interactions between network requirements are fully considered. This is especially important for longer-term requirements which have the potential to resolve concurrent network issues.

4.10 In Table 1 below we outline the types of system need/issues and indicate those we propose are covered by the CSNP process. We expect the FSO to lead on identifying some aspects and to coordinate the input from the TOs that are best placed to lead on other aspects given their regional/local expertise on network issues. We note that some types of system need will sit outside the CSNP.

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<sup>21</sup> A thermal constraint is a physical limit to the amount of power which can be transmitted through any piece of equipment to ensure it does not become overloaded and overheat.

<sup>22</sup> Operational needs include system stability issues created by the decline in transmission connected synchronous generation that have typically provided system inertia; and voltage management challenges as less dispatchable generation on the system reduces reactive capacity.

<sup>23</sup> <https://www.nationalgrideso.com/industry-information/balancing-services/pathfinders>

<sup>24</sup> <https://www.nationalgrideso.com/news/operability-strategy-report-2022>

<sup>25</sup> <https://www.nationalgrideso.com/document/262316/download>

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**Table 1: System needs**

System need	Part of CSNP?	FSO role	TO role
Thermal constraints – bulk power flows and constraint management (CM)	Yes. Currently in ETYS, NOA and ESO CM Pathfinder	Agrees study guidelines Leads on GB analysis against SQSS. Validates TO analysis. Specifies CM requirements for market tender	Leads load flow analysis of own network against CSNP FES pathways to comply with SQSS
Low voltage issues	Yes. Currently in ETYS and NOA	Runs shadow studies to validate TO analysis	Leads analysis of own network for fully compliant operability
High voltage issues	Yes. Currently in Pathfinder, VSR, and OSR	Leads analysis and specifies requirement for market tender	Leads analysis of own network for fully compliant operability
Stability – inertia, short circuit level	Yes. Currently in Pathfinder and OSR	Leads analysis and specifies requirement for market tender	Leads analysis of own network for fully compliant operability
Stability – rotor angle stability, voltage stability	Yes. Currently in ETYS or purpose specific studies	Agrees study guidelines Leads on GB analysis from TOs' network models. Validate TO analysis	Leads on analysis of own network
Fault levels to check if assets are suitably rated.	No	None	Leads on analysis of own network
Power quality issues	Longer term issues. Currently in System Operability Framework	Leads on longer term issues	Leads analysis on own network to identify the cause and any corrective measures
Strategic connection exercises <sup>26</sup>	Yes	Leads and coordinates holistic assessment	Leads on customer connection studies and operability studies
Local connections	No <sup>27</sup>	Not applicable. TOs to design individual connections	Leads on customer connection studies and operability studies
Day to day balancing operations	No	Leads real-time operational needs eg maintaining frequency	Not applicable
Asset replacement	Potentially if load related project also addresses non-load related driver <sup>28</sup>	Responsible for ensuring consistency and alignment between CSNP and non-load related asset replacement plans	Leads analysis of asset health interventions
Network resilience	Yes. See climate resilience (Chapter 7)	Leads on resilience of own systems, data and processes need for operating system	Leads analysis of own network resilience, sub-synchronous resonance, and acceptable transient performance on energisation/de-energisation
System restoration	No	Responsible for Restoration Approach <sup>29</sup> to meet the Electricity System Restoration Standard <sup>30</sup>	Analysis of restoration routes and circuit energisation and operability within limitations

<sup>26</sup> Strategic connection exercises refers to new, large connections of generation and demand that are tied to technology targets set by the UK government and the devolved administrations for Net Zero, for example the Holistic Network Design exercise for offshore wind.

<sup>27</sup> See section 6 in Chapter 7 for our consultation position on local connections in the CSNP.

<sup>28</sup> Such as the asset health of an asset. See our ETNPR decision -

<https://www.ofgem.gov.uk/publications/decision-initial-findings-our-electricity-transmission-network-planning-review>

<sup>29</sup> [https://www2.nationalgrideso.com/document/276996/download#:~:text=The%20current%20restitution%20approach%20is,Joint%20Restoration%20Plan%20\(LJRP\).](https://www2.nationalgrideso.com/document/276996/download#:~:text=The%20current%20restitution%20approach%20is,Joint%20Restoration%20Plan%20(LJRP).)

<sup>30</sup> <https://www.gov.uk/government/publications/introducing-a-new-electricity-system-restoration-standard>



## **Potential implementation**

4.11 We propose to include a requirement for the FSO to expand the scope of system need it identifies in the new CSNP licence condition. We expect the FSO to set out in its CSNP Methodology an integrated approach to identifying system need.

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

## **2 - Extend the analysis of system need out to 2050**

### **Background**

4.12 Currently, the ESO identifies system need for the next ten to 12 years. The lead time for developing and delivering solutions, particularly network reinforcements, can also take a similar period.

4.13 A ten year-ahead time horizon is potentially not long enough. It may not allow sufficient time for parties (TOs and third parties) to evaluate system requirements and develop options. This could result in fewer options being considered (in subsequent stages of CSNP) to address the system need, and/or reduce the opportunity for coordinated network planning. These are important for reducing the financial cost to consumers and the wider impact of new network.

### **Consultation position**

4.14 We propose the assessment of system need under CSNP is extended to 2050, using multiple FES pathways. This proposal is subject to our decision on the FSO's modelling of future energy supply and demand.<sup>31</sup>

### **Rationale for consultation position**

4.15 Extending the time horizon to 2050 (in line with the UK's Net Zero goals) will help to identify longer-term strategic system need. This will provide an early signal for industry of opportunities in advance of critical delivery milestones.

4.16 For the assessment of longer-term system need, it is important that the FSO uses multiple FES pathways for the period beyond the FES single pathway to cover key uncertainties. This will provide insight into the impact of different Net Zero 2050

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<sup>31</sup> In our consultation on modelling of future demand and supply we proposed that the FSO set out strategic pathways that start with a shared single short-term view, before branching out into different pathways as the range of uncertainties widen. Our proposal on the assessment of system need out to 2050 will be subject to the decision we take on the future pathway modelling.

pathways on future system need. This may also be relevant to the FSO when it potentially contributes to policy development.<sup>32</sup>

4.17 We expect that an earlier signal of system need will help increase the quality of options put forward by TOs, third parties and the FSO itself. This could also support greater levels of innovation as well as providing a timely indication for supply chains to build capacity to meet the extra demand.

### **Potential implementation**

4.18 We propose to set out an expectation for the FSO to extend the time horizon of its system need assessment to 2050 in the CSNP Governance document.

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

## **3 - Move to a year-round and nodal assessment of system need**

### **Background**

4.19 When the ESO identifies system need in the ETYS, it models winter peak power flows across boundaries and scales these for different seasons. The benefit of this approach is that it is well-established, relatively simple and quick. It provides a high-level view of system issues eg in 5 years capacity at boundary X will be exceeded by Y MW expected power flows under Z scenario. The downside of this modelling approach is potentially a loss of detail and accuracy.

### **Consultation position**

4.20 We propose that for the CSNP the FSO moves towards:

- a year-round assessment of system need, instead of assessing system need at winter peak demand conditions, and
- an assessment of future requirements at system nodes<sup>33</sup> rather than looking at network boundaries.

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<sup>32</sup> The FSO is expected to have a role providing advice and strategic analysis to government and Ofgem upon request:  
[assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1066720/future-system-operator-consultation-govt-response.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1066720/future-system-operator-consultation-govt-response.pdf)

<sup>33</sup> A node is a point on the transmission network at which a power flow on to or off the network can occur, or where two or more network circuits meet.

### **Rationale for consultation position**

4.21 The ESO has already signalled its intention to adapt its assessment of system need by moving closer to a year-round analysis of network capacity.<sup>34</sup> We support this initiative. It should improve the quality of information available about system needs. We consider that this extra detail will assist industry and solution providers to target opportunities for network or commercial solutions to address these needs, as well as improve the quality of options put forward in stage 3 (see Chapter 5).

4.22 Similarly, we consider that moving to nodal analysis will improve the level of information about the system needs in a specific area compared to analysis based on notional network boundaries that cover a broader area. More granular information about existing and future network capacity at specific transmission nodes will also be beneficial for network users and developers planning projects.

### **Potential implementation**

4.23 We propose to include an expectation for the FSO to develop its modelling approach to identifying system need in the CSNP Governance document and to set out how it will do this out as part its CSNP Methodology.

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

## **4 – Enhance its associated publications, to communicate effectively with stakeholders on system need**

### **Background**

4.24 Currently, the ESO publishes a range of documents covering different system needs eg ETYS, OSR, Pathfinder procurement specifications and VSR. We welcome the ESO making this information available for stakeholders.

4.25 However, given the likely increase in detailed information about system need under CSNP, it might be challenging for industry to keep up to date, understand the interactions across the different publications and know how to get involved.

### **Consultation position**

4.26 We propose that the FSO reviews how it can communicate effectively with stakeholders on future system need (including the frequency and scope of its publications) under the CSNP.

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<sup>34</sup> <https://www.nationalgrideso.com/research-and-publications/electricity-ten-year-statement-etys/etys-and-our-future-network-planning>

### **Rationale for consultation position**

4.27 The ESO is already considering the CSNP products (see Chapter 3). This should include the timely communication of future system need to engage industry to bring forward options. Communicating with stakeholders on future system need is challenging. The range of issues, the technical terms, and the inherent uncertainty make it complicated. As future system needs increase, it will be imperative that the FSO communicates its view on these effectively to different stakeholders and provides a timely call to action where relevant.

### **Potential implementation**

4.28 We expect the FSO to review its communications with stakeholders on system need and we propose to include this expectation in the CSNP Governance document.

Qn 5. We welcome stakeholders' views on how the FSO can communicate effectively about future system needs?
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## 5. Stage 3 - Identify Options

### Section summary

This section sets out our proposals for the approach to be adopted by the FSO, TOs and third parties for identifying options to address future system needs in the CSNP process.

### Introduction

5.1 The CSNP will see the FSO take on the lead role in planning of load-related ET projects across GB, including cost, location, and timeline. We expect the CSNP to be a highly collaborative process. The FSO is expected to develop a suitable network planning process that allows for it, the TOs and third parties to develop network options which it can then evaluate and decide whether to take forward as part of the CSNP.

### Proposals for change

5.2 Our proposals to ensure the CSNP process can effectively identify options to resolve system needs are to:

1. Ensure consistency in the high-level design of options
2. Ensure environmental and community impacts are effectively considered
3. Enable the FSO to decide which system needs it will develop options for
4. Support the identification and assessment of third-party options
5. Ensure effective data exchange between parties.

### 1 – Ensure consistency in the high-level design of options

#### Background

5.3 In our ENTPR decision we said that we expect the options that come forward under the CSNP from the TOs, third parties and FSO to be high-level designs.

5.4 High-level design does not mean that the options are not robust for network planning purposes. For example, Chapter 6 sets out our proposals to enhance the FSO's cost benefit assessment (CBA) approach.

5.5 High-level designs are largely a desktop exercise to create options as opposed to detailed designs that are undertaken by the delivery body, after a project's needs case has been decided. Detailed designs require design engineers to work with the delivery body's construction team and includes extensive site visits, detailed environmental and community impact assessments and engagement, and plans for consents. It is not

practical, at least initially, for the FSO to lead detailed designs as it will not have the resource.

5.6 However, it is vital that the FSO ensures the high-level designs put forward for consideration have been developed following a clear and consistent approach. This has not been a requirement in the past and more can be done to support this.

### **Consultation position**

5.7 We propose that the FSO develops and provides guidance on the minimum level of detail needed for high-level designs. This guidance should be followed consistently by all TOs, third parties and the FSO when developing options.

### **Rationale for consultation position**

5.8 Establishing a consistent level of detail for option design is an important foundation for effective network planning. It will help to ensure that the FSO has the information it needs to robustly review proposals and support third parties putting forward options by providing clarity on what is needed (see Proposal 4 below).

5.9 The NOA process does not prescribe a consistent approach to high level design. The CSNP provides an opportunity for the FSO to 'take stock' on best practice and work with industry to develop a clear approach. The FSO will be well placed to lead this, as they know the level of detail needed for their CSNP evaluation.

5.10 Minimum expectations should be set where consistency is of most value, for example the level of detail needed for a desktop assessment of the:

- spatial characteristics, including identifying possible route corridors and site locations, considering environmental limitations, eg river crossings, Areas of Outstanding Natural Beauty (AONBs), and community impacts
- electrical schematic of the proposed change to the network asset specifications to meet desired electrical parameters, such as circuit, transformer and circuit breaker ratings
- the construction programme to inform the earliest in-service date cost estimation.

5.11 We expect that in some areas, and for some mature options, it may be useful for the party doing the high-level option design to go further, and this should not be prohibited. For example, for options that have been in development for a long time whilst in the longer-term funnel, the party doing the design may have developed more detail than required under this guidance. There may also be areas where exceptions are needed, including for options targeting very long term needs where early information is valuable to support future high level option development.

## Potential implementation

5.12 We think it is appropriate that the FSO sets out its approach and minimum requirements (including any templates) as part of its CSNP Methodology. As part of our CSNP Governance document we may also set out any specific expectations and guidance to support the FSO to deliver this.

Qn 6. What are your views on the FSO establishing minimum design requirements for high-level option designs and are there areas where exceptions are needed?

## 2 – Ensure environmental and community impacts are effectively considered

### Background

5.13 In our ENTPR decision, we said the CSNP should support and build on best practice to identify environmental and community impacts and mitigations as part of the high-level design of options<sup>35</sup>. Stakeholders broadly welcomed this approach; but some community and environmental groups suggested that the CSNP should go further with increased engagement and transparency.

5.14 Considering the impact on local environment and communities when developing options is a vital area, particularly at an early stage to help mitigate delays in the later stages of project development. While some TOs may consider these impacts for some projects, there is no consistent minimum requirement.

### Consultation position

5.15 We propose that the FSO:

- as part of its CSNP Methodology, should develop guidance on the minimum consistent approach to identify and, where appropriate, mitigate, environmental and community impacts using desktop assessments, as part of developing high-level designs of options (similar to Proposal 1 above).
- as part of its CSNP Methodology should set out its stakeholder engagement plan to ensure interested parties are clear how and when to engage.
- is well placed to conduct a Strategic Environmental Assessment (SEA) and this should form part of the CSNP process.

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<sup>35</sup> <https://www.ofgem.gov.uk/publications/decision-initial-findings-our-electricity-transmission-network-planning-review>

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### **Rationale for consultation position**

5.16 The effects of network options on the environment and local communities should be examined early in the design phase to ensure a robust option is developed for assessment in the next stage, and to avoid delays in future stages of the project.

5.17 The FSO establishing the minimum approach to identifying and mitigating environmental and community impacts at the high-level design stage will help support effective network planning and mitigate delays from changes in project design. There is also currently no explicit requirement for this under the NOA, so the CSNP will help to formalise this.

5.18 We have considered whether stakeholder engagement in consideration of environmental and community impacts at the high-level design stage should be mandated by us. We think this is disproportionate. It will remain a substantive part of the detailed design stage - which is out of scope of the CSNP as it covers the high-level design only (see Proposal 1 above). However, we think that FSO should be transparent on how, and when, it will engage stakeholders. This should be set out in its CSNP Methodology to ensure stakeholders are clear on their role and where to inform the process. The SEA will be part of this.

5.19 A SEA is a legal requirement in the UK<sup>36</sup>. Its purpose is to integrate environmental considerations, such as biodiversity, land and population impacts, into the planning process. It is strategic, so it is not a detailed project-specific CBA. It should be distinguished from a project specific Environmental Impact Assessment (EIA) which is associated with the detailed design process, and out of scope of the CSNP.

5.20 We think the FSO is well placed to conduct a SEA as part of the CSNP process and it is an area that the ESO has been considering. The FSO can collectively consider high-level options, understand potential synergies and ensure the overall suite of projects addresses environmental and community issues in the most effective way as a whole. It can also do this over the long term.

5.21 The FSO producing a SEA should help place an earlier focus on environmental and community impacts than in the past.<sup>37</sup> We understand that the FSO will need to build capability in this area. Further thinking is required on its scope and how it should be

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<sup>36</sup> SEA became a statutory requirement in the UK following the adoption of Directive 2001/42/EC on the assessment of effects of certain plans and programmes on the environment (commonly referred to as 'the SEA Directive'). The Directive was transposed into national legislation by The Environmental Assessment of Plans and Programmes Regulations 2004.

<sup>37</sup> This is also bolstered by our CBA proposals (see Chapter 6, Proposal 5) which introduces environmental and community impacts into the high-level options assessment at an early stage.



integrated into the CSNP process. This includes for offshore environmental and marine assessment requirements where we recognise that the roles and responsibilities, and timings for a strategic environmental assessment, may differ to onshore networks (see Chapter 8).

### **Potential implementation**

5.22 Our proposal is that the FSO's CSNP Methodology should include guidance on how environmental and community impacts will be considered at the high-level design stage. The CSNP Methodology should also include the FSO's stakeholder engagement plan.

5.23 The FSO should have some flexibility to determine when, and how, to integrate the SEA into its wider timeline of CSNP products. The FSO should consider its integration as part of its CSNP Methodology document. We think the FSO should publish one either before, or at the same time, as publishing the CSNP – and we propose to set this out in our CSNP Governance Document.

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

## **3 – FSO to decide which system needs it will develop options for**

### **Background**

5.24 Under the CSNP the FSO should be empowered to come up with its own options to address network needs, rather than solely rely on TOs. We decided this in our ETNPR decision. We think it is vital that the FSO have this capability so that it can use its strategic, whole system position to look beyond TO option proposals.

5.25 Our decision does not mean that the FSO will lead the design of all options. Proposal 1 above, highlights the continued importance of TOs in establishing the high-level design of options. We have said in previous consultations that the FSO will lead the development of strategic investments (SI). Stakeholders, particularly TOs, have asked us to define SI so that they know what their responsibility should be. We considered this feedback and said in our ETNPR decision that we would consider this further, and our views are below.

### **Consultation position**

5.26 After considering all stakeholder feedback, we consider it is not necessary to define SI. Instead, we are proposing that the FSO should independently decide which network needs will benefit from its own design of high-level solutions.

### **Rationale for consultation position**

5.27 We think the FSO should decide which system needs it will develop options for. Following engagement with the ESO and the TOs on this issue, we consider that the FSO should not be limited to leading the development of just one type of investment under a specific definition such as 'SI'.

5.28 The CSNP is expected to contain a mix of load-related ET projects ranging from large network-build options costing billions of pounds to smaller network and non-network solutions. Some options may be short term in build and/or deployment, while others longer term. Trying to establish a definition upfront for the types of projects where the FSO should lead the design may:

- Restrict the FSO's ability to determine a strategic programme of work
- Lead to unintended consequences – eg a definition which focuses only on large bulk transfer of power, may limit the FSO's ability to lead other areas. For example: the strategic planning of a smaller network groups which may facilitate future connections in a region; leading options to facilitate a strategic connection such as a large nuclear power station; or strategically considering how to mitigate future operability issues in a particular region.
- Reduce the FSO's ability to propose innovative, including non-network, solutions where it sees benefits, or in response to government policy direction such as a move to focus on hydrogen production (electrolysis) as a means to resolve thermal constraints due to excessive generation.

5.29 Some stakeholder feedback received to our ETNPR consultation suggested that having a definition might provide the FSO, TOs and third parties with greater clarity on the options they should lead. However, this can be addressed by the FSO setting out the broad process it will follow to determine areas where it will lead the options design as part of developing their CSNP Methodology. It should also communicate where it will lead the options design after it identifies system needs as part of each CSNP cycle. This will provide an early signal to stakeholders.

5.30 For the first longer-term CSNP, TOs and third parties are expected to develop the high-level designs for the majority of options, under the FSO's guidance, as we understand that the building of FSO's capability to develop its own options will take time. The FSO should however check all options and the validity of any assumptions made, before assessing them under stage 4. Even where the FSO leads the option design, it does not preclude the TO proposing their own options - it is for the FSO to invite the TOs and/or other parties to do this. For the options that the FSO leads, we expect it to

engage with TOs to test their practicality and deliverability prior to finalising the high-level design.

5.31 Without a definition of SI, there is a potential risk that the FSO will not actively embrace our expectations that it should lead the design of some network options. This can be mitigated by us monitoring this area and reserving the right to introduce (subject to consultation) specific expectations for this within our CSNP Governance document.

### **Potential implementation**

5.32 We propose the FSO should work with stakeholders to develop a section on signalling the system needs that will be covered by potential FSO-led solutions as part of developing its CSNP Methodology. As part of developing our CSNP Governance we intend to make clear that this will be part of the FSO's ongoing role.

<p>Qn 8. Do you have any views on our proposal for the FSO to independently decide which network needs it may lead the high-level design of?</p>
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## **4 – Supporting the identifying and assessment of third-party solutions as part of the CSNP**

### **Background**

5.33 The FSO has an important role under the CSNP to identify and facilitate third party solutions. This includes short-term and non-network build solutions to meet network needs.<sup>38</sup> We think this can enhance innovation and provide a greater richness of options for the FSO to consider under the CSNP. It also helps support the facilitation of FSO-led options (see Proposal 3 above). In our ETNPR decision we confirmed this expectation but need to provide further information on how it should be enabled within the CSNP development process.

### **Consultation position**

5.34 We propose that the FSO should establish the approach and assessment process setting out how and when third-party options will be invited to come forward within the CSNP and how these will be assessed against traditional TO proposed options.

### **Rationale for consultation position**

5.35 It is important the FSO considers how it can establish a 'level playing field' for third party options (including through early competition) in terms of third parties' ability

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<sup>38</sup> For example. demand flexibility, storage, dynamic line rating, operability solutions, as well attracting third party solutions for network build solutions.

to propose alternative designs and the FSO's consideration of them. We have engaged with the ESO on this area and are supportive of the direction they are heading to create a more transparent and consistent process.

5.36 We understand that for short-term solutions the ESO is working with stakeholders to develop a range of market service procurement processes, such as the pathfinder process, to find market solutions to operability, and constraint management needs. In addition, for both short-term solutions and to support diversity of the options considered within the NOA (and future CSNP) process, the ESO is working on improvements to its Interested Persons process through which third parties can bring forward new and innovative options. Further progress beyond these initial steps will be required to fully unlock the innovation potential from alternatives to TO investment options, and early competition. Sharing of network and asset data will be crucial to support third parties in participating in the CSNP. This is explored as part of Proposal 5 below.

5.37 To aid transparency we think it would be beneficial for stakeholders to have the processes set out within the FSO's CSNP Methodology.

### **Potential implementation**

5.1 We propose that the FSO should work with stakeholders to develop a section on identifying third party-led solutions as part of its CSNP Methodology.

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

## **5 -Ensuring effective data exchange between parties**

### **Background**

5.38 To support effective network planning to develop and understand options, we need to ensure that there is appropriate and timely data access and exchange between TOs, the FSO and third parties (where applicable). TOs should support the FSO through the development and assessment of high-level options, sharing knowledge and data. We recognise that in some areas this is a continuation of existing arrangements, albeit more is likely to be needed than in the past.

5.39 Both the ESO and TOs<sup>39</sup> are required to follow Data Best Practice Guidance.<sup>40</sup> We expect that some of the data required by the FSO in future should now be publicly

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<sup>39</sup> This requirement is planned to be moved across to the future FSO.

<sup>40</sup> [https://www.ofgem.gov.uk/sites/default/files/2021-11/Data\\_Best\\_Practice\\_Guidance\\_v1.pdf](https://www.ofgem.gov.uk/sites/default/files/2021-11/Data_Best_Practice_Guidance_v1.pdf)

available as Open Data.<sup>41</sup> Where the FSO and TOs will collaborate to identify which data needs to be shared across the organisations, we expect the FSO and TOs to subject that data to Open Data Triage.<sup>42</sup> This should result in some of the data utilised in network planning to be made Open Data increasing transparency.

5.40 As part of the wider work to establish the FSO through the Energy Bill, we expect legislation to provide the FSO with powers to request the information it needs to fulfil its functions from other industry parties, including TOs. In terms of how the FSO should use this power and any governance around it - this is a broader issue cutting across several projects including with our FSNR project.

5.41 For the immediate creation of the CSNP, the current rules for sharing data for network planning are set out in the System Operator Transmission Owner Code (STC).<sup>43</sup> These need to be assessed to ensure there are no immediate barriers.

### **Consultation position**

5.42 We propose that the ESO should lead a review of existing codes to ensure they support the exchange of information that is needed to implement the first CSNP.

5.43 We also propose that the ESO should lead a review of existing data sharing arrangements to ensure they are sufficient for the FSO to enable third party participation, including early competition.

5.44 We expect wider data exchange improvements to be considered in other Ofgem and government workstreams, eg possible development of an energy Digital Spine.<sup>44</sup>

### **Rationale for consultation position**

5.45 We've looked at the STC and have not identified any material barriers to data sharing to create the first CSNP. But more detailed consideration is required to:

- Check that data sharing is not hampered simply by the change in terminology eg the move from NOA to CSNP
- Consider whether specific areas need to be added/tightened, eg provision of:

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<sup>41</sup> Open Data: Data Assets, their associated Metadata and Software Scripts used to process Data Assets that are made available for anyone to use, modify, and distribute without restrictions.

<sup>42</sup> Open Data Triage is defined in our Data Best Practice Guidance (see reference number 35).

<sup>43</sup> [System Operator Transmission Owner Code \(STC\) | https://www.nationalgrideso.com/industry-information/codes/system-operator-transmission-owner-code-stc](https://www.nationalgrideso.com/industry-information/codes/system-operator-transmission-owner-code-stc)

<sup>44</sup> <https://www.gov.uk/government/publications/energy-system-digital-spine-feasibility-study>

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- Direct access to the asset and substation information, including existing site and asset design drawings, to support high-level option design
- Data on contracted commitments made on assets
- Data on work programmes to align CSNP with non-load network plans, determine efficiencies and earliest in-service dates (EISDs)
- Incurred costs to inform cost estimation and scrutiny of options.

5.46 We think that the ESO should convene an industry group to review the codes and set out a plan for changing them (if immediate change is necessary). We think this needs to be done by October this year, to ensure any consequential code changes can be progressed through the industry-led change process.

5.47 In addition, sharing of network and asset data will be crucial in enabling participation of third parties in the CSNP.

5.48 On wider improvements to support effective data exchange, our FSNR project is engaging industry as part of its data and digitalisation workstream.<sup>45</sup> This is looking at longer term and potentially more profound changes to regulations, for example to facilitate real time data sharing. The outcome of this work (a decision expected in autumn) is likely to lead to detailed thinking of the regulatory design for the next price control period, which will begin in electricity and gas transmission in April 2026. This is out of scope of this immediate CSNP work to establish the initial CSNP framework, but could grow in importance based on the future FSNR decision.

### **Potential implementation**

5.49 Our proposal is that the ESO should investigate whether any Code related changes are required and to establish a timetable for making these changes.

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

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<sup>45</sup> See Chapter 2 on digitalisation, <https://www.ofgem.gov.uk/publications/consultation-frameworks-future-systems-and-network-regulation-enabling-energy-system-future>

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## **6. Stage 4 – Decision-making tools including Cost Benefit Analysis (CBA)**

### **Section summary**

This section sets out our proposals for how the FSO should assess options and make recommendations in the CSNP.

### **Introduction**

6.1 This stage sets out how the options developed in stage 3 (see Chapter 5) to resolve system needs, across both near and longer-term time horizons, should be evaluated prior to becoming recommendations as part of the CSNP.

6.2 The CSNP will cover a variety of system needs with different drivers (see Chapter 4, Proposal 1). For example, some needs will be about compliance with technical standards including for security of supply, and others will relate to striking an economic balance between network reinforcements and constraint costs. This will require a range of assessment criteria and approaches to be developed. We broadly expect the FSO to lead the establishment of this and set it out as part of developing its CSNP Methodology. Where appropriate, in the CSNP Governance we will set out specific expectations and guidance the FSO should follow when developing its approach.

### **Proposals for change**

6.3 In this chapter we make proposals to help facilitate effective decision-making by the FSO under the CSNP. This includes our proposals on:

1. The general principles of the CSNP decision-making framework
2. CSNP decision-making framework to assess and recommend investments that resolve longer-term system needs to achieve Net Zero
3. CSNP decision-making framework to assess and recommend investments for delivery in the nearer term 'pipeline'
4. Re-evaluation of projects in the CSNP delivery pipeline
5. Inclusion of environmental and community impacts in CSNP decision-making, including in CBA
6. CSNP decision-making framework to assess and recommend investments for near and long-term operability needs
7. CSNP CBA approach to assessing solutions with different duration of benefits, to thermal and operability needs

8. CSNP appraisal of different combinations of energy system options and ET network solutions.

## **1 - General principles on CSNP decision-making framework**

### **Background**

6.4 In our ETNPR decision<sup>46</sup> we said that CSNP should be transparent, robust, and should be able to assess solutions consistently. This was seen as important by stakeholders - due to the impact of CSNP planning recommendations on future projects, and to ensure effective participation in its development.

### **Consultation position**

6.5 We propose that the FSO should develop a CSNP Methodology (covering the stage 4 decision-making approach) based on the following principles:

- Transparent
- Based on open stakeholder engagement
- Adaptive to change
- Robust, consistent and reproducible

### **Rationale for consultation position**

6.6 Stakeholders have expressed concern with the level of transparency in the way that the NOA is executed and communicated to external stakeholders.<sup>47</sup> In light of this feedback and our ETNPR decision, we think the FSO can go further. We think this is appropriate given the increasing importance the CSNP is expected to play in driving substantial investment in the networks.

6.7 Given the scale of network development required for Net Zero, the CSNP decision-making methodology must be robust. We recognise that decisions about large investments in the electricity transmission networks are often made with some uncertainty about the future. We expect the CSNP Methodology to balance both precision and simplicity, so that the outputs from this stage can be delivered promptly to inform the CSNP products.

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<sup>46</sup> <https://www.ofgem.gov.uk/publications/decision-initial-findings-our-electricity-transmission-network-planning-review>

<sup>47</sup> The ETPNR Consultation highlighted concerns about the transparency of optioneering for investment recommendation, cost and service date assumptions, and the level of community and environment engagement.



## **Potential implementation**

6.8 As part of our CSNP Governance Document, we will set our expectation on the FSO to demonstrate how, as part of its CSNP Methodology, it meets the principles above and provides clarity on its approach to ongoing stakeholder engagement. This should include the FSO looking to ensure that its website is clear on how and when stakeholders can get involved in the CSNP process.

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

## **2 – Decision-making framework for selecting potential projects to address longer-term system needs**

### **Background**

6.9 We expect that the FSO will evaluate and narrow down options into a funnel of potential projects that cover long-term system need. As certainty of need increases these projects may then enter the delivery pipeline (see Chapter 3). This proposal describes how the FSO should determine which options to include in the funnel of potential projects.

### **Consultation position**

6.10 We propose that the FSO should establish and manage a clear assessment methodology for selecting options to enter the potential projects funnel. This methodology should include a mix of economic decision-making support tools and qualitative analysis to support the selection of potential projects. These tools should strike an appropriate balance between future system needs, capital cost of the options, avoided constraint costs, and environmental and community impacts. We think the FSO should be able to use its own judgement to recommend options into the funnel of potential projects.

### **Rationale for consultation position**

6.11 The proposed decision-making approach for selecting potential projects is expected to enable future investments to be considered in a timely and proactive manner by the FSO, whilst providing the following flexibility:

- It allows one, or multiple potential projects, to be developed further for a particular system need until there is greater certainty and the FSO decides to the move it into the delivery pipeline, (see Proposal 3 below).

- It allows an adaptive planning approach, so that short term actions can be taken to secure future options. For example, buying land for a future substation expansion or building a substation with space for spare bays.
- It supports an enhanced role for third parties in delivery, including onshore competition by identifying long-term options early.

6.12 There are various economic decision-making support tools that could support the flexible approach described above. We expect the FSO to consider:

- Specific decision-making tools, including 'Least Worst Regret' and the Laplace decision criterion.<sup>48</sup> These are similar to what is currently used under the NOA and would calculate the net present value of cost and benefits of various options under multiple CSNP FES pathways and chooses the option which performs best across all of them. An alternative is the Laplace decision criterion which would assume an equal probability of each pathway and choose the option which performs best on average. We think both of these can be adapted to include environmental and community impacts.
- Breakeven analysis – This provides a useful sense-check of the recommendations from the specific decision-making tools. For example, in the circumstance where optimal options are different for different pathways, this analysis can help identify where decisions are particularly sensitive to one pathway.<sup>49</sup> This may influence the weight placed on a specific decision-making tool and/or the weight placed on a particular pathway.
- Sensitivity analysis – Pathways/scenarios can only cover a limited range of uncertainty. Sensitivity analysis can test the weakness of a potential decision if there are key factors (which appear credible) not sufficiently considered in the underlying pathways. For example, the early closure of a generating unit, alternative interconnector flows, less flexible demand. The aim is to sense-check the potential decision and ensure that decision makers understand the potential impact of key uncertainties not covered by the underlying pathways.

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<sup>48</sup> Decision Making under Deep Uncertainty: <https://link.springer.com/book/10.1007/978-3-030-05252-2>

<sup>49</sup> In the circumstance where optimal options are different for different pathways, decision making tools will make recommendations between the competing options. In order to sense-check the decision, analysts can calculate the probabilities on pathways that would have to be believed in order to make the same decision under expected cost minimisation.

### **Potential implementation**

6.13 We expect the FSO to set out its approach as part of its CSNP Methodology. In our CSNP Governance document we may also set out expectations and guidance to support the FSO.

6.14 The funding for options in the potential project funnel, eg early design and pre-construction, will be considered as part of the FSNR project (see Chapter 8).

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

## **3 - Decision making framework to bring potential projects into the 'delivery pipeline' for near-term needs**

### **Background**

6.15 In Chapter 3, we described the project delivery pipeline. We envisage that an assessment by the FSO that results in a project from the funnel of potential projects to be taken into the delivery pipeline, will form a clear recommendation on a project to be delivered by the TOs and/or third parties. In this proposal we outline when and how projects in the funnel should be assessed to result in a delivery recommendation.

### **Consultation position**

6.16 We propose that the FSO should establish and manage a clear assessment methodology for when and how to move projects to the delivery pipeline. At a minimum an assessment should be triggered when the system need associated with a potential project is included in the single FES pathway. However, the FSO should also be able to use its own judgement to recommend the progression of a project into the delivery pipeline, where it can provide robust justification.

6.17 We propose that the assessment toolkit to support a delivery recommendation should be broadly similar to the one used for including options into the funnel of potential projects, described in Proposal 2 above. However, the analysis should be more detailed as it will result in a decision to move a project into delivery.

### **Rationale for consultation position**

6.18 As the forecast system needs identified under FES longer-term pathways draw closer, there will be increasing certainty on which system requirements need to be addressed. There will be a point in time when firm decisions to move projects into the delivery pipeline must be taken if they are to meet target delivery dates and meet future system needs. Any differences between the firmer system need based on the single

pathway, and the needs previously identified under the multiple pathways, may result in changes to the previously proposed projects in the funnel.

6.19 Similar to options that are selected to go into the potential project funnel, projects that enter the delivery pipeline will be assessed using a mix of economic decision-making tools that the FSO should establish as part of its CSNP Methodology. The decision-making tools will be used to decide whether an investment is or isn't the best way to resolve the now firmer need, based on a variety of factors including costs, benefits, environmental and community impacts, contribution to Net Zero or other government targets, or to comply with technical standards.

### **Potential implementation**

6.20 We expect the FSO to set out its approach to decision making for delivery pipeline projects as part of its CSNP Methodology. In our CSNP Governance document we may also set out expectations and guidance to support the FSO.

6.21 Funding arrangements for investments in the delivery pipeline will be considered as part of the FSNR project (see Chapter 8).

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

## **4 – Our proposal to not re-evaluate projects that are in the CSNP delivery pipeline**

### **Background**

6.22 Currently, the NOA does an annual assessment of all investments in its scope. This means it may place investments on hold that were previously signalled to proceed (or vice versa). This uncertain signalling may slow down delivery by creating planning uncertainty.

### **Consultation position**

6.23 Once a project is in the CSNP delivery pipeline (ie recommended by the FSO to be funded), we propose that it should not be re-evaluated again, unless the project has significant changes to parameters such as delivery dates and costs, or where there are significant changes to the system need.

### **Rationale for consultation position**

6.24 The proposal supports the acceleration of investment delivery by providing greater certainty to stakeholders including the supply chain and delivery bodies. However, relative to the current NOA approach, it has several potential risks:

- Stranding of assets, should the need not materialise when expected.
- Projects in delivery less able to adapt to significant changes in need (eg changes in government targets).
- Accommodation of material changes to a project's high-level design once works begin.

6.25 We think these risks can be moderated by an appropriate materiality trigger whereby, under a limited and defined set of conditions, a project in the delivery pipeline could be revisited.

### **Potential implementation**

6.26 We propose that the FSO set out its approach in its CSNP Methodology.

6.27 In our CSNP Governance document we may also set out expectations and guidance to support the FSO, in particular the details of any materiality trigger.

Qn 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.

## **5 - Inclusion of environmental and community impacts in the CSNP CBA**

### **Background**

6.28 In our ENTPR decision, we said that we will develop further detail on how environmental and community impacts will be considered in CSNP. In this proposal we consider how these impacts will be considered in the CSNP decision-making process<sup>50</sup>, including in the cost benefit assessment (CBA).

6.29 In our previous ETNPR consultation, we said that impacts should include:

- For environmental impacts: the impact of new network on the local natural environment like water bodies, Sites of Special Scientific Interest (SSSIs), AONBs, animal and plant habitats; and the impacts on the wider environment such as potential greenhouse gas emissions from insulation gases used in high voltage equipment, or electricity network losses.

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<sup>50</sup> In Chapter 5, Proposal 2 we set out the minimum approach to identifying and avoiding environmental and community impacts in the high-level design of options.

- For community impacts: the impact of new network on communities during the construction stage eg road closures; and the lasting impact of the network eg the visual impact of electricity towers or substations.

### **Consultation position**

6.30 We propose that the CSNP Methodology should explain how the assessment of impacts of network options on environment and communities will be included within the stage 4 CBA.

### **Rationale for consultation position**

6.31 Embedding environmental and community impacts in the decision-making for network planning should improve the quality of analysis and reduce the chances of material changes to projects or delivery timing at later stages. This will help to support the accelerated delivery of investments. A similar approach has already been followed in the Offshore Transmission Network Review (OTNR) Holistic Network Design (HND), and the CSNP Methodology can build on and take lessons from the HND exercise.<sup>51</sup>

6.32 We do not propose that impacts above and beyond those necessary to obtain planning consents, or to meet other legal obligations, should be assessed in a way that have the result of making an investment uneconomical. For example, where an onshore overhead line can be planned to meet the minimum requirements to obtain planning consents, the intent of this policy is not such that a higher cost option, such as an offshore route or primarily underground cable is favoured, simply to avoid environmental and community impact of new network. However, where crossing certain geographic areas, such as AONBs, we expect the benefits of undergrounding may outweigh the additional cost.

6.33 Where helpful and relevant, the FSO could utilise the Green Book guidance issued by HM Treasury<sup>52</sup> in developing its methodology as it provides useful guidance on how to assess environmental and community impacts.

6.34 Where mitigating any environmental or community impacts above and beyond those required to obtain planning consents, has minimal detriment to the wider GB energy consumers, this should be considered as part of the high-level option design and included as part of the minimum requirements (see Proposal 2, Chapter 5).

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<sup>51</sup> <https://www.gov.uk/government/groups/offshore-transmission-network-review>

<sup>52</sup> <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government/the-green-book-2020>

6.35 The CBA will need to be able to embed qualitative and quantitative socio-economic impacts of new network, and enable a balanced approach to be taken for their inclusion. This could include benefits relating to carbon reduction due to new networks which facilitate low carbon energy and demand and could use the government's latest carbon valuation.<sup>53</sup>

6.36 Achieving Net Zero will require significant investment in energy infrastructure. This new network may result in impacts to the local environment and communities. At the same time, Ofgem has a statutory duty to carry out its functions under the relevant parts of the Acts<sup>54</sup> in a way that promotes economy and efficiency on the part of persons authorised by licences. Therefore, the impacts should be managed and mitigated to the extent possible, whilst keeping the overall cost of new network low. The balance should be considered as part of the FSO developing its CSNP Methodology.

### **Potential implementation**

6.37 We expect the FSO to develop the approach as part of its CSNP Methodology. The FSO should consider how:

- 'Costs' could include wider societal cost of not meeting Net Zero, and 'benefits' could include carbon reduction benefits from network reinforcements.
- To utilise The Green Book guidance issued by HM Treasury.
- Qualitative assessment is integrated into the process (but noting it should be supplemented, where possible, with quantitative assessment too)
- Constraint costs, environmental and community impacts should be weighted (if at all).
- Environmental and community impacts of new network should be included into the CBA.
- The CBA can identify mitigation of environmental or community impacts beyond those required to obtain planning consents, at minimal detriment to the wider GB energy consumers.

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

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<sup>53</sup> <https://www.gov.uk/government/collections/carbon-valuation--2>

<sup>54</sup> Utilities Act 2002, Electricity Act 1989 and Gas Act 1986

## **6 – CSNP decision-making framework to assess and recommend investments for near and long-term operability needs**

### **Background**

6.38 Currently, operability needs are typically identified for the near term, have a high certainty, and are addressed through various processes. Where solutions are procured from the market, such as the ESO Pathfinders<sup>55</sup>, a commercial assessment identifies an efficient option. In other cases, a TO might submit an engineering justification, for example, to show an intervention is needed to ensure the network operates within limits set by applicable technical standards, to obtain regulatory funding.

6.39 In Chapter 4 we propose that the CSNP should cover both near-term and longer-term operability needs (see Chapter 4, Proposal 2).

### **Consultation position**

6.40 In this section, we propose that the FSO’s CSNP Methodology should set out how operability solutions will be assessed and taken forward for near-term and longer-term operability needs.

### **Rationale for consultation position**

6.41 The ESO and TOs have a number of established, new, or in-development processes to resolve operability challenges (see Chapter 4, Table 2). By bringing these together under the CSNP process, there may be benefits in assessing solutions by using common principles and finding efficiencies in a joined-up approach.

6.42 A CSNP Methodology that covers how all types of operability solutions will be assessed and taken forward will give stakeholders providing market-based services, transparency and clarity on how different options are appraised.

### **Potential implementation**

6.43 We expect the FSO to set out its approach as part of its CSNP Methodology.

6.44 As part of our CSNP Governance document we may also set out any specific expectations and guidance to support the FSO to deliver this.

Qn 16. Do you have any views on our proposal for the CSNP to include a methodology for assessing and taking forward system operability solutions?

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<sup>55</sup> <https://www.nationalgrideso.com/industry-information/balancing-services/pathfinders>

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## **7 - CSNP CBA approach to assessing options with different lifespans, to thermal and operability needs**

### **Background**

#### Solutions for thermal constraints

6.45 The current NOA CBA approach for thermal constraints may favour traditional network options with longer lifespans over options that deliver lower benefits, but for a shorter duration and at a much lower cost. Network investments typically have reasonably certain long-term benefits (40 years+) which are wrapped into the NOA CBA analysis. Whereas, for potential short-term solutions, the integration of their CBA into the current NOA process is arguably less developed. This may make it difficult for short-term solutions when competing with traditional solutions with long lifespans to resolve constraints.

#### Solutions for operability needs

6.46 For operability needs, the current pathfinder approach typically looks to procure services from the market for a set, typically short duration of <10 years to resolve needs. This means that options are currently only assessed to provide benefits for a similar duration. This may be sub-optimal if some options may provide benefits for longer than the contracted duration.

### **Consultation position**

6.47 In this section, we propose that the ESO should review its NOA CBA approach to assess any shortcomings in fairly assessing short- and long-term options when resolving network constraints.

6.48 We further propose that the ESO should review its current approach to resolving operability needs. This should include assessing if the duration of the service and the assessment methodology is appropriate and provides best value for consumers.

6.49 It is our view that the FSO should use the outputs of the above reviews to transparently set out, and review, its approach as part of the CSNP Methodology.

### **Rationale for consultation position**

6.50 Given the scale of investment required to support Net Zero, there is a need to consider a mix of solutions, including innovative and non-network ones. This proposal seeks for the ESO/FSO to proactively consider, and address, any difficulties in carrying out a fair assessment of different types of options, so that opportunities with higher net benefits aren't missed, due to the method of analysis. This is also important to help bolster the role of third parties and innovative solutions as part of the overall CSNP process, which we believe will bring innovation and efficiencies in the sector.

6.51 Where there are clearly greater benefits to consumers in progressing with options that provide a longer duration of benefit, then a process should not artificially disregard such benefits. The process itself should be reviewed to consider if the duration of assessment is fit for purpose for the longer term. The CSNP's longer term view, including of system operability needs, will help the FSO decide on whether a solution could be required beyond the short term, and be procured in the longer term (including whether it should be permanently installed on the network to provide a lifetime of benefits for a one-off cost).

### **Potential implementation**

6.52 We expect the ESO/FSO to lead work to identify and start to address how any shortcoming can be addressed. This process should be set out in the CSNP Methodology and reviewed over time. We intend to include a requirement for the FSO to formalise and continue to review its approach as part of the CSNP Governance document.

Qn 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?

## **8 - CSNP will include appraisal of different combinations of energy system and network options**

### **Background**

6.53 Currently, there is no requirement for the ESO to consider or influence wider energy system planning. In our ETNPR decision, we said that through the CSNP, the FSO should also provide advice to government and guidance to stakeholders about the development of the wider energy system, eg the siting of future hydrogen electrolysis plants, offshore wind leasing areas or new nuclear build etc. This is an important part of the FSO's role, utilising its independence and ability to look across energy vectors and long term.

6.54 To support the FSO utilising this role it should be able to include and evaluate, within the CSNP Methodology and CBA, energy system options identified in stage 3, in order that comparisons of different combinations of energy system options and network solutions can be made.

### **Consultation position**

6.55 We propose that the FSO should develop capabilities to appraise and compare different combinations of energy system and network options.

6.56 How, and when, this capability is used to inform policy making and industry requires further engagement with stakeholders, but we think the FSO's strategic outputs from using this capability should be part of the CSNP products.

### **Rationale for consultation position**

6.57 The FSO having this capability should enable it to compare different combinations of energy system options and network options in the CSNP, to identify opportunities for maximising efficient utilisation of networks, and minimising need for new network by co-optimising demand and supply with networks. For example, the CSNP could demonstrate comparison of options where future offshore wind generation is situated closer to demand (and/or hydrogen production plants) resulting in less need for new network, with options where offshore wind generation is situated far away from demand necessitating significant investments in new networks to reduce constraints.

6.58 This proposal is intended to support decision makers make informed choices on energy system policy.

### **Potential implementation**

6.59 Our view is that the FSO should develop a CSNP Methodology and CBA that can support its capability to appraise different combinations of energy system and network options as part of its CSNP products. How, and when, this FSO capability gets used more widely requires further engagement, policy development and setting up of governance frameworks at various levels across government, including with DESNZ, The Crown Estate, Crown Estate Scotland, devolved governments. At a minimum, we think the longer-term CSNP is likely to be a useful product for the FSO to set out its strategic thinking to inform policy making and industry.

6.60 The FSO is not expected to have powers to make decisions on location, capacity, technology type, size or other parameters of future demand and generation. This would require legislative change from government. However, we think the development of CSNP strategic governance group could provide guidance to the FSO on its role and on potential outputs (See Chapter 8).

Qn 18. Do you have views on our proposals for FSO to develop capabilities to consider different combinations of options and how this should be implemented?

## 7. Cross cutting CSNP policy areas and interdependencies

### Section summary

The section sets out our proposals on other key CSNP related areas and identifies links with wider industry projects that we should consider.

### CSNP key interdependencies

7.1 This project will establish the FSO's responsibility to deliver the CSNP. However, it is part of a wider group of projects across Ofgem, government and industry to support the transition to Net Zero. These projects include:

- Future Systems and Network Regulation<sup>56</sup>: CSNP investment recommendations may inform future price control regulatory design
- Recommendations from the Electricity Network Commissioner (ENC): The ENC was appointed to advise the government on how to speed up transmission infrastructure delivery in GB. The ENC is expected to publish a report on the current delivery process and how it might be improved.
- Gas Strategic Planning: A process is being developed for the FSO that will identify future requirements of the gas transmission system and hydrogen that are expected to be incorporated into the CSNP.
- Locational marginal pricing<sup>57</sup>: change in how generation is charged could impact CSNP recommendations
- Regional system planning<sup>58</sup>: roles and responsibilities of future regional planners
- Network Charging: ongoing Ofgem policy development.
- Offshore Transmission Network Review (OTNR)<sup>59</sup>: Review of ways to improve how the offshore transmission network is designed and delivered, consistent with the ambition to deliver Net Zero by 2050.

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<sup>56</sup> <https://www.ofgem.gov.uk/publications/consultation-frameworks-future-systems-and-network-regulation-enabling-energy-system-future>

<sup>57</sup> Locational energy pricing is one of the options being consider the UK government's review of electricity market arrangements <https://www.gov.uk/government/consultations/review-of-electricity-market-arrangements>

<sup>58</sup> <https://www.ofgem.gov.uk/publications/consultation-future-local-energy-institutions-and-governance>

<sup>59</sup> <https://www.gov.uk/government/groups/offshore-transmission-network-review>

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7.2 We will work with and follow these projects to ensure that we are joined up in our development of the CSNP.

### **Cross cutting CSNP policy areas**

7.3 This section considers some of the wider policy links we have identified in our previous consultation and decisions. These policy areas do not neatly fit into any of the stages in the previous chapters.

## **1 – Future Interconnection and Offshore Hybrid Assets**

### **Background**

7.4 The ESO publishes an annual assessment, as part of the NOA, that looks at the benefit of additional interconnection<sup>60</sup> between GB and other markets.<sup>61</sup>

7.5 In our 2021 Interconnector Policy Review<sup>62</sup>, we said we would use future interconnection application windows to bring forward interconnector projects, including offshore hybrid assets (OHAs), which at that time were collectively called MPIs.<sup>63</sup> We also decided that the FSO, through the CSNP, should inform future application windows for new projects. This is to ensure that the right projects come forward in the right locations, at the right times, to support the development of a Net Zero energy system and maximise consumer benefits.<sup>64</sup>

7.6 Ongoing work looking at the future ambition for interconnection is being led by government. Government ambition along with the FSO's CSNP interconnection recommendations will inform the process to trigger future application windows for cross-border capacity.

### **Consultation position**

7.7 We propose to replace the interconnector related NOA licence requirement with a new CSNP licence requirement for the FSO to provide recommendations on strategic opportunities for additional interconnection and OHAs between GB and other markets as part of the longer-term CSNP whole system assessment. This should include modelling the potential value of new cross-border capacity to the system and to GB as a whole. As

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<sup>60</sup> An electricity interconnector is a physical link that transfers electricity across borders. It is defined under section 4(3E) of the Electricity Act. Ofgem's cap and floor regime is the regulatory regime for electricity interconnectors in GB.

<sup>61</sup> The requirement for an annual NOA for interconnectors is part of standard licence condition C27.

<sup>62</sup> <https://www.ofgem.gov.uk/publications/interconnector-policy-review-decision>

<sup>63</sup> Multi-purpose interconnectors (MPI) and non-standard interconnectors (NSI) are referred to together as offshore hybrid assets (OHA).

<sup>64</sup> <https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/interconnectors> This decision was reiterated in our ENTPR decision.

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a default these recommendations should follow the three-year cycle. However, FSO support for interim assessments could also be appropriate.

7.8 We also propose that further requirements on the FSO's role and process, and the CSNP's outputs to inform future application windows are set as part of the CSNP Governance Document or in a separate specific governance document. This should also include the FSO's role in supporting the future needs case assessments of candidate projects as part of the initial project assessment.

### **Rationale for consultation position**

7.9 We see benefit in regular and targeted investment windows for interconnectors and OHAs, and the FSO aligning these as far as possible with the CSNP process. As the energy system evolves to meet Net Zero, it is vital that we take a system wide approach to planning of new interconnection and OHAs, to ensure the right types of projects are delivered where, and when, needed.

7.10 The new licence requirement will ensure that the future assessment will take a holistic view on how best to optimise new interconnection and OHAs in the GB energy system ie their location, technology type, capacity and timing.

### **Potential implementation**

7.11 We are proposing to include a requirement in the new CSNP licence condition for the FSO to provide recommendations on future strategic opportunities for additional interconnection and OHAs between GB and other markets.

7.12 Our Interconnector Team will consider the appropriate governance for the FSO's strategic planning of interconnection and OHAs for future application windows (including new Ofgem governance and any associated FSO methodology).

Qn 19. Do you agree with our proposal to introduce 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?

## **2 - Offshore Network Planning**

### **Background**

7.13 In our ENTPR decision we decided that the CSNP will consider the GB-wide onshore and offshore transmission system as a whole. The CSNP should enable the optimal development of the offshore network to support Net Zero targets, considering offshore and onshore constraints. The CSNP should align with the objectives of the OTNR and build on the work undertaken by the ESO to date through the HND.

7.14 Currently the identification of offshore generation projects generally precedes the assessment of environmental impact for individual projects and interactions with other marine industry activities. With the anticipated growth in offshore cables and associated onshore transmission network to support it, there is the risk of planning and consenting delays if network planning is not coordinated.

7.15 The delivery of the Holistic Network Design (HND) in July 2022, led by the ESO, marked a significant shift towards centrally designed and coordinated network. The HND set out the design of the GB offshore network needed to help meet government's 2030 offshore wind targets. Lessons from this have been built on for the ESO's forthcoming HND Follow-Up Exercise (HND FUE), which is due to be published in December this year. It will build on the original HND to support additional offshore wind beyond 2030. The HND FUE incorporates upfront the marine environmental assessment so environmental constraints are considered and mitigated as part of the design.

### **Consultation position**

7.16 We propose the FSO to continue implementing lessons from the HND and to collaborate with interested parties, as part of the CSNP development, including the government, The Crown Estate (TCE) and Crown Estate Scotland (CES) to:

- support their identification and development of future seabed leasing to ensure effective planning ahead of need.
- support their efforts on strategic marine environmental assessments.
- align the timings of the CSNP publications, where practical, with future seabed leasing rounds.

### **Rationale for consultation position**

7.17 The HND was the first arrangement of its kind to support the connection of 50GW of wind by 2030. We expect the CSNP to take lessons from the HND process and create an enduring integrated approach to connecting offshore power - maximising benefit for consumers, local communities and environment.

7.18 Identifying future seabed lease areas is a prerequisite to planning and coordinating the offshore and onshore network needed to accommodate the generation. Our proposal seeks to embed proactive collaboration between the FSO and key stakeholders on future offshore leasing rounds within the CSNP process. We think this aligns with broader proposals in stages 2 to 4 of this consultation which seek to put the FSO at the heart of leading and coordinating option design.

7.19 A forward approach to identifying potential environmental impacts early is also needed. This will help ensure that the cumulative effects of potential offshore projects are considered to help reduce risks and delays at the planning and consenting stages.

7.20 The responsibilities for identifying appropriate seabed areas for leasing is the responsibility of TCE and CES, whilst the responsibility for associated marine environmental assessments are with stakeholders such as the government (and devolved governments), TCE, CES and relevant marine organisations.

7.21 We expect the FSO (via the CSNP) to support relevant stakeholders to identify future seabed leasing areas and their efforts undertaking strategic marine environmental assessments. This proposal broadly aligns with Proposal 2 in Chapter 5 - that the FSO publish a Strategic Environmental Assessment (SEA). The SEA undertaken by the FSO will cover onshore network developments, whilst the marine environmental assessments will cover offshore developments. However further thinking is required to determine whether the SEA can/should incorporate any marine environmental assessments (where timings align).

### **Potential implementation**

7.22 Our proposal is that the FSO should set out its stakeholder engagement approach within its CSNP Methodology. Our CSNP Governance document will set out our expectations that the FSO should use reasonable endeavours to engage and support the TCE, CES, government and relevant bodies in a forward-looking offshore development process. We think reasonable endeavours is proportionate, given the FSO cannot fully control the participation and engagement of the stakeholders who lead offshore processes (seabed leasing, marine environmental assessment).

Qn 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?

## **3 - Onshore Competition**

### **Background**

7.23 In July 2022, the Energy Security Bill<sup>65</sup>, was introduced to Parliament. This bill includes provisions that aim to enable competitive tendering for building, owning, and operating onshore electricity network assets.

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<sup>65</sup> <https://www.gov.uk/government/collections/energy-security-bill>



7.24 Our decision on early competition<sup>66</sup> in March 2022 confirmed that the ESO/FSO would take on the planning and coordination role. This means that it will be responsible for running the tender process, assessing options for competition, making recommendations to Ofgem on whether projects should be taken forward under the early competition model and supporting the technical assessment of bids. Given that the CSNP will be the key means of identifying future load-related investment requirements, we also explained that we expected the ESO/FSO to develop the early competition model in conjunction with their work to develop the CSNP.

### **Consultation position**

7.25 Our proposal is that the FSO develops the CSNP to include an analytical approach that allows for third-party options to be fully and transparently assessed against TO proposed options. Bringing forward third-party options is part of our proposals on options development (Chapter 5) and the overall CSNP decision-making framework that applies to all options, including those from third parties is set out in (Chapter 6). Where appropriate, we propose that the FSO should also recommended delivery by competition models where required investments meet the relevant criteria for early and late competition.

### **Rationale for consultation position**

7.26 A key interaction between the early competition model that the ESO is developing and the CSNP is how effectively the CSNP identifies where non-network options should be considered. For this reason, ensuring that FSO capability is developed in this area and the process and future recommendations are carried out in a fair and transparent manner is critically important to allow for the full benefits of early competition to be realised.

### **Potential implementation**

7.27 We will continue to work closely with wider industry stakeholders to ensure the proposals set in this consultation can effectivity support onshore competition.

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

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<sup>66</sup> Early competition refers to a competition to determine a solution to a need on the network that is run before detailed design of the preferred solution has been carried out. See <https://www.ofgem.gov.uk/publications/decision-early-competition-onshore-electricity-transmission-networks>

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## **4 - Roles and responsibilities (Safety planning under the Security and Quality of Supply Standards (SQSS))**

### **Background**

7.28 The SQSS sets out the criteria and methodology for planning and operating the National Electricity Transmission System (NETS)<sup>67</sup>. The SQSS applies to both the TOs and ESO - who both have licence obligations to 'Plan and Develop' the NETS in accordance with SQSS<sup>68</sup>.

7.29 Feedback from both the ESO and TOs suggests there may be an issue that stems from all parties having very similar licence requirements. In particular, there is concern about what may happen in future if the TOs and the FSO have different views on what constitutes an SQSS compliant network design. This could create uncertainty about roles and responsibilities for high-level network design and ownership (see Chapter 5, Proposals 3 and 1) and what happens after the CSNP recommendations are developed (ie who delivers the design).

### **Consultation position**

7.30 At this stage, we do not have enough specific information on the issue to form a view on whether a change to the current status quo is needed. Therefore, we would like to invite stakeholders to provide further information and/or their views on the issue as well as whether changes are needed to the SQSS licence conditions (for both TOs and future FSO), to support the delivery of the CSNP.

### **Rationale for consultation position**

7.31 We currently don't have sufficient clarity on the issue that has been raised by stakeholder to have a position whether the issue needs addressing or how best to do that. A review of the licence conditions, the engineering aspects of the SQSS and the associated System Operator Transmission Owner Code (STC) requires substantial work. Therefore, we consider it is best that we use this consultation to request additional evidence to understand the potential issue and develop our views on the options to address the concerns, if it is demonstrated that is needed.

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<sup>67</sup> The ESO are the code administrator for the SQSS, and oversee any proposed changes to them, along with other transmission licensees. All changes have to be reviewed by the SQSS review panel and by Ofgem.

<sup>68</sup> ESO responsibilities are set out in C17 of its Special Conditions, and TO responsibilities are set out in D3 of their Special Conditions.

**Consultation** - Consultation on framework for identifying and assessing transmission investment options

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## Potential implementation

7.32 Potential changes to the SQSS and the associated licence conditions will be informed by feedback to this consultation.

Qn 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?

## 5 – Climate Resilience

### Background

7.33 Climate change is posing an increasing risk to security of supply, including:

- Damage or deterioration to assets from extreme weather events
- System-level security of supply – from large changes in supply (such as wind drought) or demand (such as increased demand for summer cooling)
- Cascading failures due to interdependencies with other sectors, eg impact of electricity on other sectors or vice versa.

7.34 We need to prepare for the growing impact of climate change if we are to maintain energy security while accelerating the transition to Net Zero. We consider that long-term, whole system planning needs to take these risks into account and ensure that the system that is sufficiently resilient.

### Consultation position

7.35 We are proposing the FSO develops its capability to evaluate the climate resilience of the GB's critical energy infrastructure in the longer-term CSNP. This could include:

- identifying the risks of a changing climate at the system level and the potential implications of failing to adapt; and
- stress test future plans to evaluate the network's resilience to resist and minimise potential impacts, as well as recover quickly after events.

### Rationale for consultation position

7.36 Further climate change is inevitable. The transition to Net Zero will result in greater reliance on electricity. It is vital that the decarbonised network is also planned to be resilient to changing climate conditions and continues to deliver high levels of security of supply.

7.37 Compared to planning for network reliability, which typically is based on modelling historical averages (demand, weather etc), resilience planning requires consideration of system performance under extremes eg low probability, high impact events.

7.38 Therefore, we consider it is important that that the FSO build capacity to look at the climate resilience of the longer-term whole system CSNP.

### **Potential implementation**

7.39 We propose to include in the CSNP Governance Document the expectation on the FSO to set out in its CSNP Methodology how it will incorporate climate resilience planning into the longer-term whole-system CSNP.

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

## **6 – Customer connections and the CSNP**

### **Background**

7.40 Typically, the ESO's role in new customer connections is leading on the application and offer process for connection requests. The TOs are primarily responsible for the planning and design of works to connect users and customers to the transmission system.

7.41 In our ETNPR Consultation, we outlined potential concerns relating to connections (eg the potential impact of connection designs on the wider network). We also said that we would further consider whether there was a case for increasing the role of the FSO in assessing customer connections in the CSNP.

7.42 In 2022, the ESO led the HND<sup>69</sup>, that coordinates the connection of significant amount of offshore wind generation to the NETS to help meet government's 2030 offshore wind targets (see section on Offshore Network Planning within this chapter), as well as launching a project to look at Connection Reform<sup>70</sup>, to address challenges for generators and/or developers in obtaining timely transmission connections. The FSO will need to consider the implications of both activities in its development of the CSNP.

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<sup>69</sup> <https://www.nationalgrideso.com/future-energy/pathway-2030-holistic-network-design>

<sup>70</sup> <https://www.nationalgrideso.com/industry-information/connections/connections-reform>

7.43 A number of initiatives are underway to address some key concerns with the current connections process.<sup>71</sup>

### **Consultation position**

7.44 Our initial view is that:

- Under the CSNP, the FSO should lead on strategic assessment of connection exercises<sup>72</sup>, such as the one undertaken in the HND.
- Individual connections should sit outside of the CSNP, unless the FSO considers there would be benefit to considering a significant connection, such as a new nuclear power plant, or an accumulation of connections in a given area, in the CSNP.

### **Rationale for consultation position**

7.45 Network investments planned under the CSNP are expected to enable the network to cope with new generation and demand connections that are needed to achieve Net Zero.

7.46 Under the current connections process, connection applications are managed on a first-come-first-served basis, with each new connection request being considered in light of those in front of it.<sup>73</sup> However, large numbers of connection projects fail to connect for various reasons (for example, if a project is unable to secure funding).

7.47 To help manage the risk of over investment in new network that may not ultimately be needed, we have proposed that:

- the CSNP is based on future energy demand and supply pathways which should make informed assumptions on future connections, should be more granular and consider regional developments<sup>74</sup>, and

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<sup>71</sup> Some examples of the initiatives can be found on the ESO's website: [TEC amnesty is now closed | ESO \(nationalgrideso.com\)](#), and [Two-Step offer process | ESO \(nationalgrideso.com\)](#)

<sup>72</sup> Strategic assessment of connection exercises here refers to exercises such as the OTNR HND that was launched by government to coordinate the connection of a large volume of new offshore wind generation connections by 2030 to meet a specific technology target to contribute to Net Zero. Future instances of these may relate to any technology type and could also include certain types of demands.

<sup>73</sup> For example, those connections that are already contracted and in the Transmission Entry Capacity (TEC) register (a list of projects that hold contracts to export electricity onto the transmission network. These include existing and future connection projects and projects that can be directly connected to the NETS or make use of it).

<sup>74</sup> See our June Consultation on <https://www.ofgem.gov.uk/publications/consultation-future-system-operator-supply-and-demand-modelling>

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- that the assessment of system need should adopt a nodal approach (see Chapter 4, Proposal 3).

7.48 As a result of these proposals, we expect the future FES and CSNP to align more closely with the expected future demand for connections (with the contracted background itself subject to improvement through the Connections Reform project).

#### Individual connections

7.49 Some differences between the CSNP FES and the contracted background are likely to persist due to the assumptions made in the CSNP FES and because the timings of the FES and CSNP products will not align with individual connection requests and offers that are sent out within the timescales set out in the electricity transmission licence.<sup>75</sup> For these reasons, we believe that planning of individual new connections or providing connection dates for individual connections should not be done as part of the CSNP process.

7.50 There could be benefits from the FSO having a greater role in planning of individual new connections, especially to align with its overall role in network planning under CSNP. However, this is outside the scope of this consultation.

7.51 Where a particular connection results in significant reinforcements, such as a new nuclear power plant, or where network planning for an accumulation of connections in a given area can be done strategically, we think the FSO is well placed to decide when it will be of most benefit to include these within the CSNP.

#### Strategic assessment of connection exercises

7.52 In future circumstances, similar to the launch of the OTNR HND, where there is a need to coordinate the connection of a large volume of generation or demand connections to meet a specific government technology target to contribute to Net Zero, we think the FSO should lead that as part of the CSNP. This will ensure that connection design and wider system reinforcements are planned together. The FSO is well placed for this as through the CSNP it will have a holistic view of the GB transmission system and wider developments in supply and demand. The FSO's approach for this should build on, and take lessons from, the HND exercise. The timing of these exercises will be driven by Government's policy decisions.

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<sup>75</sup> In Standard Licence Condition C8 (Requirement to offer terms) of the electricity transmission licence, the licensee shall offer terms not more than three months after receipt of an application from persons seeking a connection agreement.

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7.53 The connections process will also be considered more widely, as part of our work on Connections Reform.<sup>76</sup>

### **Potential implementation**

7.54 Our proposal is that the FSO should as part of its CSNP Methodology, set out its approach to considering:

- strategic assessment of connections exercises
- a significant connection, such as a new nuclear power plant, or an accumulation of connections in a given area.

7.55 Where appropriate, we will provide guidance to support this in the CSNP Governance Document. This will also be subject to the Connections Reform.

Qn 24. Do you agree with the proposed position on the treatment of connections in the CSNP?
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<sup>76</sup> Ofgem's Connections Reform: <https://www.ofgem.gov.uk/publications/open-letter-future-reform-electricity-connections-process>

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## 8. Next steps

### Overall Timetable

8.1 Once we have received and considered responses to this consultation, we intend to publish our decision in autumn 2023. The decision will cover both this consultation and our earlier consultation in May 2023 on supply and demand modelling. In autumn 2023, we also intend to publish an informal consultation on the draft text of the licence conditions need to implement the CSNP.

8.2 Subject to consultation, we will develop licence conditions to implement our decisions, enabling the FSO to deliver a CSNP. In parallel we will work on the relevant associated documents which will set out in more detail how we expect the FSO to carry out its obligations.

### Bringing the CSNP together

8.3 Stage 6 (See Figure 1) of the CSNP needs a clear process to be established for passing FSO recommended investments to an appropriate delivery body (either TOs or third parties). This includes considering the potential roles and responsibilities of Ofgem and government in providing guidance and/or signing off key inputs and outputs across the full process of developing the CSNP.

8.4 As part of our FSNR project<sup>77</sup>, we intend to publish our Framework Decision in autumn 2023. This document is expected to include our high-level views on the governance and regulatory treatment of the outputs (both electricity and gas) from the CSNP in the next price control. This includes consideration of who is responsible for delivery and what the regulatory framework for funding will look like. We expect further engagement as part of the FSNR project and then as we develop our Sector Specific Methodology Consultation to test and develop the details.

8.5 Work is ongoing with the ESO and DESNZ to consider how to establish strategic governance groups to inform, and review, key inputs and outputs over the CSNP development process. These groups could bring together Ofgem, DESNZ, the ESO/FSO and network companies - building on the NOA forum today and governance of the HND. This might enhance the speed of decision making and support the new CSNP process. To support this, we will consider whether there should be specific requirements (eg in the CSNP Governance document) for the FSO relating to strategic governance.

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<sup>77</sup> <https://www.ofgem.gov.uk/publications/consultation-frameworks-future-systems-and-network-regulation-enabling-energy-system-future>

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## Appendix 1: ESO proposed CSNP products

CSNP products*	Broad scope	First publication	Proposed frequency of publication	ESO product it replaces
CSNP	<ul style="list-style-type: none"> <li>• Longer-term strategic assessment of network needs, primarily for bulk transfer of energy, across electricity transmission, gas transmission, hydrogen with a time horizon out to 2050.</li> <li>• Determine network requirements across energy vectors against a backdrop of government’s Net Zero targets and demand/generation pathways to identify short- and long-term solutions.</li> <li>• Longer-term trends in system operability that can be addressed through innovation or through investments in bulk transfer solutions.</li> <li>• Advice to government and recommendations to industry and stakeholders on wider energy system to maximise efficient utilisation of ET network infrastructure.</li> </ul>	2026	Every 3 years	NOA, HND
CSNP Annual products**	<ul style="list-style-type: none"> <li>• Review of the nearer-term system operability needs including voltage, stability, power quality, etc. to result in TO or third party delivered solutions (similar to the ESO’s Pathfinders)</li> <li>• TO or third-party delivery of solutions to address any residual network constraints</li> <li>• Bring previously indicative solutions into delivery where the needs case has become firm and is now part of the single pathway</li> <li>• Only review solutions in delivery if significant change in parameters eg delivery date, costs, location or needs case driver.</li> </ul>	2024	Each year between the 3-yearly CSNP	ETYS, NOA Operability Strategy Report, Voltage Screening Report, Pathfinder service procurement specifications

\*The FSO may change these CSNP product names as it engages further with stakeholders.

## **Appendix 2: How to respond**

1. We want to hear from anyone interested in this consultation. Please send your response to the person or team named on this document's front page.
2. We've asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can.
3. We will publish non-confidential responses on our website at <http://www.ofgem.gov.uk/consultations>

### **Your response, data and confidentiality**

4. You can ask us to keep your response, or parts of your response, confidential. We'll respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.
5. If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you do wish to be kept confidential and those that you do not wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we'll get in touch with you to discuss which parts of the information in your response should be kept confidential, and which can be published. We might ask for reasons why.
6. If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the UK's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 4.
7. If you wish to respond confidentially, we'll keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We won't link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

## General feedback

8. We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:

- (1) Do you have any comments about the overall process of this consultation?
- (2) Do you have any comments about its tone and content?
- (3) Was it easy to read and understand? Or could it have been better written?
- (4) Were its conclusions balanced?
- (5) Did it make reasoned recommendations for improvement?
- (6) Any further comments?

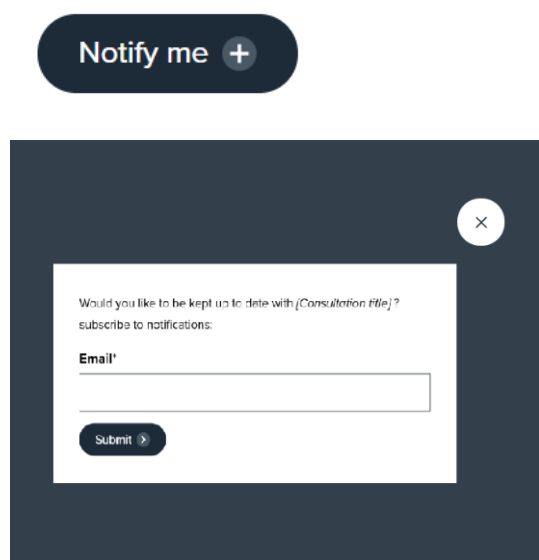
**Please send any general feedback comments to**

[stakeholders@ofgem.gov.uk](mailto:stakeholders@ofgem.gov.uk)

## How to track the progress of the consultation

You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website.

[Ofgem.gov.uk/consultations](https://www.ofgem.gov.uk/consultations)



Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:

**Upcoming** > **Open** > **Closed** (awaiting decision) > **Closed** (with decision)

## **Appendix 3: Privacy notice on consultations**

### **Personal data**

The following explains your rights and gives you the information you are entitled to under the General Data Protection Regulation (GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

#### **1. The identity of the controller and contact details of our Data Protection Officer**

The Gas and Electricity Markets Authority is the controller, (for ease of reference, "Ofgem"). The Data Protection Officer can be contacted at [dpo@ofgem.gov.uk](mailto:dpo@ofgem.gov.uk)

#### **2. Why we are collecting your personal data**

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

#### **3. Our legal basis for processing your personal data**

As a public authority, the GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. ie a consultation.

#### **4. With whom we will be sharing your personal data**

We will not share your personal data with any other individual or organisation.

#### **5. For how long we will keep your personal data, or criteria used to determine the retention period.**

Your personal data will be held for 12 months after the project is closed.

#### **6. Your rights**

The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it
- ask us to restrict how we process your data
- get your data from us and re-use it across other services
- object to certain ways we use your data

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- be safeguarded against risks where decisions based on your data are taken entirely automatically
- tell us if we can share your information with 3<sup>rd</sup> parties
- tell us your preferred frequency, content and format of our communications with you
- to lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO at <https://ico.org.uk/>, or telephone 0303 123 1113.

**7. Your personal data will not be sent overseas**

**8. Your personal data will not be used for any automated decision making.**

**9. Your personal data will be stored in a secure government IT system.**

**10. More information**

For more information on how Ofgem processes your data, click on the link to our Ofgem privacy promise "<https://www.ofgem.gov.uk/ofgem-privacy-policy>"

## Appendix 4: Full list of consultation questions

<b>Qn 1. Do you agree with our broad regulatory approach to establishing the FSO’s obligations to deliver the CSNP products? .....</b>	<b>13</b>
<b>Qn 2. What are your views on the types of system need that we have proposed are covered by the CSNP? Are there any gaps? .....</b>	<b>17</b>
<b>Qn 3. Do you agree that the time horizon for system need assessment should be extended to 2050? .....</b>	<b>18</b>
<b>Qn 4. Do you agree that the FSO should move to a year-round nodal assessment of system need as part of the CSNP? .....</b>	<b>19</b>
<b>Qn 5. We welcome stakeholders’ views on how the FSO can communicate effectively about future system needs?.....</b>	<b>20</b>
<b>Qn 6. What are your views on the FSO establishing minimum design requirements for high-level option designs and are there areas where exceptions are needed? .....</b>	<b>23</b>
<b>Qn 7. Do you have any views on our proposals for considering environmental and community impacts as part of high-level design of options? .....</b>	<b>25</b>
<b>Qn 8. Do you have any views on our proposal for the FSO to independently decide which network needs it may lead the high-level design of? .....</b>	<b>27</b>
<b>Qn 9. Do you have any views on our proposal for the FSO to set out how and when third parties can be involved within the CSNP?.....</b>	<b>28</b>
<b>Qn 10. Do you have any views on our proposals on data exchange to enable the implementation of CSNP? .....</b>	<b>30</b>
<b>Qn 11. Do you have any views on our proposals regarding the principles to be followed in the CSNP decision-making framework? .....</b>	<b>33</b>
<b>Qn 12. Do you have any views on our proposals on the decision-making framework for selecting potential projects to address longer-term system needs? .....</b>	<b>35</b>
<b>Qn 13. Do you have any views on the decision-making framework to bring potential projects into the ‘delivery pipeline’ for nearer-term needs?36</b>	
<b>Qn 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. ....</b>	<b>37</b>
<b>Qn 15. Do you have any views on our proposal on inclusion of environmental and community impacts in the CSNP CBA? .....</b>	<b>39</b>
<b>Qn 16. Do you have any views on our proposal for the CSNP to include a methodology for assessing and taking forward system operability solutions? .....</b>	<b>40</b>

<b>Qn 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? .....</b>	<b>42</b>
<b>Qn 18. Do you have views on our proposals for FSO to develop capabilities to consider different combinations of options and how this should be implemented? .....</b>	<b>43</b>
<b>Qn 19. Do you agree with our proposal to introduce 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? .....</b>	<b>46</b>
<b>Qn 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? .....</b>	<b>48</b>
<b>Qn 21. Do you agree with our proposal that the FSO assess third-party options under the CSNP and recommend delivery by competition where proposed solutions meet the relevant competition criteria? .....</b>	<b>49</b>
<b>Qn 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? 51</b>	
<b>Qn 23. Do you agree that the FSO should evaluate the climate resilience of the long-term whole-system CSNP? .....</b>	<b>52</b>
<b>Qn 24. Do you agree with the proposed position on the treatment of connections in the CSNP?.....</b>	<b>55</b>