

Guidance

Centralised Strategic Network Plan

Publication date:	17 November 2025
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The Centralised Strategic Network Plan (CSNP) Guidance Document is issued by Ofgem further to condition C17 of the Independent System Operator and Planner; Electricity System Operator Licence Conditions (henceforth ESO C17) and to condition C12 of the Independent System Operator and Planner; Gas System Planner Licence Conditions (henceforth GSP C12).¹ It is directed at the National Energy System Operator ('NESO' or 'the licensee').

The purpose of this document is to:

- set out the requirements for the CSNP Methodology and the CSNP that the licensee must prepare in accordance with licence conditions ESO C17 and GSP C12. The licence conditions came into effect on 1 October 2024, when the licensee was designated as the Independent System Operator and Planner (ISOP) for the Electricity and Gas networks
- provide guidance on our expectations for how the licensee works with relevant stakeholders to develop the CSNP Methodology and on how the end-to-end process for producing the CSNP, and timetable are defined

¹ <https://www.ofgem.gov.uk/licences-and-licence-conditions>

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1. Introduction

Overview of the CSNP

- 1.1 In November 2022, Ofgem decided that the future system operator, now called the National Energy System Operator (NESO), would be responsible for creating a new Centralised Strategic Network Plan (CSNP).² In December 2023, Ofgem decided on the regulatory framework for the licensee to produce the CSNP. This comprises new Licence Conditions, a CSNP Methodology developed by the licensee, and this CSNP Guidance Document ('CSNP Guidance' or 'Guidance') issued by Ofgem.³
- 1.2 The aim of the CSNP is to provide an independent, coordinated, and long-term whole-system approach to planning the electricity and natural gas transmission networks, as well as hydrogen transport and storage (T&S) networks across Great Britain (GB) to help meet the government's net zero ambitions.
- 1.3 In the 2023 T&S Networks Pathway,⁴ government indicated its ambition for the licensee to be the strategic planner of hydrogen T&S infrastructure from 2026. Consideration of hydrogen falls under the scope of the licensee's Gas System Planner (GSP) licence, government commissioned⁵ that hydrogen generation and storage be considered in the first iteration of the Strategic Spatial Energy Plan (SSEP). This plan will act as a blueprint to inform the CSNP, which will set out the infrastructure choices needed to facilitate GB's energy transition.
- 1.4 While a whole-system perspective is essential, the technical requirements and scale of transformation will vary across different energy systems. These differences will shape the specific planning expectations for each system.
- 1.5 The electricity and natural gas systems are well established and comprised of significant infrastructure in GB. The electricity system is expected to undergo the most substantial transformation to support net zero goals, with the natural gas system providing a critical back-up role throughout the transition to clean power, ensuring security of supply for the energy system in GB. In contrast, future hydrogen infrastructure is still being considered, and it is not anticipated to be of the same scale and extent as the existing natural gas system. The CSNP Methodology and plan is expected to reflect these differences in maturity and expected development across the three energy vectors in its scope.

² [Decision on the initial findings of our Electricity Transmission Network Planning Review](#), November 2022

³ [Decision on the framework for the Future System Operator's Centralised Strategic Network Plan](#), Ofgem, December 2023

⁴ DESNZ [Hydrogen Transport and Storage Networks Pathway](#) December 2023

⁵ UK, Scottish and Welsh Governments [Strategic Spatial Energy Plan: Commission to NESO](#) October 2024

CSNP Objectives

1.6 The CSNP will:

- identify future network needs for the National Electricity Transmission System (NETS);⁶ the natural gas National Transmission System (NTS); and the need for new hydrogen networks and storage facilities that connect proposed production sites with emerging demand centres, both within and across regions, and any future needs once they are established⁷
- identify potential network reinforcements or other interventions to meet future system needs and maintain network resilience. It will do this by:
 - (1) evaluating and selecting optimal solutions for delivery to address future network needs, covering at least a 10-year horizon for natural gas and hydrogen;⁸ and a 12-year horizon for electricity (exact length to be determined by the licensee depending on asset delivery timescales and via consultation) - the ‘Delivery Pipeline (see Chapter 7 for further details)’
 - (2) identifying and evaluating a longer-term ‘Funnel of Options’; network options that address longer term needs, covering at least a 25-year horizon but are not currently ready or required for delivery (see Chapter 7 for further details)
- design offshore electricity transmission connections strategically and in a coordinated manner as part of a holistic offshore and onshore electricity transmission network plan

1.7 The licensee will produce a series of CSNP outputs, such as identified system needs, and the plan comprising of a delivery pipeline of projects and a longer-term funnel of options. After consulting with stakeholders, it will submit a plan to Ofgem for approval every three years.

CSNP Licence Conditions

1.8 Licence Conditions ESO C17 and GSP C12 (CSNP) set out the licensee’s network planning objectives and obligations.⁹ They require the licensee to produce and publish, following approval from Ofgem, a CSNP every three years. This will cover electricity, natural gas and hydrogen plans. Before producing the CSNP, the licensee must propose a CSNP Methodology, in accordance with this CSNP Guidance, and submit it to Ofgem for approval.

⁶ National Electricity Transmission System: As defined in the Independent System Operator and Planner - Electricity System Operator Licence.

⁷ See paragraph 3.12 of this document for further details on “hydrogen networks”.

⁸ DESNZ will be the decision-maker via the business models for hydrogen delivery pipeline

⁹ <https://www.ofgem.gov.uk/licences-and-licence-conditions>

CSNP Methodology

- 1.9 The CSNP Methodology must set out the process and detailed timelines that the licensee will follow to produce the CSNP and related publications. It must define the end-to-end process, from analysis to publication, and identify the roles and responsibilities of the licensee and other parties that will contribute to the development of the CSNP.
- 1.10 The CSNP Methodology must also cover other aspects of the licensee's network planning role as set out in this guidance. This includes recommendations on interconnectors and Offshore Hybrid Assets (OHAs);¹⁰ setting out which industry standards and codes will apply to the CSNP; facilitating onshore competition; and offshore network planning.
- 1.11 For Ofgem to approve the CSNP Methodology and the proposed CSNP, it must be satisfied that these have been developed in a way that protects the interests of both current and future energy consumers, enables infrastructure for net zero at pace and ensures that the network is resilient.
- 1.12 Ofgem must be confident that the Methodology developed by the licensee is transparent, analysis and evidence based, and ensures recommended investments are efficient and economical and clearly justified in the plan. This is critical to ensuring timely approval of the plan by Ofgem to avoid unnecessary delays and resultant costs being passed on to consumers.
- 1.13 To meet this standard, the CSNP should demonstrate that it has consistently, and where possible objectively, assessed an appropriate range of credible network development options against the required assessment criteria.
- 1.14 The government recently consulted on the energy National Planning Statements (NPS), which set out the government's policy for the delivery of energy infrastructure and provides the legal framework for planning decisions in England and Wales.¹¹ It has proposed that the electricity infrastructure in the CSNP will be endorsed in the NPS. This will mean that the needs case and technology type for projects that adhere to the recommendations of the CSNP do not have to be examined in the consenting process. Subject to government's decision on this endorsement, we expect the licensee's CSNP Methodology to enable this proposed endorsement.

¹⁰ Offshore Hybrid Assets are defined as 'offshore electricity infrastructure with dual functionality combining transport of offshore wind energy to shore and interconnectors' as per our [Consultation on the Regulatory Framework for Offshore Hybrid Assets: Multi-Purpose Interconnectors and Non-Standard Interconnectors \(ofgem.gov.uk\)](#).

¹¹ [Planning for new energy infrastructure: 2025 revisions to National Policy Statements - GOV.UK](#)

CSNP Guidance Document

- 1.15 This Guidance document sets out the expectations and requirements on the licensee to meet its obligations under the CSNP licence conditions. We set out our expectations for the licensee for the first CSNP Methodology in our 2023 CSNP policy decision. The licensee has since then developed the CSNP Methodology by working closely with network owners,¹² government and Ofgem, and by consulting wider stakeholders. As this is a new process, we've chosen to wait for the licensee to develop its approach based on our policy decision before publishing a Guidance document. This was to allow the licensee to explore potential approaches openly, without being overly limited by pre-set requirements. This Guidance is largely aligned with our policy decision.
- 1.16 In Chapter 2, we set out our expectations on the contents, submission, and periodic review requirements for the CSNP Methodology.
- 1.17 In Chapter 3, we set our requirements applying to all CSNP stages and in general to electricity and natural gas transmission network planning, as well as hydrogen transport and storage networks.
- 1.18 In Chapters 4 to 9 of this document, we have set out specific requirements relating to the stages of the CSNP process. We have also set out guidance on our expectations on how these are defined in the CSNP Methodology. The stages of the CSNP process are:
1. modelling future supply and demand
 2. identifying system needs
 3. identifying options
 4. decision-making
 5. developing the CSNP
 6. handing over to a delivery body
- 1.19 In Chapter 10, we have set out wider requirements relating to the CSNP for areas that are not covered elsewhere. This includes requirements in relation to resilience, interconnectors, offshore network planning, competition and connections.
- 1.20 Chapter 11 sets out requirements in respect of the CSNP publications. It gives guidance on how the licensee must define the frequency and content of the CSNP publications in the CSNP Methodology.

¹² In gas, National Gas Transmission is both the sole network owner of the NTS, as well as the Gas System Operator (GSO). We use both terms interchangeably when referring to National Gas Transmission in this document.

Compliance

- 1.21 As well as other related licence requirements, when developing the CSNP Methodology, under Licence Condition ESO C17 and GSP C12, the licensee is required to act in accordance with this Guidance.
- 1.22 Failure to develop the CSNP Methodology in accordance with any of the requirements set out in this Guidance may result in us not being able to approve it. In this case, we would consult with the licensee and, in accordance with the licence conditions, may give a direction to the licensee that the CSNP Methodology requires further development, and set the date by which the licensee will be required to submit a revised CSNP Methodology to us for approval.
- 1.23 While we expect the licensee to do everything reasonably possible to meet the requirements of this Guidance. We accept that some of the requirements set out may take longer than the time available for developing the first CSNP, because of the time needed by the licensee to build its capability and expertise in specific areas of network planning or other reasons such as policy uncertainty. Where appropriate, the licensee may ask us to consider justified alternatives to the requirements set out. We expect the licensee to identify in its CSNP Methodology submission the elements of this guidance (if any) with which it is unable to comply, and its reasons.

Review of CSNP Guidance

- 1.24 Ofgem may periodically, and as required, following consultation with interested parties, revise this CSNP Guidance in accordance with the relevant licence conditions.

Related publications

- 1.25 The Energy Act 2023¹³ set the legislative framework for an independent system planner and operator to help accelerate GB's energy transition. This led to the establishment of the licensee, an independent public corporation at the centre of the energy system, tasked with taking a whole-system view, and developing and delivering an enduring strategic energy planning structure. Alongside the CSNP, this will be driven by two other interrelated, iterative activities: the SSEP and the Regional Energy Strategic Plan (RESP). As the delivery body for all three complementary activities, the licensee is expected to consider and lay out within the design of each plan, the relationship and appropriate feedback loops between the plans.

¹³ <https://www.legislation.gov.uk/ukpga/2023/52/energy-act-2023>

Strategic Spatial Energy Plan

- 1.26 In October 2024, the UK, Scottish, and Welsh governments jointly commissioned the licensee to create a SSEP for the energy system, on land and sea, across GB.¹⁴ The first iteration of the SSEP will focus on electricity generation and storage, including hydrogen assets. In the future, the SSEP will be updated regularly and could include other types of energy.
- 1.27 The SSEP's outputs, including modelling of optimal locations and scaling of energy assets to meet forecast demand, will directly feed into the CSNP by providing analysis on the need for network infrastructure. It will establish a single generation and demand pathway to 2050, selected by the Secretary of State for Energy Security and Net Zero, that is co-optimised with high-level network needs. The SSEP will be produced every three years, at least one year ahead of the corresponding CSNP. The licensee must use the SSEP as a key input in its CSNP Methodology, in line with the UK Government's decision.

Regional Energy Strategic Plan

- 1.28 In April 2025, Ofgem set out a policy framework for RESP,¹⁵ following a decision in November 2023 to introduce it.¹⁶ The RESPs will provide a strategic view of the future of the energy system for regions, eg South West and nations eg Scotland, and set the direction for proactive investment in the distribution networks. The licensee will develop these plans, grounded in the needs of each area, by convening regional stakeholders around a common view of how the energy system will develop to support local priorities and deliver national goals. By enabling coordinated development across multiple vectors, RESP will support confident and efficient distribution network investment toward net zero. RESP will complement the CSNP, using the SSEP pathway as the starting point for development. The licensee is expected to set out how network build as a result of the RESP will relate to the CSNP.

Future Energy Pathways

- 1.29 The Future Energy Pathways (FEP)¹⁷, formerly the 'Future Energy Scenarios' (FES) is the licensee's view of potential pathways for future changes in the demand and supply of energy. This is separate to the SSEP and will complement it for the first iteration of the CSNP, particularly for gas modelling, where it can provide additional data as the SSEP does not as yet consider the gas system other than as it supports electricity generation.

¹⁴ <https://www.gov.uk/government/publications/strategic-spatial-energy-plan-commission-to-neso>

¹⁵ <https://www.ofgem.gov.uk/decision/regional-energy-strategic-plan-policy-framework-decision>

¹⁶ <https://www.ofgem.gov.uk/decision/decision-future-local-energy-institutions-and-governance>

¹⁷ See our [Future Energy Pathways Guidance](#), Section 4

- 1.30 More generally, the CSNP links with other important initiatives, policies and regulations in the energy sector. This includes the government's Clean Power 2030 Action Plan,¹⁸ where government has outlined its intention to accelerate decarbonisation of electricity generation to achieve 95% carbon-free electricity by 2030, underpinned by the timely delivery of network infrastructure; Connections reform to address challenges in timely and appropriate connections activity;¹⁹ and Reformed National Pricing (RNP),²⁰ a single national GB-wide wholesale market that will improve the efficiency of our future power system.

¹⁸ <https://www.gov.uk/government/publications/clean-power-2030-action-plan>

¹⁹ <https://www.ofgem.gov.uk/decision/decision-connections-reform-package-tm04>

²⁰ <https://www.gov.uk/government/publications/review-of-electricity-market-arrangements-remasummer-update-2025/review-of-electricity-market-arrangements-remasummer-update-2025-accessible-webpage>

2. Developing and submitting the CSNP Methodology

2.1 This chapter sets out requirements the licensee must follow in developing and producing the CSNP Methodology.

CSNP Methodology contents

2.2 The licensee's proposed CSNP Methodology must define:

- the overall lifecycle and timetable for activities undertaken for the CSNP. While the dates set in the ESO C17 and GSP C12 are fixed, the rest of the timetable may be indicative
- the scope of network needs that are covered by the CSNP
- the CSNP time horizon(s)
- the CSNP decision-making criteria
- a robust governance framework for the development of the CSNP, ensuring clear accountability, effective oversight, and continuous improvement in alignment with wider strategic frameworks (such as the SSEP and RESP)
- inputs, modelling methods, the analytical approach and outputs, so that users and stakeholders can clearly understand them. The licensee may judge that certain elements, especially pertaining to a specific plan cycle, are more appropriate to be detailed outside the Methodology via processes or documents, eg the System Operator Transmission Owner Code (STC) and System Operator Transmission Owner Code Procedures (STCP). Where these judgements are made, the licensee should indicate this, with accompanying rationale, in the Methodology
- areas of engagement and cooperation with relevant stakeholders and interested persons involved in each stage of the network planning process, including clear processes and requirements for relevant stakeholders
- roles and responsibilities of the licensee and other parties contributing to the CSNP
- the proposed content and frequency of the published CSNP reports; and
- how the CSNP will be presented to Ofgem for approval in accordance with the relevant Licence Conditions
- the process to develop the Strategic Environmental Assessment (SEA) and the Habitat Regulations Assessment (HRA), if undertaken by the licensee

2.3 In doing so, the licensee must apply consistent and transparent criteria to the identification and evaluation of system needs and options, such as economic efficiency, technical feasibility, deliverability, and contribution to net zero.

Submission requirements

2.4 The licensee must submit the CSNP Methodology to Ofgem for approval in accordance with SLC ESO C17.13 and SLC GSP C12.13. As well as providing the

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information required by SLC ESO C17.14 and SLC GSP C12.14, the licensee must also explain in its submission:

- how it has met specific expectations set out in this CSNP Guidance in its proposed CSNP Methodology
- the elements of this Guidance with which it is unable to comply, and its reasons (see paragraph 1.23)

Requirement to review the CSNP Methodology

- 2.5 Before each successive CSNP cycle, the licensee must review the previous CSNP Methodology and consider any improvements to better facilitate the achievement of the licensee's network planning objectives and obligations.
- 2.6 The licensee must submit all proposed amendments to the CSNP Methodology to Ofgem for approval before implementing any changes.

3. General requirements applying to all CSNP stages

- 3.1 This chapter sets out the CSNP Methodology requirements that are relevant to all stages of the CSNP. It also provides guidance on our expectations for some aspects of the CSNP Methodology. Later chapters identify specific requirements and expectations for individual stages of the CSNP Methodology.

CSNP Methodology scope

- 3.2 The licensee is required to take a whole-systems approach to strategic network planning to utilise efficiencies and deliver benefits for current and future consumers, while considering impacts on communities and the environment in its decision-making approach.
- 3.3 In developing the CSNP, the licensee is required to identify network reinforcements, new network to connect offshore generation, and other interventions, that together form a network plan to meet the requirements of the SSEP and enable the UK to achieve its target to meet net zero by 2050.
- 3.4 For the CSNP, the licensee must consider the electricity, natural gas, and any proposed hydrogen networks and their interactions, as described below.
- 3.5 For electricity, the licensee is required to focus on the Main Interconnected Transmission System (the MITS)²¹ to:
- facilitate timely wider transmission system reinforcement
 - extend the MITS to new areas of potential generation and demand
 - where it considers appropriate to do as part of the CSNP, resolve operability issues on the NETS
- 3.6 For electricity, the licensee is required to clearly set out the scope of the CSNP in its Methodology including by reference to the MITS, relevant voltage levels, and making clear the scope boundary in relation to works arising from customer connections.
- 3.7 For electricity, the licensee must ensure that it plans the electricity transmission system to be resilient and complies with its relevant obligations related to the NETS Security and Quality of Supply Standard (SQSS).
- 3.8 For gas, the licensee's plan needs to enable the required capability and resilience of the NTS. The licensee is required to identify investment to support the energy system transition to net zero. In doing so, the licensee must prioritise current and future demand and supply in gas planning (consistent with FEP and SSEP for electricity generation), consider Security of Supply, High Impact Points

²¹ As defined in the NETS SQSS

of Failure (HIPFs)²², constraints on the NTS, as well as identify future-proof resilience standards to assess future needs against.

- 3.9 More broadly, the licensee must take into account future government strategy for natural gas networks in the context of the net zero transition.²³ This includes the growth of biomethane production and potential increases in the number and capacity of NTS connections. The level of future imports of Liquefied Natural Gas (LNG) should also be considered, where possible.
- 3.10 For hydrogen, the licensee is expected to identify new hydrogen networks and storage facilities. These networks will connect proposed production²⁴ sites with emerging demand centres and storage. They are anticipated to form an integrated system of high-pressure pipelines linking multiple supply, demand, and storage points.
- 3.11 Government hydrogen business models will be essential in supporting most hydrogen production, transport and storage, and hydrogen-to-power projects in the early years of the hydrogen economy. We expect that the first CSNP should focus primarily on higher pressure tier infrastructure that is of sufficient capacity and significance to be considered under current or future rounds of these business models.
- 3.12 The licensee must clearly set out in its methodology the interactions between related planning frameworks such as the SSEP, RESP and CSNP, as well as the FEP.
- 3.13 The licensee must remain cognisant of any requirements it may have in respect of the Environmental Principles Policy Statement (EPPS)²⁵, including those which may follow from the SSEP and impact upon the CSNP.

CSNP Methodology time horizon

- 3.14 The licensee must define in the CSNP Methodology the overall time horizon for the CSNP. This must be a rolling horizon of not less than 25 years. This will apply to:
- the modelling of energy supply and demand
 - determination of system needs²⁶

²² A High Impact Point of Failure (HIPF) is a single physical infrastructure asset or site, whose failure would result in significant disruption to the continuity of gas or electricity supply without any established mitigations or redundancies in place to rapidly resolve the impacts.

²³ [Midstream gas system: update to the market - GOV.UK](#)

²⁴ [Hydrogen Allocation Rounds - GOV.UK](#)

²⁵ [Environmental principles policy statement - GOV.UK](#)

²⁶ Some system needs, for example for electricity operability, are not expected to be determined for 25 years as these need a higher level of network and generation detail that is usually not available for that

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- the development, assessment and selection of high-level design options
- finalisation and presentation of the CSNP

CSNP Methodology roles and responsibilities

- 3.15 The licensee must engage other relevant parties to agree how they will effectively contribute to the development of the CSNP Methodology and the CSNP. This includes defining roles and responsibilities for contributors and key areas of cooperation. This must span electricity, natural gas, and hydrogen energy vectors, according to the responsibilities assigned to the licensee. These should be presented to stakeholders as part of the licensee's consultation process.
- 3.16 This must be supported by the development and publication of an overall project plan to produce the CSNP, which identifies timescales and process cycles of CSNP inputs and outputs.
- 3.17 To enable and strengthen effective engagement and contribution to the development of the CSNP Methodology and CSNP, we expect the licensee to identify and lead changes to all relevant industry codes that may be impacted by the CSNP. It should identify updates, as necessary, to reflect the evolving roles and responsibilities of relevant stakeholders, and the approach taken by the CSNP, thereby strengthening alignment, accountability, governance and effective delivery.
- 3.18 We also expect the licensee to support Ofgem and government in the identification of relevant licences, standards, regulatory frameworks and associated governance, policies and legislation that it considers may require updating.

CSNP Methodology allocation of responsibilities

- 3.19 The licensee or network owners, or both, already have or shall take responsibility for the areas below in accordance with this Guidance or their respective licences, where appropriate. For a number of these areas, network owners and the licensee must effectively engage and cooperate to comply with their respective licences and to achieve the goals of the CSNP.
- 3.20 The licensee shall have responsibility for:
- electricity - identifying wider system needs for the MITS and operational issues arising on the NETS
 - gas and hydrogen - identifying system needs as set out in Chapter 5 of this Guidance

long a period. The licensee is expected to set out in its methodology the time horizon that different system needs will be explored for and for the longer term, where identifying specific needs, it may consider strategically identifying longer term trends and concerns to consider resolving in future plans or via wider strategic interventions such as recommending changes in policy or standards or plant design.

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- communicating system needs to third parties,²⁷ network owners, users of the system and wider stakeholders
- developing network reinforcement options and other interventions that resolve the system needs identified for all vectors, including to meet its statutory and licence obligations, where it considers it beneficial to develop options that are not put forward by the Transmission Owners (TOs) or third parties
- evaluating options to meet system needs, including those from network owners, third parties, and any that the licensee itself has developed (where beneficial)
- selecting the optimal solutions as per the requirements set out in chapter 7 of this Guidance
- planning offshore electricity transmission connections strategically and in a coordinated manner as part of a holistic offshore and onshore electricity plan
- electricity - planning the transmission system in accordance with its obligations on compliance with the NETS SQSS
- gas - enabling the required physical capability and resilience of the NTS
- identifying cumulative negative impacts of its plans on the environment and communities and proactively considering opportunities for coordination, both onshore and offshore, and across energy vectors, to minimise disruption to communities, increase efficiency of construction programmes and outages, and ensure efficient utilisation of proposed assets for multiple drivers
- running competitions, where relevant, to identify appropriate third parties to deliver identified solutions
- electricity - as the onshore early competition delivery body, the licensee must assess transmission projects against the qualifying criteria set out in the Criteria Regulations²⁸ and, should suitable projects be identified, request to Ofgem that these are competitively tendered in accordance with the Tender Regulations²⁹
- producing and publishing the CSNP

3.21 Network owners and the NTS System Operator are responsible for:

- their role in identifying CSNP system needs, as set out in the licensee's methodology

²⁷ Third parties in this document refers to businesses other than the incumbent licensed network owners. For hydrogen, it refers to new network/transport owners who may have an interest in developing the network being planned in the CSNP.

²⁸ [Energy Security Bill: Indicative draft statutory instrument - Onshore competition criteria regulation](#)

²⁹ [The Electricity \(Early-Model Competitive Tenders for Onshore Transmission Licences\) Regulations 2025](#)

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- developing reinforcement options to the required level of design maturity as set out in the licensee's CSNP Methodology to meet statutory and licence obligations on planning their transmission systems, and submitting these to the licensee as per its methodology, to meet the system needs identified by the licensee
- providing details of their proposed options, assets, justification for cost estimates, estimated delivery schedules and constraints, to enable the licensee to plan effectively and for it to be able to submit these to Ofgem as part of its submission of the plan
- enabling and supporting the licensee to find alternative options, including those developed by the licensee
- providing the latest information on their assets, including condition information and site information, any planned programme of works and asset reservation or allocations, as per the process set out by the licensee, to improve the accuracy and reliability of network planning and decision-making.
- the timely delivery of network solutions selected by the licensee and assigned to them in the CSNP Delivery Pipeline to fulfil their licence obligations to develop the transmission system

3.22 Areas where effective support and engagement is required between the licensee and the network owners, include but are not limited to:

- for electricity, identifying wider system needs for the MITS and operational issues arising on the NETS
- for gas, identifying system need as part of the long-term network planning obligations on the NTS System Operator and the licensee
- where requested by the licensee, network owners may be asked to support the licensee in identifying and developing its own options, such as by providing timely and accurate data, sharing insights on asset capabilities and constraints, and reviewing the licensee's options to help assess deliverability, and identification of risks and weaknesses and mitigations
- cooperating on some aspects of local network planning. While local planning of electricity networks is outside the scope of the CSNP, there will be circumstances where it may be necessary for the licensee and the network owners to cooperate on some aspects of local network planning as part of the CSNP. For electricity this may include where local network interventions, including reinforcements, can form part of a wider strategic reinforcement or where the two are related in a way that planning or considering them together is beneficial or necessary, or where potential synergies exist between load-related and asset replacement investments. Similarly for gas, the licensee may need to cooperate with the network owner and NTS System operator where network interventions, including new build and/or repurposing should be considered together and as part of a wider strategic reinforcement

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- developing and regularly refining or improving the CSNP Methodology, including on areas such as development of project delivery timescales and cost benchmarks
- 3.23 In each CSNP, the licensee must set out to network owners at an appropriate point in the process, any specific aspects of local transmission network planning that the licensee and network owners will need to cooperate on as part of the CSNP.
- 3.24 To support clarity and consistency across the sector, the licensee is encouraged to develop a coordination protocol, following engagement with all TOs and, where relevant, distribution network owners. This protocol should outline how planning data will be shared, how input assumptions will be aligned, and how any overlaps or potential conflicts in responsibilities will be addressed in the context of the CSNP. The licensee is encouraged to include standardised templates for data submissions and indicative timelines for reviewing interactions between local and wider system planning. The licensee may also wish to consider establishing or using an existing shared platform or forum to facilitate structured engagement and timely exchange of information for the purposes of the CSNP, enabling early identification of potential system interactions and helping to reduce the risk of misaligned or duplicated investments. Where these needs are satisfied outside of the CSNP, the licensee should set out in the Methodology, those links and reasoning for exclusion from the Methodology.

CSNP Stakeholder engagement

- 3.25 The licensee must engage and consult with stakeholders on its proposed CSNP Methodology and CSNP, before submission to Ofgem. It should consider who its key stakeholders are and set out in a consultation plan how and when it will consult them. Such engagement must be timely, and should begin early in the process, where appropriate. The licensee must consider feedback from stakeholders, in a proportionate way and set out in its plan how this has been done.
- 3.26 The licensee should set out how different stakeholders can engage with its processes, how it will explain its approach, and how stakeholders can shape and feed into the Methodology and CSNP. It should set out the stages of the network development process, including what happens after the CSNP, to enable better understanding of the end-to-end lifecycle of planning and building new network. Where appropriate, the licensee should consider engaging at national and regional levels through the structures created by the RESPs.
- 3.27 When considering the design, location and technology of projects in its strategic network plan, we expect the licensee to suitably put the interests of the consumer at the heart of decisions and consider the views of local communities.

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- 3.28 The licensee, network owners and other delivery bodies must ensure genuinely meaningful engagement with all relevant stakeholders, including local communities. The licensee should give assurance that its plan as a whole is optimised for the key assessment criteria of environmental and community impacts, deliverability, operability, and is economical. This will involve careful balancing of competing interests, and we expect the licensee to deliver an effective and transparent consultation process which will help deliver the right balance.
- 3.29 The licensee must define how stakeholders across GB, including communities, will be consulted on the proposed plan and have opportunities for engagement, including formal consultation periods. Details of such engagement (eg consultation dates, stakeholder events, locations and timeline etc.) can be covered outside the Methodology.

CSNP Governance

- 3.30 The licensee must ensure that relevant stakeholders are meaningfully engaged in the governance of the CSNP and throughout the lifecycle of the CSNP. This engagement should be guided by the principles of transparency, accountability, timely engagement and cooperation.
- 3.31 The CSNP must be developed in a way that aligns with the licensee's broader strategic planning activities, including the SSEP and the RESP, where appropriate. The governance framework must support timely and efficient delivery of network infrastructure and reflect the licensee's role in leading the development of an independent, stakeholder-informed plan.
- 3.32 The licensee must set out and maintain a robust governance framework, in its CSNP methodology, that ensures:
- the delivery of high-quality, evidence-based outputs
 - effective and inclusive stakeholder engagement
 - clear accountability to Ofgem, enabling it to fulfil its statutory duties through scrutiny and approval of the methodology and plan, and by making funding decisions.
 - clarity for Government on potential hydrogen infrastructure investment needs
 - Stakeholder understanding of roles, responsibilities, and decision points throughout CSNP development and supporting processes. This should be outlined at a high level in the Methodology, with further detail provided outside of it
 - risks to the timely development and delivery of the plan are identified and mitigations are considered
- 3.33 The licensee is expected to establish governance arrangements that enable both technical scrutiny and strategic alignment with government and wider

stakeholders. While the licensee retains ultimate responsibility for the plan prior to submission to Ofgem, its governance framework must:

- Include Ofgem, Government, and Transmission Owners (TOs) as core members
- Consider wider membership to ensure appropriate expertise and representation
- Clearly define roles, responsibilities, and interactions of governance participants

- 3.34 The licensee should clearly establish through the terms of references, the roles, responsibilities and interactions of relevant stakeholders in accordance with their function within the CSNP process
- 3.35 The licensee must ensure its governance for CSNP is aligned, where possible, with governance for other strategic plans such as SSEP and RESP and set out how interactions between related planning frameworks will be managed.

Managing disagreements

- 3.36 To ensure the integrity, transparency, and timely delivery of the CSNP, the licensee should establish a fair approach to addressing differences in views that may arise during the development, assessment, and finalisation of the plan, as well as during delivery, where projects are subject to the CSNP change control process.
- 3.37 Differences in views in this context refer to disagreements between the licensee and the licensed electricity and gas network owners on matters such as identifying system needs, developing options and conducting assessments of the needs-case of projects or the plan, among other areas. If not addressed effectively, such disagreements risk undermining confidence in the CSNP process, delaying critical infrastructure decisions, and leading to suboptimal outcomes for consumers.
- 3.38 The CSNP should therefore include a framework for resolution of such disagreements within the plan's governance arrangements. This framework should enable early identification of disagreements, promote constructive dialogue, and enable resolution where appropriate. The licensee may set out parameters which outline how and when disagreements can be raised and these should be clearly communicated to the disagreeing party. The licensee should prioritise informal resolution through regular engagement with network owners, including at senior management levels where appropriate. Where informal efforts do not lead to resolution, disagreements may be raised, in a timely manner as set out in the framework, to the governance bodies and to Ofgem to help with resolution. Throughout this process, the licensee should maintain and appropriately share (including with Ofgem), a record of disagreements, and how and when they were raised, discussed and resolved.

- 3.39 As the CSNP is an independent plan developed by the licensee, it is entitled to make its independent decisions in relation to all aspects of developing its proposed plan. Ofgem may on receipt of the proposed plan, either approve it or give a direction to the licensee that the CSNP requires further development, and the date by which the licensee is required to submit a revised CSNP to it for approval.³⁰

Appraising combinations of energy system and network

- 3.40 Recognising the roles of, and interdependencies with, other strategic planning and modelling activities led by the licensee (principally the SSEP, RESP and FEP), the licensee should set out in the CSNP Methodology, what whole energy system and network optimisation the CSNP will consider and the purpose of the output. This will likely be most relevant for the initial iterations of the SSEP, where its consideration of these trade-offs may not be comprehensive.
- 3.41 We recognise that material policy uncertainties may limit the extent to which this is practical. Where the licensee judges such analysis of these trade-offs in the CSNP is inappropriate or of limited value, it must set out its reasoning in the Methodology. At a minimum, we expect the licensee to use the CSNP longer-term Funnel of Options to provide strategic thinking and analysis to inform subsequent iterations of licensee-led strategic planning activities (principally, for future iterations of the SSEP, RESP and CSNP), government policy making and industry activities.

³⁰ As per ESO C17 and GSP C12

4. Stage 1: model future energy supply and demand

- 4.1 This chapter sets out the CSNP Methodology requirements in respect of stage 1 of the CSNP - the input models for future energy supply and demand. Unless where a requirement is mentioned as being specific to an energy vector, the following requirements apply to all three energy vectors.
- 4.2 The modelling of future energy supply and demand for CSNP is to be based upon input from other energy planning activity the licensee carries out. It is expected that for electricity and hydrogen this will primarily, and enduringly, be from the SSEP. It may be supplemented by additional data from the FEP for as long as the licensee judges is required, the rationale for which must be clearly set out in its CSNP Methodology and approved by Ofgem. For gas, the modelling will primarily be based on FEP, supplemented by the SSEP for electricity generation needs.
- 4.3 It will also need to take into account any other relevant strategic planning or policy activity, particularly where this introduces uncertainty in the future energy system. This should include consideration of the RESP, reformed connections process and RNP. More details on these are set out in the Related Publications sections.
- 4.4 The SSEP's outputs, including modelling of optimal locations and scaling of energy assets to meet forecast demand, will directly feed into the CSNP by providing information on the need for network infrastructure. This information will be in the form of a clear spatially defined pathway of the type and scale of different generation and storage required to meet net zero targets, including considerations of the impact on the network, the details of which are set out in the licensee's SSEP Methodology. The FEP's additional range of analysis can complement the SSEP for the first iteration, particularly for gas modelling.
- 4.5 We expect the licensee to set out in the CSNP Methodology:
- how and why modelling input from SSEP, FEP or other sources will be used in the CSNP analysis, to represent the energy supply and demand landscape
 - for electricity, how any additional assets, such as interconnectors, will be modelled
 - for hydrogen, how potential expansion of a network will be considered
 - how uncertainty, including from future policy decisions, will be identified and considered
 - which sensitivity, stress testing and High Impact, Low Probability (HILP)³¹ resilience testing will be undertaken and how (see also the Climate Resilience and Broader Resilience section starting from paragraph 10.2), if at all, this will impact recommendations for investment decision-making

³¹ See our [Future Energy Pathways Guidance.pdf](#), Section 4.

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- which feedback loops exist with other licensee-led strategic planning activity, notably, SSEP and RESP, to inform future iterations of plans
 - how it will plan and adjust for potential misalignment between the output of the SSEP and other processes, such as the reformed connections process and RESP
- 4.6 During development of the CSNP, we expect the licensee to work with Ofgem to agree the interactions between investment signals from other network plans, notably the tCSNP2 Refresh and CP2030, and the CSNP.

Gas - Stage 1

- 4.7 What follows applies solely to the natural gas part of Stage 1 of the CSNP Methodology: model future energy supply and demand.
- 4.8 The licensee should utilise learning and the outcomes from the Strategic Spatial Energy Plan (SSEP), as well as its work on needs and options development for the NTS, the Gas Network Capability Needs Report (GNCNR) and the Gas Options Advice Document (GOAD), in the development of the CSNP. In its first iteration, SSEP considers gas assets relevant to power generation and hydrogen production, so additional information from the FEP will be required to adequately plan for the future of gas.
- 4.9 When developing the CSNP for gas, the licensee should:
- prioritise current and future demands and supplies in gas planning
 - consider resilience of the NTS for current and future consumers, including electricity consumers, to take account of the impact of electricity generation on gas demand
 - consider Security of Supply, HIPFs and capacity constraints on the NTS
 - take into account government decarbonisation plans eg CP2030, Carbon Capture Utilisation and Storage (CCUS), hydrogen and hydrogen blending, biomethane injection and any other factors that could impact current and reduce the number of future gas consumers, and consequently impact the size and function of the NTS
 - consider how the repurposing and/or decommissioning of the existing gas network will be considered
 - take into account, to the extent possible, the expected changes in consumer behaviour based on the costs and accessibility of disconnections services
 - account for any other relevant trends as the licensee deems necessary
- 4.10 When considering the outputs from SSEP, the licensee should consider impacts of electricity generation profiles and adjust its forecasting for the impact it will have on the NTS.
- 4.11 In planning the NTS, the licensee must consider the variety of futures implied by each FEP pathway, the FEP counterfactual and any shorter-term FEP forecast.

The licensee must set out how it has considered each of these futures in the assessment of relevant options. Consideration may be given to applying a time delay to FEP pathways, taking into account any approach that might be adopted by the licensee in the RESPs in respect of gas distribution network planning.

Hydrogen - Stage 1

- 4.12 What follows applies solely to the hydrogen part of Stage 1 of the CSNP Methodology: model future energy supply and demand.
- 4.13 The government has pledged to deliver the hydrogen economy at pace. To support this rapid development, the licensee must consider recent government announcements and follow the SSEP modelling framework. Key considerations include:
- hydrogen production
 - hydrogen use in electricity generation
 - geographic distribution of emerging hydrogen demand
 - hydrogen transport requirements
 - hydrogen storage needs
- 4.14 These elements should be assessed in terms of their impacts on both existing and new electricity and natural gas infrastructure. While SSEP will provide the primary view of hydrogen network needs, inputs from FEP should be used to supplement this view. This ensures consideration of a range of potential energy futures, including scenarios where hydrogen may play a greater or lesser role.
- 4.15 The potential to repurpose natural gas assets for hydrogen transportation should be considered alongside alternate uses, such as transmission of biomethane and hydrogen blending. The future role of hydrogen blending remains uncertain, pending government policy decisions following consultations at both the distribution³² and transmission level.³³
- 4.16 Strategic planning must account for regional differences in hydrogen market development. The licensee should coordinate with organisations that have advanced plans for hydrogen transport and storage, as well as those that have received funding through the Hydrogen Transport Business Model (HTBM)³⁴ and Ofgem. This coordination will help ensure that regional and inter-regional hydrogen networks are robustly justified and effectively support industrial clusters.

³² [Hydrogen Blending into GB Gas Distribution Networks: Government Response to Consultation](#)

³³ [Hydrogen blending into the GB gas transmission network - GOV.UK](#)

³⁴ [Hydrogen transport and storage networks pathway - GOV.UK](#)

5. Stage 2: identifying system needs

- 5.1 This chapter sets out the CSNP Methodology requirements in respect of stage 2 of the CSNP for identifying future system needs. It also provides guidance on our expectations for how the licensee defines some aspects of stage 2 in the CSNP Methodology. Unless where a requirement or section is mentioned as being specific to an energy vector, the following requirements apply to all three energy vectors.
- 5.2 The identification and communication of CSNP system needs must form the backbone of a transparent, coordinated, analytically robust approach to network planning. To maintain credibility and stakeholder confidence, the licensee must ensure that system needs are clearly articulated to the extent that is appropriate subject to any confidentiality constraints and supported by traceable data and analysis. The approach to assessing and defining system needs should be reviewed in line with the periodic review of the CSNP Methodology or more regularly, if required.

Requirements for identifying system needs

- 5.3 In its proposed CSNP Methodology for stage 2, the licensee must:
- define the types of future system needs that will be identified for the CSNP ('CSNP system needs')
 - set out the approach and at a high-level the inputs to be used to identify system needs, and how these will be used in the CSNP. Where it considers appropriate, the licensee may cover detailed data flows, modelling and power system study assumptions, especially those specific to each CSNP, in other documents outside the methodology, such as the STCs and STCPs.
 - define the specific roles and responsibilities of the licensee and other parties relating to identification of CSNP system needs, for example, setting out the data and analysis that will be required from TOs and at what point in the process
 - set out how and when CSNP system needs will be communicated to interested stakeholders
 - specify the timeline and interactions between the three-year CSNP cycles and any annual updates that the licensee will carry out, including their purpose

Managing uncertainty

- 5.4 To consider any significant uncertainties from the SSEP, we expect the licensee to set out in the CSNP methodology how it will assess system needs under credible conditions or scenarios that consider these uncertainties, while aligning with the SSEP. The licensee should consider what is the right balance of testing

sensitivities and the analysis should be proportionate to the scale of the uncertainty and its potential impact on CSNP decisions.

Electricity - requirements for defining CSNP system needs

5.5 For electricity transmission, the scope of CSNP system needs will include:

- needs on the MITS for wider transmission system thermal capability
- wider system needs arising as a result of extension of the MITS to new areas of potential generation and demand, and any specific needs for the purpose of designing the offshore network within the scope of the CSNP.
- system operability needs on the NETS, where considered appropriate by the licensee

5.6 We expect the licensee to set out in the CSNP Methodology the information that it will publish, to enable relevant stakeholders to understand developments to the National Electricity Transmission System. For Delivery Pipeline years deemed relevant by the licensee, this should include current and forecast circuit capacity, power flows and loading on each part of the NETS. This should also include:

- fault levels for each transmission node, which are provided by the network owners
- such further information as is reasonably necessary to enable any person seeking use of the NETS to identify and evaluate the opportunities available when connecting to and making use of the NETS
- a commentary prepared by the licensee indicating where major NETS reinforcements are likely to be required
- such further information as may be necessary for: Authorised Electricity Operators, Interconnected System Operators, or any other Transmission System Operator or Distribution System Operator with whose system a Transmission Licensee's Transmission System is connected or with whom the licensee interfaces, to ensure the secure and efficient operation, coordination, development and interoperability of the interconnected system

5.7 We expect the CSNP Methodology to set out the licensee's approach to developing its categorisation of system needs and the potential benefits to electricity system capability and operability by addressing the needs it has identified.

5.8 We expect the licensee to develop and set out its approach to assessment of near and longer term system needs for bulk transfer of power across critical transmission circuits and identifying potential future thermal, voltage, fault levels (as a measure of system strength), and stability constraints. It should do this by considering the variations in generation, demand, and network

conditions, at points across the year rather than solely for the peak demand condition.³⁵

Electricity - requirements for defining the modelling approach for identifying system needs

- 5.9 We expect the licensee to define its modelling approach to assessing CSNP network needs. We expect this to build on existing industry practice, including its own for developing the Electricity Ten Year Statement (ETYS).
- 5.10 We also expect the licensee to develop power system modelling capability to verify the analysis and inputs provided by other parties. It should also establish a robust technical validation process in place to test its own models. Furthermore, the licensee is required to maintain and update the power system models in line with the CSNP cycle, unless it considers it appropriate to do so in between cycles.

Gas - Stage 2

- 5.11 What follows applies solely to the natural gas part of Stage 2 of the CSNP Methodology: identifying system needs.
- 5.12 The identification of system needs should set out the licensee's view of the physical capability and resilience of the NTS, including capacity constraints on the network, asset risk and reliability, and wider security of supply considerations.
- 5.13 Specifically, identification of system needs should:
- include probabilistic flow forecasts on a nodal or zonal basis, in accordance with the FEP to model the long-term development of the system and its needs under different FEP scenarios
 - include the level of network capability assessed under two conditions: full asset capability under an intact network, and partial asset capability (ie high resilience) using a mix of compressors that are available at least 99% of the time
 - include a clear description of the data used by the licensee to model both the counterfactual and each pathway in the FEP, including the flow of data, any assumptions made, and measures taken to ensure transparency
 - state the level of capability that, in the licensee's opinion, can be economically and efficiently delivered using the tools available to the NTS System Operator on a nodal or zonal basis

³⁵ The licensee is not expected to carry out analysis to check if electricity transmission network assets are suitably rated for the fault levels on the system.

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- rely on the methodologies and processes for determining physical capability and resilience, including planning assumptions employed related to modelling supply and demand, in accordance with the FEP and SSEP
 - consideration of the relevant network security standards such as NGT's Transmission Planning Code, and in line with work on Critical National Infrastructure (CNI) and HIPFs
 - consider the changes to the level of current and future physical capability of the NTS resulting from confirmed changes to the installed operational assets
 - include consideration of repurposing and/or decommissioning of the existing gas network
 - consider operational constraints and impact of asset decommissioning to meet environmental regulations
 - provide a view of the required level of physical capability and resilience beyond a 10-year period to 2050, incorporating analysis of resilience, N-1 and 1 in 20 considerations, and other resilience standards such as those yet to be agreed for HIPFs
 - any further information that the licensee considers relevant.
- 5.14 In developing a probabilistic range of supply and demand against different FEPs, including the counterfactual pathway, the licensee should take into account uncertainties such as weather, day of the week, and historical data. It should also model the probabilities of the likely capacity constraints, for each zone, both on entry and exit to identify system needs, and consider government's long-term programme of work to address the strategic challenges facing the gas system, including security of supply.
- 5.15 In addition to probabilistic supply-demand modelling, the licensee should identify, using information provided by the system operation, operational system needs that could compromise the stable and secure functioning of the gas transmission system. This includes pressure management under varying linepack conditions, linepack flexibility across daily and intra-day timescales, and dynamic compressor capability under seasonal and peak stress conditions. The system needs assessment should also consider locational constraints arising from the physical topology of the NTS, particularly in zones subject to asymmetric entry and exit profiles. Interactions between compressor operation, emissions constraints, and the ability to meet pressure and flow obligations under stress test scenarios should be modelled and reported.
- 5.16 The licensee may from time to time, if so required, adapt the methodology for identifying the NTS system needs and reflect that in line with the review requirements of the methodology.
- 5.17 The approach to modelling and strategic planning must align with the NTS System Operator's approach to planning interventions on its own assets eg zonal separation of network capability and considering entry and exit capability

separately. This is to ensure coordination between the Authority, the licensee and the NTS System Operator.

Hydrogen - Stage 2

- 5.18 What follows applies solely to the hydrogen part of Stage 2 of the CSNP Methodology: identifying system needs.
- 5.19 For emerging hydrogen networks, the SSEP will lead the development of hydrogen system needs. It is recognised that early forecasting will be subjective and rely heavily on data from industrial clusters, and from both established and prospective hydrogen business model applicants. The licensee must outline its approach to engaging with these key stakeholders in developing the needs case.
- 5.20 The approach to assessing hydrogen system needs should be regional, following the SSEP economic zones which are based on the critical electricity transmission network constraint boundaries and for connections between these. These zones do not align with the seven natural gas transmission capability zones and are subject to change owing to the uncertain nature of the future of hydrogen demand regionally.
- 5.21 There will be interactions between the emerging hydrogen infrastructure and the natural gas system, particularly where gas assets are repurposed for hydrogen transportation and/or storage. These interactions and their implications must be carefully assessed to ensure suitability of repurposed infrastructure for hydrogen.
- 5.22 From a system operation and stability perspective, the licensee should have regard to the evolving characteristics of a hydrogen network and consider how these may influence future system needs. This includes understanding how factors such as hydrogen's lower energy density, differing compressibility, balancing, storage flexibility and linepack may shape regional planning.
- 5.23 The assessment of hydrogen systems needs should consider system-level factors such as the potential constraints on a large-scale, seasonal hydrogen storage and the implications for regional and long-distance transmission. The licensee should take into account these factors when identifying future capacity and system resilience needs, particularly in areas where early hydrogen infrastructure rollout is likely. Detailed assessment of injection, withdrawal, and operational risks will be the responsibility of asset operators.
- 5.24 Where repurposing of natural gas infrastructure is considered, the licensee must model both steady-state and transient behaviour under hydrogen conditions, ensuring that pressure transients, control system responsiveness, integrity management regimes and entry/exit specifications are appropriate for safe and resilient network operation. These factors should be incorporated into regional hydrogen system planning scenarios, particularly in zones where early

infrastructure rollout may be concentrated and where hydrogen system services may be required to support future electricity decarbonisation.

Communicating CSNP system needs

- 5.25 We expect the licensee's CSNP Methodology to set out how it plans to communicate CSNP system needs to interested stakeholders including network owners, third parties and other users of this information.
- 5.26 We expect the licensee to conduct research on stakeholder preferences so that it can tailor publications on CSNP system needs for different audiences; and consider how best to convey full technical detail to network owners, third parties, and other users of this information, potentially via the use of digital platforms and the Data Sharing Infrastructure,³⁶ appropriately considering any confidentiality or sensitivity constraints.
- 5.27 We expect the licensee to publish its statement on system need early in the CSNP cycle to allow sufficient time for relevant parties to develop options to be submitted in stage 3 of the CSNP process and set out a process for timely input from interested parties. By clearly and transparently communicating these early, the licensee enables third-party providers to plan, invest, and respond effectively. Early visibility of system needs is essential to unlocking innovation and ensuring timely, cost-effective solutions.
- 5.28 We expect the licensee to consider interactions between its publications on CSNP system needs and related communications led by other parties so that the messaging is coordinated for wider stakeholders. In doing so, the licensee should commit to producing an integrated system needs publication that brings together locational, temporal, and technical dimensions of need in one accessible format. This publication should be designed to help third parties identify where their capabilities can be brought to bear, whether through reactive power support, demand flexibility, grid stability services, asset delivery or other means. The licensee should consider setting up a digital mapping tool to allow users to interrogate system needs spatially and temporally, and the licensee should provide guidance on how any third-party solutions that are in scope of the CSNP will be assessed for alignment with system requirements and cost-benefit optimisation.

³⁶ <https://www.ofgem.gov.uk/decision/governance-data-sharing-infrastructure>

6. Stage 3: identifying options

- 6.1 This chapter sets out the CSNP Methodology requirements in respect of stage 3 of the CSNP which identifies options to address system needs identified in stage 2. It also provides guidance on our expectations for how the licensee defines aspects of stage 3 in the CSNP Methodology. Unless where a requirement or section is mentioned as being specific to an energy vector, the following requirements apply to all three energy vectors.

Requirements for identifying options

- 6.2 In its proposed CSNP Methodology for stage 3, the licensee must:
- describe the processes by which network owners, third parties, and the licensee will be able to identify options as part of the CSNP network planning process and the timing of this in the process
 - support the identification of as broad a range of options, including innovative, time-limited, and non-network solutions that meet future system needs identified in stage 2³⁷
 - to ensure consistency, consider the establishment and publication of transparent eligibility criteria for all parties and for types of options that will be considered for different types of needs. These should include a fair and objective framework for assessing the credibility and feasibility of submitted options, with clear timelines for submission, review, feedback, refinement and decision
 - clarify the licensee's role in facilitating option development by third parties, including technical pre-engagement sessions, data access, and guidance documentation on required design parameters
 - include guidance for parties developing high-level options for identifying and, where appropriate, mitigating environmental and community impacts ahead of option submission based on available information from desktop assessments
 - set out an approach to estimate costs and delivery schedules and dates, so that these can be estimated in a consistent way by all parties providing options and facilitate a fair Cost Benefit Analysis (CBA) of options
 - define the minimum level of design required for the high-level options that are submitted to the licensee for the CSNP, and set out how assessment results will be impacted for options that don't meet the minimum level of detail

³⁷ These may include any commercial services that the licensee considers appropriate to include in the CSNP

Effective data exchange

6.3 Inadequate or delayed data submissions from parties who provide information and options to the licensee for the CSNP process can undermine confidence in the plan. Reworking or revisiting elements of the plan may require significant time and resources across all organisations involved. Delays as a result of this can lead to increased costs for consumers, reduced system reliability, delays or failures in implementing other strategic initiatives, such as the Strategic Spatial Energy Plan (SSEP) and may jeopardise government's decarbonisation targets. Effective data exchange between key parties is therefore critical to the success of the CSNP. The sharing of timely, detailed and accurate information between network owners, third parties and the licensee is essential to produce high-quality plans that stakeholders, Ofgem and government can rely on, and which enable Ofgem to make robust funding decisions.

6.4 We expect the licensee to:

- lead a review of existing codes and consider developing new codes if required, to ensure they support the effective and efficient exchange of information that is needed to implement the first CSNP. For electricity this must include a review of the STC and the STCPs. For gas, this must include identifying any required strategic planning-related gas code changes and submitting modification proposals through the Uniform Network Code
- develop processes and governance for the periodic review of existing and future codes and guidelines that will support effective information exchange
- establish a data sharing approach that outlines data ownership, access rights, and responsibilities of all parties engaged in option identification. The approach should prioritise real-time or near-real-time access to critical data, define protocols for resolving data discrepancies, and include provisions for extending access to academia, not-for-profits, and organisations involved in developing network innovations. The approach should enable third party participation where appropriate, including for early competition. Sharing of data with other parties should appropriately consider security, operational and commercial sensitivities
- support transparency and accountability
- set out clear roles and responsibilities of relevant stakeholders and the processes and procedures stakeholders need to follow with regards to data sharing. The licensee must clearly communicate the data typology and timings of when relevant stakeholders need to submit data to the licensee for the CSNP
- develop appropriate templates, instructions and guidance to support relevant organisations in their data submissions. This may be done outside the CSNP Methodology where the licensee considers appropriate

- 6.5 For the CSNP process to be efficient and accurate, the licensee should develop data sharing capabilities which can be used to get access to up to date information from network owners at the point it is required during the development of the plans, such as:
- direct access to information on existing network assets. For electricity this includes, but is not limited to substations, existing site layout drawings, overhead line and cable routes, electrical schematics, asset specifications, and condition information to support high-level option design. For gas this includes but is not limited to pipelines, compressors, valves, asset specifications, and condition information to support high level option design
 - data on committed work programmes for investments in assets or sites. For electricity, this may include new connections, local network reinforcements, and non-load related work programmes such as asset replacement programmes for upgrading ageing equipment. This includes information on contracted commitments made on assets such as substation bays. For gas, this includes planned or in-flight investments for accommodating increases in entry and exit capacity, enhancing network capability, and improving the resilience of the NTS
 - past incurred costs to inform cost estimation and scrutiny of options
 - access to all power and gas system modelling data for the network
- 6.6 The licensee must consider which of this information is appropriate and legally permissible to share with any other parties for the purpose of the CSNP and in setting out its approach for data sharing, it should consider security, operational and commercial sensitivities which may impose constraints on what is appropriate to share.

Identifying environmental and community impacts within high-level option designs

- 6.7 The licensee must establish a consistent desktop assessment process to identify environmental and community impacts during the development of high-level design options, as part of its CSNP Methodology. Where appropriate, the high-level designs should identify, consider, and incorporate potential mitigation measures and the licensee should explain any trade-offs considered. This will include, but not be limited to:
- the potential for any new assets to avoid designated, protected, conservation, heritage and built-up areas
 - the selection of designs or technologies to minimise negative environmental and / or community impacts
 - the inclusion of measures to mitigate negative environmental and / or community impacts, such as by undergrounding electricity circuits where necessary

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- 6.8 We expect the licensee to work with network owners and other stakeholders in developing the guidance for identifying and assessing potential environmental and community impacts of high-level design options.
- 6.9 We expect the licensee to take into consideration the National Policy Statements (England & Wales) and the National Planning Framework (Scotland) in its development of the CSNP Methodology.

Defining the minimum level of detail for high-level designs of options

- 6.10 We require the licensee to set out the minimum level of detail required for high-level designs of options that are submitted to the CSNP for evaluation.
- 6.11 We expect the licensee to consider, and include within its Methodology, whether different levels of detail are required for options submitted for the Delivery Pipeline and for those submitted for the longer-term Funnel of Options. It is expected that designs in the Funnel of Options, may require further development before assessment for entry into the Delivery Pipeline.
- 6.12 In addition, the licensee should ensure that high-level design guidance incorporates consideration of whole-system benefits, including energy storage, hydrogen production, and demand-side flexibility among others. The design standards should require developers of options to consider cross-vector synergies and future-proofing elements such as grid-forming inverter capability, hybrid asset functionality, and integration with distribution-connected resources where applicable. This holistic approach will support a future-ready network that can adapt to changing energy technologies and market structures.

Requirements for the Strategic Environmental Assessment (SEA) and the Habitat Regulations Assessment (HRA) of the CSNP

- 6.13 The licensee should consider the merits of conducting a SEA and HRA of the CSNP which covers electricity, natural gas and hydrogen, and both onshore and offshore parts of the CSNP.
- 6.14 If the licensee decides to do a SEA and HRA, then it should set out in the CSNP Methodology the scope and high-level approach.
- 6.15 The licensee should consider, and set out in the CSNP Methodology, the relationship or interaction with any relevant SEA of the Strategic Spatial Energy Plan (SSEP SEA) or any plan-level HRA and other environmental assessments.

Electricity - specific requirements: defining the minimum level of design for high-level options

- 6.16 The following applies to the electricity element of the CSNP only.
- 6.17 For options entering the Delivery Pipeline, we expect the licensee to define in its Methodology the minimum level of design maturity that is sufficient to allow:
- the licensee and Ofgem to have confidence in the estimates of project costs, high-level design and delivery schedules, and therefore in the stage 4 assessment; and to enable Ofgem in applying relevant regulatory funding frameworks such as the CSNP reopener,³⁸ and calculation of Pre-Construction Funding³⁹ and the CSNP Output Delivery Incentive⁴⁰
 - assessment of the projects within the plan against the Stage 4 criteria, enable strategic assessments such as the SEA and HRA if the licensee decides to do them, and for securing endorsement in the NPS in England and Wales
- 6.18 The following indicative design requirements set out the minimum expectations for projects entering the delivery pipeline. These requirements will form the basis of regulatory scrutiny and approval processes, while recognising that they may be refined through local engagement and subsequent detailed design stages by TOs or third parties. The indicative design requirements must include but are not limited to:
- Technical Solution:
 1. a spatial route envelope developed primarily using desktop tools, for the purpose of high-level cost and delivery date estimation - this should be developed by consideration of geographical constraints in the path of the proposed new circuit, such as AONBs,⁴¹ SSSIs,⁴² existing infrastructure, large water bodies, existing land use, etc
 2. technology choices - type of option and operating voltage eg is the technology High-Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC)

³⁸ Under Ofgem's RIIO-ET3 Price Control, the funding mechanism designed to support electricity transmission projects identified in the CSNP. RIIO-3 Draft Determinations – ET Annex: <https://www.ofgem.gov.uk/sites/default/files/2025-06/Draft-Determinations-Electricity-Transmission.pdf>.

³⁹ costs of project preparatory activities such as detailed design and obtaining planning consents required before the full construction phase of electricity transmission projects.

⁴⁰ Under Ofgem's RIIO-ET3 Price Control, this mechanism rewards or penalises network companies based on their performance in delivering specific and measurable outputs.

⁴¹ Areas of Outstanding Natural Beauty

⁴² Sites of Special Scientific Interest

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3. strategic design - high-level design of a reinforcement, including whether it is onshore or offshore, overhead or underground and any strategic mitigation
 4. high-level specification of the asset ratings - electrical parameters, which includes information on known asset condition information if the option is utilising existing assets
 5. high-level electrical schematics - showing the proposed connectivity between existing and new infrastructure such as substations and the overall high-level electrical design of the proposed option, and network capability provided
- **project need:** the specific Stage 2 system need that the project resolves and to what extent, eg the transmission boundary capability that the solution provides
 - **high-level construction programme:** an indicative development timeline for the project, including high-level breakdowns by activity and measures that could be taken to accelerate delivery
 - **estimated project costs:** high-level costs for the solution, including cost breakdowns
- 6.19 The licensee must establish the required standards for supporting documentation that is submitted to the licensee. This enables network owners and third parties to demonstrate that high-level design options meet the necessary requirements.
- 6.20 Projects in the CSNP must demonstrate how the proposed solution has been optimised considering constraints that include but are not limited to:
- environmental constraints, particularly those set out in legislation (eg Areas of Outstanding Natural Beauty)
 - potential community impacts
 - site-specific and network characteristics such as substation bay availability, connecting asset readiness, and outage windows that influence the technical design
 - deliverability - the extent to which proposed transmission projects can be practically implemented to meet system needs within required timeframes
 - operability - the ability of the transmission system to maintain secure, stable, and efficient operation under varying conditions once new infrastructure is in place
- 6.21 Where relevant, high-level designs should be developed using geospatial tools to identify viable spatial route envelopes and site locations.
- 6.22 We do not expect detailed designs that require substantive site visits, and/or site-based surveys and assessments to be part of the minimum design requirements for the CSNP. Where an option is selected for delivery as part of the final plan, delivery bodies will carry out detailed designs, and local

stakeholder engagement at a later stage to deliver the project and in pursuit of planning consents where relevant.

- 6.23 We expect the licensee to ensure that the minimum level of design for high-level options is reviewed periodically via engagement with key stakeholders.

Electricity - specific requirements for options development

- 6.24 For electricity, we expect the licensee to consider how to use the Electricity Transmission Design Principles (ETDP),⁴³ which will provide guidance on the type of assets to be used in different environments, where appropriate for the high-level design of options. As the ETDP is still in development, the licensee is not expected to set out detailed interactions in the CSNP Methodology.
- 6.25 The licensee should set out how options that are developed for the CSNP consider the following:
- optionality for staged expansion of the network (or at site level)
 - the option to take short term actions to secure future options where proceeding with the full reinforcement in the Delivery Pipeline is not justifiable
 - the option for extra/surplus capacity where strategically justified and reasonable, to avoid the additional cost and disruption of potentially having to further reinforce the network within a short timescale
 - interaction with, and impact on, other areas of network planning such as non-load related works or connection works
 - lifetime emissions, scalability, asset flexibility and resilience to technological or regulatory uncertainty
 - cost-effectiveness, deliverability, operability, community and environmental impacts, and long-term system value
 - opportunities for coordination, both onshore and offshore, between CSNP or other known network investments, and across energy vectors and other infrastructure types such as for communication or transport, to minimise disruption to communities and ensure efficient utilisation of proposed assets for multiple drivers

⁴³ The Electricity Network Commissioner recommended that the licensee should develop such principles and standards to be applied to the design of network assets and to provide greater clarity on the type of asset to be used in different environments. The government in the Transmission Acceleration Action Plan (TAAP) accepted and endorsed this recommendation.
<https://www.neso.energy/document/368061/download>

Electricity - specific requirements for the high-level options identification process

- 6.26 For electricity, within the CSNP Methodology, we expect the licensee to describe the process, timings, and methods by which options to address system needs can be identified and submitted including:
- how and at what stage TOs will be notified of when to submit their options
 - how, when, and under what circumstances third parties will be able to put forward their high-level design options
- 6.27 We expect the licensee to set out clear processes and submission requirements for options in the Methodology. The licensee may set out the details of option submission requirements such as data categories, including the capability delivered through an option and how the option meets the minimum design requirements, templates, timetables and worked examples, outside the methodology, in an appropriate document, such as the STC or STCP.
- 6.28 A structured calendar of engagement should be established, enabling TOs to present early-stage concepts and receive feedback on strategic alignment, eligibility under the CSNP reopener, and consistency. This stage, however, is not expected to involve any assessment of options, as that will be carried out at a later stage in the process.
- 6.29 The licensee should ensure that the submission process is not unduly burdensome and should consider adopting a tiered information request model so that less-developed proposals are not excluded prematurely but can instead progress through staged development. We expect that the timings for option submission should be feasible and appropriate in the context of the CSNP timeline and should allow sufficient time for network owners or third parties to develop options to the required minimum level of design from the time of publication of system needs (stage 2).
- 6.30 The licensee must also establish a pre-submission support process tailored for third parties that also includes regular drop-in sessions, standardised design templates, FAQs, and early-stage feedback on eligibility or scope as set out above.
- 6.31 We expect the licensee to set out clearly in its CSNP Methodology how the existing Interested Persons' Options process⁴⁴ will be integrated into the CSNP Methodology.

⁴⁴ The purpose of Interested Persons' Options Process, run by the licensee in conjunction with relevant TOs, is to increase the diversity of options considered within the Network Options Assessment (NOA) process through academic and industry participation.

Electricity - specific requirements for high-level option designs brought forward by the licensee and third parties

- 6.32 For electricity, we expect the licensee to independently decide which network needs would benefit from its own design of high-level options, which may be either network or non-network solutions. For such high-level design options, we expect that the licensee should be able to engage as required with TOs to obtain site-based information to aid in the development of such options to meet minimum design requirements. We expect that up-to-date asset information will be available through effective data exchange but, in some cases, this may require TOs to conduct site visits for options concerning their network at the request of the licensee, with a reasonable level of advanced notice. Where the licensee leads the option design, it does not preclude the TOs proposing their own options.
- 6.33 We expect the licensee to set out in its CSNP Methodology the process it will use to:
- develop its own high-level design of options
 - engage with TOs and where relevant, other stakeholders, about the system needs for which it will undertake its own high-level option design
- 6.34 Where the licensee considers appropriate in the CSNP process, for electricity, the licensee should enable third parties to put forward their solutions into the CSNP.

Gas - Stage 3

- 6.35 What follows applies solely for the natural gas part of Stage 3 of the CSNP Methodology: identifying options.
- 6.36 The licensee may work independently, with the NTS System Operator or any other party to develop the options regarding the future of the NTS as set out below. The options in question must be developed to resolve the system needs identified in stage 2. It must also identify the level of network capability each option provides considering the resilience of the transmission system.
- 6.37 As per National Gas Transmission plc Gas Transporter Licence Special Conditions, the NTS System Operator is required to publish a Strategic Planning Options Proposal (SPOP), which explores strategies for dealing with network constraints and reinforcement. The document will reflect the system needs identified in stage 2 and outline options for meeting these needs. This may range from repurposing, decommissioning, construction of additional infrastructure, replacement of assets and more. This document will also outline the effects on capability and resilience that these interventions will have.

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- 6.38 The licensee must ensure that any proposals made by a gas network or third party are required to consider the need and potential for repurposing of network assets and the effects these interventions may have on the future of the gas, hydrogen and other energy or utility network where relevant. These interventions must be justified with regard to their impact on gas consumers, and must be objective, ensuring consumer value for both existing and future consumers (including potential future hydrogen consumers).
- 6.39 In developing these options, the licensee and the NTS System Operator must conduct a separate system-wide technical assessment of each intervention's impact on pressure-flow dynamics, and compressor utilisation under a range of operational scenarios. This includes stress-testing system performance under high-demand, low-supply, and fault conditions to ensure that resilience to unplanned outages and supply and demand shocks is maintained or improved. Modelling must also explore the potential knock-on impacts of large-scale asset decommissioning or repurposing, such as reverse flow requirements or pressure limitations in areas of the gas network that remain in natural gas service after other parts of the network have been repurposed or decommissioned. Where system configurations are proposed that rely heavily on inter-zonal compression or dynamic rebalancing, the operational feasibility, energy efficiency, and control strategy must be clearly articulated.

Hydrogen - Stage 3

- 6.40 What follows applies solely for the hydrogen part of Stage 3 of the CSNP Methodology: identifying options.
- 6.41 As the hydrogen system, transportation and storage, is in its early stages, it is recognised that available options may be limited. Nonetheless, the licensee is expected to propose options that evaluate both new construction and the potential for repurposing of existing gas assets. These options should take into account relevant regulatory and operational considerations and should support the connection of hydrogen supply and demand, both within and across regional boundaries. Where third parties develop options, eg NGT, GDNs or others; these are to be equally assessed and evaluated.

7. Stage 4: decision-making framework

- 7.1 This chapter sets out the CSNP Methodology requirements in respect of stage 4 of the CSNP - evaluating and selecting options for the CSNP. It also provides guidance on our expectations for how the licensee defines some aspects of stage 4 in the CSNP Methodology. Unless where a requirement or section is mentioned as being specific to an energy vector, the following requirements apply to all three energy vectors.

Decision-making requirements

- 7.2 In its CSNP Methodology for stage 4, the licensee must:
- base its approach on the general principles of transparency, open stakeholder engagement and being adaptive to change
 - set out what decision-making tools, considering quantitative and qualitative factors, will be used
 - clearly set out how it manages any trade-offs between competing objectives and justify the approach adopted
 - create an approach that is robust, consistent, and reproducible
 - consider if and how to utilise the Green Book guidance issued by HM Treasury, including for environmental and community impacts
 - for electricity, gas and hydrogen, separately if appropriate, set out its detailed approach to evaluating and selecting options for the CSNP
 - set out its approach for sensitivity and stress testing for uncertainty or for other weaknesses in decision-making. For electricity, this should include uncertainty due to the potential impact of reforms such as the introduction of RNP⁴⁵
- 7.3 As the CSNP is the first step in the planning and development of future network, evaluation of environmental and community impacts, and operability and deliverability assessments, are expected to be commensurate to the level of detail expected in the CSNP due to it being an early-stage plan. The licensee will define the parameters and expected levels of maturity of option designs, information and analysis in its methodology.

Evaluation of environmental & community impacts

- 7.4 We expect the licensee to set out in its CSNP Methodology how the assessment of impacts of network options on the environment and communities will be included within the CSNP decision-making processes. In the Stage 4 CBA:

⁴⁵ As RNP is a recently announced government decision, and further policy details are yet to be developed, the licensee will not be able to set out comprehensive details of the impact of this in the Methodology.

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- for environment impacts, this should include impacts on the historic environment, ecology and biodiversity (such as ancient woodland), landscape (such as national parks), and the marine environment, among other categories
- for community impacts, this could include disruptive impacts due to construction to drive coordination between assets, and impacts on local communities such as, on agricultural land
- the environmental assessments made here will be the result of desktop assessments and will be high-level: detailed Environmental Impact Assessments (EIAs) along routes and at potential sites will be carried out at a later stage to gain planning consents where relevant, and will be the responsibility of the relevant delivery body
- the Methodology and decision-making framework should be able to take into account mitigation of environmental and community impacts, where these are presented as part of options
- trade-offs between costs and benefits related to environmental and community impacts should be explained
- where mitigation measures and their associated costs have been incorporated into the design of options, to avoid duplication, those risks should not be counted in the stage 4 assessment

7.5 We expect environmental and community impacts, and the cost of mitigations of these impacts, to be considered in line with requirements to achieve planning consents, where relevant. The licensee might benefit from familiarising itself with high level requirements for planning consents in each relevant jurisdiction to the extent relevant to its strategic planning activities.

7.6 The licensee should also consider developing an impact prioritisation framework which enables comparison of options based on environmental, community, and cumulative system-level impacts.

7.7 The licensee should assess cumulative impacts of its plans and consider mitigations where appropriate.

7.8 As redistributive transfers, community benefit schemes shouldn't be incorporated into the CBA, except where there are inseparable spillover effects⁴⁶ which can be quantified.

⁴⁶ Spillover effects here may include improved roads or tree planting

The longer-term ‘Funnel of Options’

- 7.9 We expect the licensee to develop a ‘Funnel of Options’⁴⁷ that covers longer-term system needs out to at least a 25-year rolling horizon. It may be that these options are only indicative, as they will likely require further feasibility studies, desktop assessments, or early-stage design work, as well as a clearer needs case, before they can be assessed for progression into the Delivery Pipeline of subsequent CSNPs.
- 7.10 We expect the licensee to have a clear assessment Methodology for selecting options to enter the Funnel of Options. This could be a simplified implementation of the analysis for the delivery pipeline. For a particular requirement, it is envisaged that multiple options may be selected, and discounted options may be resubmitted for subsequent CSNPs.

Electricity and natural gas - the near-term ‘Delivery Pipeline’⁴⁸

- 7.11 The licensee is expected to establish, document, and manage a clear assessment Methodology for when, and how, to select projects from the Funnel of Options for the Delivery Pipeline, and select new projects directly for the Delivery Pipeline.⁴⁹
- 7.12 At a minimum, an assessment should be triggered when a potential project meets a system need identified based on the SSEP pathway, or potentially indicated by analysis from the FEP, and the individual project’s lead-time requires a decision on funding in the current cycle of the CSNP.
- 7.13 We expect the licensee to develop, and set out in the CSNP Methodology, an assessment toolkit and a strategic decision-making process to determine entry into the Delivery Pipeline:
- the analysis should be more detailed than for entry into the ‘Funnel of Options’, reflecting the clarity of near-term system needs, costs and benefits as it will result in a decision to move a project into delivery and receive regulatory funding
 - the analysis should be repeatable using consistent criteria

⁴⁷ Such projects would be to address emerging longer-term system needs beyond the ‘Delivery Pipeline’. These system needs may not be firmly defined at this stage but the ‘Funnel of Options’ would allow these to be addressed in a more strategic and proactive way, ensuring that a ready set of options that meet minimum design requirements are available to choose from when the need becomes clear to select them for the Delivery Pipeline.

⁴⁸ These are projects that are required to meet clearly defined system needs. These projects are required to meet higher standards of definition and robustness than the Funnel of Options to enable effective consultation and regulatory funding.

⁴⁹ For the first CSNP and potentially for subsequent CSNPs, projects may be identified to go directly into the Delivery Pipeline rather than first entering the Funnel of Options.

- 7.14 We expect the licensee to set out in the CSNP Methodology how decisions will be made to select projects to address identified system needs in pursuit of net zero and other government targets while striking an appropriate balance between:
- incurred costs including the capital cost of the options and wider costs
 - benefits including, for electricity, the avoided costs of constraints and avoided carbon emissions
 - both positive and negative environmental and spatial impacts, including the extent to which negative ones can be mitigated
 - for gas, security of supply and resilience of the NTS to support the transition to net zero
 - both positive and negative community impacts including the extent to which negative impacts can be mitigated
 - deliverability of projects, including by considering supply chains and technology readiness
 - network operability, including consideration of operational needs and the complexity of the network
- 7.15 We expect the licensee to consider how to incorporate into the Methodology the following:
- the option for staged expansion of the network
 - the option to take short term actions to secure future options where proceeding with the full reinforcement in the Delivery Pipeline is not justifiable
 - the option for extra/surplus capacity where strategically justified and reasonable, to avoid the additional cost and disruption of potentially having to further reinforce the network within a short timescale
 - interaction with, and impact on, other areas of network planning such as non-load related works or connection works
- 7.16 The licensee must develop a Methodology to derive the Optimal Delivery Date (ODD) for CSNP projects as part of the stage 4 assessment. The optimal delivery date refers to the most advantageous timing for completing a project, considering consumer benefits, economic efficiency and security of supply. It aims to strike a balance between minimising costs and maximising benefits, ensuring that the project meets network needs while delivering value to consumers.
- 7.17 We expect the licensee to set out in the CSNP Methodology how it will calculate the ODD, taking into account:
- deliverability of the project
 - for electricity, cost of constraints
 - capital expenditure

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- operating cost
 - cost of delays
 - cost of early delivery
 - any other relevant factors
- 7.18 We expect the licensee to set out how it will manage the risk to consumers of unnecessary costs from investing too early versus additional costs of investing too late.
- 7.19 We expect that once a project is in the CSNP Delivery Pipeline, it should typically not need to be re-evaluated again, unless a change control process has been triggered for the project (see Chapter 9 for more details) or, where deemed necessary and required by Ofgem or the licensee.
- 7.20 For each project recommended for funding, and for the plan as a whole, the licensee must provide detailed supporting evidence to us alongside the CSNP, to enable our appraisal. This should include:
- cost estimates and breakdowns
 - estimated delivery dates and reasons for the estimated schedule
 - engineering design details and justifications
 - operability, deliverability, and community and environmental impacts of each option considered for assessment
 - the overall stage 4 underlying analysis pertaining to the plan and all constituent projects including for discarded options that were assessed and including sensitivity analysis
 - analysis which enables Ofgem to distinguish between projects that are ready for immediate progression and those that require further development. This distinction is essential to maintaining the integrity of the overall plan while ensuring that only mature (as defined in the licensee's methodology for entering the Delivery Pipeline), well-justified projects advance to the Delivery Pipeline

Electricity - assessing options for near-term and longer-term operability needs

- 7.21 What follows applies solely to the electricity part of Stage 4 of the CSNP Methodology: the decision-making framework.
- 7.22 The CSNP must within its option assessment, determine the most appropriate route to resolve system needs by considering value for money for consumers. We expect the licensee to set out in its CSNP Methodology how any operability solutions that will be in the scope of the CSNP will be assessed and proactively taken forward for near-term and longer-term operability needs.

- 7.23 The licensee should set out in its methodology, how it will decide whether an operability solution for an identified need will be sourced via the CSNP, or resolved through a separate process, and it should provide its justification for this decision.

Gas - Stage 4

- 7.24 What follows applies solely to the natural gas part of Stage 4 of the CSNP Methodology: the decision-making framework.
- 7.25 The licensee must use system needs identified in stage 2 in order to assess options for the future of the NTS and advise on the preferred option for implementation. The licensee must identify the best solutions that meet identified system needs, even if these have not been proposed by the NTS System Operator.
- 7.26 This assessment must consider the following:
- the potential environmental impact of each option assessed in terms of both emissions as a direct result of the proposed intervention and residual emissions through operation
 - economic impacts such as consumer value, avoidance of constraints, and the resources required to intervene on assets during their life eg to carry out maintenance
 - community impacts and regionality, there should be an effort to reasonably minimise disruption to consumers/the public
 - security of supply and resilience impacts
 - CNI and HIPFs
 - deliverability and whether there are challenges related to any aspect of the option considered
- 7.27 An assessment of each option must be carried out. It must consider the following:
- overall costs, including construction, decommissioning, operational costs, environmental remediation costs, and social/community impacts
 - constraint costs for each option
 - deliverability
- 7.28 Each of these costs must be compared to the counterfactual baseline costs, ie the cost of no intervention option taking place.
- 7.29 In addition to cost and environmental considerations, the CSNP decision-making framework should assess each intervention's impact on network flexibility, pressure-flow dynamics, and ability to manage diurnal and seasonal demand variations. The resilience of the proposed configuration must be stress-tested under abnormal operating conditions, including compressor outages,

peak day stress events, and declining entry capacity scenarios. Where assets are proposed for decommissioning or repurposing, the analysis should evaluate risks of creating stranded exit zones, reduced linepack margins, or loss of zonal pressure control. All interventions should be assessed for their impact on intra-day operability, especially in zones with fluctuating demand or limited alternative supply paths. These technical assessments should be fully integrated with the economic, environmental, and social appraisals to ensure a balanced evaluation of long-term system value.

Hydrogen - Stage 4

- 7.30 What follows applies solely to the hydrogen part of Stage 4 of the CSNP Methodology: the decision-making framework.
- 7.31 The assessment of the hydrogen strategic planning options must consider the following:
- **environmental impact:** including appropriately assessed emissions as a direct result of intervention and residual emissions through operation. Consideration should be given to the environmental impact of repurposing gas assets versus building new assets
 - **economic impacts:** including consumer value and the resources required to intervene on assets in future. This should account for the uncertainties of maintaining and operating hydrogen transport infrastructure, given the emerging nature of the industry
 - **community and regional impact:** including efforts to minimise disruption to consumers and/or the public
 - **deliverability:** including dependencies on external factors such as the availability of new technologies or materials
- 7.32 An assessment of each option must be carried out, considering:
- construction, decommissioning, and operational costs
 - environmental remediation
 - social and community impacts
 - third-party contract costs
 - comparative costs of repurposing versus new build at all network levels
 - constraints and associated costs, where applicable
- 7.33 For each of these, impacts and costs must be compared to the counterfactual ie no investment.

8. Stage 5: develop the CSNP

- 8.1 This chapter sets out the steps required to bring together the selected options from Stage 4 into a finalised CSNP. It also gives guidance on our expectations for how the licensee undertakes consultations on the provisional CSNP to determine the final CSNP. Unless where a requirement or section is mentioned as being specific to an energy vector, the following requirements apply to all three energy vectors.

CSNP Methodology requirements

- 8.2 In its CSNP Methodology, the licensee must:
- define the process for finalising the CSNP from options selected as per its approach for Stage 4
 - set out the process for consulting on the provisional CSNP to meet CSNP, SEA, and HRA requirements
 - clearly set out how it will make strategic decisions to finalise the CSNP

Preparing a CSNP for consultation

- 8.3 We expect the licensee to set out in its CSNP Methodology how it will compile a provisional CSNP suitable for consultation.
- 8.4 The Methodology must explain how the provisional CSNP aligns with the SSEP, and where appropriate, FEP and RESPs. This includes quantifying how the selected options correspond to the future generation and demand pathway used. By doing so, the CSNP can demonstrate how the plan is not only technically and environmentally sound but also strategically coherent and responsive to regional and national energy needs.
- 8.5 The licensee must seek to ensure that the plan, and options within it, are technically viable, coordinated where appropriate, and represent the most efficient and effective set of solutions to meet future system needs. This involves the justification for the down selection of options or a combination of options, from a wide range of potential reinforcements. The licensee must explain how options, or combinations of options have been evaluated against a consistent and transparent set of criteria, including economic justification, deliverability, operability, environmental and community impacts, and alignment with wider strategic plans.
- 8.6 The licensee should also explain how each option, or a combination of options, compares against scenario tests, to seek to ensure that the proposed plan is the most robust under varying future conditions. The rationale for selecting or rejecting options, or a combination of options, must be clearly documented in the provisional CSNP with an explanation of the trade-offs made. It must include clear reasons for its decisions based on the results of its analysis, and subject to

any confidentiality, commercial or operational considerations, it should publish these results, including those of any sensitivity analysis carried out. This will enable stakeholders, Ofgem and government to have confidence in the plan.

- 8.7 The licensee must ensure that the CSNP is fully compliant with the SEA, the HRA, and any other requirements on it for producing the plan and it must clearly set out how it meets any applicable legal requirements.
- 8.8 For both SEA and HRA, the licensee must specify the assessments that were undertaken for the plan.
- 8.9 The licensee must clearly present the high-level design options selected for inclusion in both the Delivery Pipeline and the Funnel of Options for the system needs identified in stage 2.

Consultation process

- 8.10 We expect the licensee to set out in its CSNP Methodology the process for consultation of the provisional CSNP including a description of the different stages, components and timings; the channels to be used to reach different stakeholder groups; and how feedback will be used.
- 8.11 For the CSNP consultation to be meaningful and inclusive, the licensee must prioritise transparency and accessibility in how the provisional plan is presented. The CSNP Methodology should set out how the CSNP will be structured in a clear and logical manner, with a coherent narrative that explains how decisions were made. The licensee should provide a breakdown of the components of the provisional CSNP that will be consulted upon.
- 8.12 The licensee should ensure that its consultations are suitable for the variety of different audiences that interact with its plans. Technical content should be translated into plain language wherever possible, particularly in public-facing materials, to ensure that non-specialist stakeholders can engage with the content. However, as the CSNP is technical and complex, it is important that users and Ofgem can clearly understand the technical and analytical detail behind it; this detailed information should also be included.

Ofgem approval of the CSNP

- 8.13 The Licensee must send to Ofgem a proposed version of the CSNP for approval.⁵⁰ Once we receive the plan, we will either approve it or direct the licensee that the plan needs further development and set a deadline for when a revised version must be submitted. In the instance that we direct the licensee to develop the plan further, we will explain the areas that we want the licensee to develop further.

⁵⁰ By the date set out in ESO C17 and GSP C12

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- 8.14 To secure Ofgem's approval of the proposed CSNP, the licensee must demonstrate how the methodology was followed, include clear outputs and a demonstration of how they meet the system needs identified, the requirements of option design in the methodology, and include clear reasons for its decisions based on the results of its analysis. It should include these results, including those of any sensitivity analysis carried out. It should also demonstrate how the plan, and individual projects, align with government and Ofgem policy objectives, and both technically and economically serve the long-term interest of consumers. Ofgem's assessment will focus on the process by which the CSNP was developed and on the quality and credibility of its outputs.
- 8.15 The licensee must demonstrate that the plan is built on a foundation of robust analysis, fair option selection, and strong governance, all underpinned by a commitment to consumer protection.
- 8.16 We will look for clear documentation of how options were shortlisted, refined, and prioritised, and why certain alternatives were not taken forward. This level of transparency is essential to ensure that the CSNP reflects a balanced and evidence-based approach to strategic planning.
- 8.17 To support our consideration for the approval of the plan, the licensee must ensure that we are provided with the provisional CSNP in a timely manner that allows for thorough regulatory scrutiny.
- 8.18 The licensee must build sufficient lead time into its planning cycle to enable Ofgem to interrogate the plan's technical, economic, and strategic content in detail. This includes allowing time for clarifications, follow-up questions, and any necessary revisions before final approval.
- 8.19 To facilitate this, the licensee is expected to establish and communicate a clear timeline that includes key milestone touchpoints such as early engagement on draft outputs, interim submissions, and pre- and post-submission briefings. These milestones should be designed to give Ofgem visibility of the plan's development and provide opportunities to raise concerns or request additional evidence well in advance of formal submission of the proposed CSNP.
- 8.20 By embedding these structured checkpoints, the licensee can enable Ofgem to consider if, by approving the plan, it will meet its duty of protecting the interests of consumers.

Finalising the CSNP

- 8.21 The licensee is expected to clearly outline in its CSNP Methodology how it will compile a final version of the CSNP that is suitable for publication and regulatory decision-making. The final CSNP must provide a clear, well-evidenced foundation for Ofgem to make timely and informed funding decisions.

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- 8.22 This includes a structured breakdown of each project within both the Delivery Pipeline and the Funnel of Options, detailing their strategic parameters and needs case.
- 8.23 Throughout the development of the CSNP, the licensee must engage with Ofgem through structured and transparent governance processes as set out in this Guidance. This engagement should provide assurance that the proposed projects are robust, aligned with system needs, and meet the minimum thresholds for design maturity that are required to support regulatory funding decisions.
- 8.24 The licensee must also ensure that it has considered the feedback received during the options assessment and consultation phases to develop the final CSNP. The clarity and quality of the recommendations in the final plan are critical to enabling Ofgem to direct funding efficiently. The licensee should explain in its Methodology the approach it will follow to take consultation feedback into account to finalise the plan.

Gas - Stage 5

- 8.25 What follows applies solely to the natural gas part of Stage 5 of the CSNP Methodology: develop the CSNP.
- 8.26 The licensee must clearly set out in its CSNP Methodology publication, the programme of work for natural gas strategic planning and how this will be incorporated into the CSNP.

Hydrogen – Stage 5

- 8.27 What follows applies solely to the hydrogen part of Stage 5 of the CSNP Methodology: develop the CSNP.
- 8.28 The licensee must clearly outline in its CSNP Methodology publication, the programme of work for hydrogen strategic planning, how this will be incorporated into the CSNP and how the approach will continue to develop.

9. Stage 6: handover to delivery body

- 9.1 This chapter sets out the CSNP Methodology requirements in respect of Stage 6 of the CSNP, the process for passing the projects in the plan to an appropriate body for delivery. It provides guidance on our expectations from the CSNP Methodology, that will enable funding decisions.

Overview of CSNP output requirements

- 9.2 For electricity, this chapter should be read in conjunction with our RIIO-ET3 Sector Specific Methodology Decision⁵¹ and the RIIO-ET3 Determinations⁵² which together set out our requirements and regulatory treatment of the outputs from the CSNP, in the next price control for electricity transmission (RIIO-ET3). This includes the framework for providing funding, incentives to promote the timely delivery of projects, the use of regulatory tools to provide oversight for projects that arise through the CSNP and the use of regulatory tools to provide oversight for projects that arise through the CSNP.
- 9.3 The licensee must set out in its CSNP Methodology, how it will determine and make recommendations for competitive tender (see the 'Electricity - onshore competition' section in Chapter 10 of this document).
- 9.4 The licensee should set out how it will clearly articulate details of the project to the delivery body, including, but not limited to the system needs that the project will be addressing and the final approved parameters of the project.

Electricity - network build and Pre-Construction Funding decisions

- 9.5 What follows applies solely to the electricity part of the CSNP.
- 9.6 The CSNP sets out the needs case for projects that are eligible for PCF under the RIIO-ET3 price control CSNP reopener mechanism.
- 9.7 As part of CSNP Stage 2, the licensee must identify system needs and as part of Stage 4, the licensee must clearly articulate how projects that are selected for delivery will address the system needs, to provide a clear needs case for the project.
- 9.8 The licensee must demonstrate robust governance to confirm the project's necessity and feasibility. Uncertainties must be addressed as part of the Stage 4 assessment, enabling the licensee to provide a clear and confident justification for project delivery.

⁵¹ [RIIO-3 Sector Specific Methodology Decision – ET Annex](#)

⁵² The RIIO-3 Final Determinations, December 2025

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- 9.9 This is required so that the TOs (or competitively appointed third parties) can proceed with project delivery with confidence, across a portfolio of projects.
- 9.10 Alongside the needs case, the provision of PCF relies on the degree to which projects meet the criteria that is set out under in Chapter 6: Stage 3 - 'Defining the minimum level of detail for high-level options.'
- 9.11 If the CSNP outputs do not meet these standards, this may result in delays to Ofgem decisions on funding these investments, as further assessment and/or development of the project may be required.
- 9.12 We also recognise that government has recently consulted on proposed amendments to the NPS which will set out the strategic parameters that it will endorse for CSNP projects eg onshore or offshore, high voltage direct current (HVDC) or high voltage alternate current (HVAC). We expect the licensee to work closely with the government and Ofgem, to determine the appropriate strategic parameters that will need to be agreed at the CSNP stage to enable NPS endorsement.
- 9.13 For CSNP projects proposed for delivery, we expect the licensee to set out in the methodology, the supporting documentation required for high-level design options which will demonstrate that these requirements are met, both for regulatory funding and for NPS endorsement.
- 9.14 We recognise that "minimum level of detail" for the purpose of regulatory funding and "strategic parameters" for the purpose of NPS endorsement may be different as they are set for different purposes.

Electricity - technical solutions and engineering maturity

- 9.15 To support Ofgem's funding decisions for CSNP, we expect projects to meet the definitions for minimum level of design for high-level options to enter the Delivery Pipeline as per the requirements set out for CSNP Stage 3 in this Guidance. This gives Ofgem the confidence to provide PCF to TOs to develop the project to a greater level of detail and maturity, to the point where TOs can apply for planning consent and for full project funding through the RIIO-ET3 CSNP Re-opener.

Electricity - Optimal Delivery Date

- 9.16 Ofgem will use the ODD (set out in Stage 4 of this Guidance) as an input to calculating the project delivery incentive that supports the timely delivery of projects, providing maximum benefits to consumers. The licensee must include the analysis results of Stage 4 in its submission to Ofgem, including the Optimal Delivery Date for the project.

Electricity - indicative project cost

- 9.17 In the context of the relevant RIIO-ET3 mechanisms, the indicative project cost is critical for the determination of:
- project-specific parameters for the delivery incentive;
 - whether a project will be subject to independent technical scrutiny; and
 - the amount of development funding a project may be eligible for that enables the TO to develop the project to the minimum design requirements that then facilitates the full project funding.
- 9.18 We expect the licensee to develop a Methodology for determining indicative project costs, taking account of asset unit costs from industry insight, competitive tendering, consultation with Ofgem and electricity transmission licensees. In its submission to us, the licensee must provide us with high-level costs for the projects within the plan, including cost breakdowns.

Electricity - change control

- 9.19 We recognise that projects that are in the Delivery Pipeline are subject to uncertainty and external factors that may impact the final project design or need after the CSNP is approved. These can include material changes in generation or demand within the SSEP pathway, including where one or more large generation connections no longer goes ahead as anticipated.
- 9.20 We also recognise that the scope or technical design of CSNP projects may materially change as the delivery body develops the detailed design. This could happen because of site and route surveys, consultation with local stakeholders or due to the planning and consenting process. Such design changes may result in a significant change to the estimated cost and/or estimated delivery date of the project.
- 9.21 The licensee must develop an effective change control mechanism in the CSNP Methodology to determine under what circumstances a project that has entered the Delivery Pipeline will require re-evaluation, how this will take place, how potential amendments to the project will be determined, communicated, and formally incorporated within the plan. The licensee should collaborate with Ofgem to establish appropriate monitoring and governance arrangements for the delivery body. This collaboration should ensure that any changes are identified, reported, and managed through a timely and transparent change control process.
- 9.22 The reassessment of one or more projects as part of the change control process is necessary not only to determine whether the individual project(s) and the plan remain justified, but also to determine if the project or combination of projects still represents the most beneficial option or network strategy compared to alternatives that were previously not taken forward.

9.23 In developing the change control mechanism, the licensee should set out, as a minimum, the following:

- the principles and thresholds which will trigger the need for a project to go through the change control process
- the data requirements from TOs and third parties (where applicable), and any other stakeholders, and the timeframe for notifying the licensee on changes
- the process, tools and requirements for the re-evaluation, including timeline for re-evaluation, how results will be determined, and the roles of different parties in this process
- how recommendations for projects are communicated between the delivery body, the licensee and Ofgem and the governance process for this
- requirements to mitigate consumer detriment and demonstrate consumer benefits for a project modification (for example through a new CBA or other economic analysis)
- timeline for assessment, including how and when TOs and third parties (where applicable) will submit data to enable the licensee carry out its role where it is determined that a re-evaluation is necessary

9.24 The licensee must set out materiality triggers to determine under what circumstances a project that has entered the Delivery Pipeline will require a re-evaluation. These can include the following:

- **strategic parameters:** any changes in key strategic parameters of options should trigger change control. This can include, for example, the electrical design of reinforcements, such as start and end points which alter the specific capability that the option provides, and the technology proposed in the high-level design, such as overhead line, underground cable, offshore or onshore routing choices etc
- **cost:** material changes in costs can undermine the CBA and should trigger the Change Control. The level of cost escalation that triggers a re-evaluation should ideally be linked to project specific parameters such as the Benefit Cost Ratio (BCR)⁵³ due to its impact on the need for the project. We will also consider other reasonable means to trigger change control such as absolute or percentage changes to costs set out in the plan

⁵³ A Benefit-Cost Ratio (BCR) is a financial metric used to evaluate the relative value for money of a project or investment. It is calculated by dividing the total expected benefits of a project by its total expected costs. It is useful because it can provide additional information on the value for money/efficiency of investments and, therefore, how sensitive to cost assumptions and variations decisions might be.

- **generation or demand assumptions in the plan:** the plan will be based on the SSEP Pathway and other inputs such as FEP, offshore connections and individual large onshore connections. Material changes to any of these inputs that alter the system needs identified in Stage 2 should trigger a change control. The licensee clearly should set out the process by which it will monitor these inputs for changes
- **cumulative changes:** The licensee should consider cumulative changes to the plan to trigger change control, where the cumulative impact of changes to projects, even where individually they don't trigger the above thresholds, materially affect the plan
- **delivery timeline:** a material change in the delivery timeline may trigger the Change Control. In setting out its methodology, the licensee should consider the point at which a delay in delivery makes switching to an alternative option better, even if some costs have already been incurred, and the most economical way to resolve the system need. Where economically justified, a project may be chosen due to an earlier in-service date, despite costing more than alternatives. If the delivery date changes, the benefit may reduce significantly and therefore the identification of potential "tipping points" for the Stage 4 outcome should be assessed as part of sensitivity analysis
- **knock-on effects:** many projects are interdependent, not just with other CSNP projects but also with connections or other projects that are out of scope of the CSNP, with some of their benefits only materialising when delivered alongside other projects. If one project changes, this may lead to a change in benefit, or a need to update another project. Strong correlations between projects should clearly be identified in the outset, including outage dependencies. We expect a clear process to identify potential impact of changes to one project on others and consideration of when Change Control would be triggered and which projects will be considered in the re-evaluation. Additional drivers should be considered when assessing projects in the Change Control process, particularly, how additional drivers that are not in the scope of CSNP may be addressed if a CSNP project was to be cancelled or reduced in scope, and whether there are economic benefits due to these other drivers to continue the CSNP project either as it is or in a different form
- **external changes:** changes due to government or Ofgem's policies, such as the connection reform, REMA, onshore and offshore connection designs, and potentially interactions with other load and/or non-load related network planning may trigger Change Control

9.25 The licensee should inform the relevant delivery body and Ofgem that it is initiating change control assessments impacting one or more projects. We may also identify the need to initiate change control assessments and ask the licensee to carry these out.

- 9.26 The licensee must set out how and when it will communicate the result of the change control process to the affected parties and stakeholders. This includes for example, notifying offshore network developers on any changes to onshore network designs which may impact them.

Electricity - competitive tendering

- 9.27 The CSNP will set out which recommended network reinforcements meet the eligibility criteria for both early and late onshore competition in accordance with the Criteria Regulations.⁵⁴ The licensee must inform Ofgem of the outcome of its consumer benefit assessment (undertaken through a CBA based on the most up to date methodology as agreed by Ofgem) ahead of Ofgem determining whether any project recommended by NESO is a qualifying project for onshore competition under the Tender Regulations.⁵⁵
- 9.28 This assessment process will form part of the licensee's CSNP development and will be included in the CSNP stage 6 outputs. The outputs can then signal to developers which CSNP projects can be tendered.

Gas - Stage 6

- 9.29 What follows applies solely to the natural gas part of Stage 6 of the CSNP Methodology: handover to delivery body.
- 9.30 The licensee must publish the NTS reinforcement, repurposing, decommissioning recommendations in the CSNP. The licensee may recommend other options that will address the needs of the NTS. Ofgem will make decisions on the delivery of the proposed options following the assessment and analysis of each option.
- 9.31 The RIIO-3 Gas Strategic Planning Re-opener and Resilience Re-opener will provide funding for gas CSNP projects. This includes any changes indicated by the Clean Power 2030 plan as well as Security of Supply considerations such as HIPFs. The Re-openers will treat CSNP projects that meet certain minimum requirements as required outputs in National Gas Transmission's licence, through which we will provide project allowances once National Gas Transmission has obtained planning consents (where relevant), carried out detailed design, and submitted its final cost estimate to us.

Hydrogen – Stage 6

- 9.32 For hydrogen, the delivery mechanism for the CSNP will be different to the RIIO-3 price control framework applicable to natural gas and electricity transmission.

⁵⁴ [The Electricity \(Criteria for Relevant Electricity Projects\) \(Transmission\) Regulations 2024 \(legislation.gov.uk\)](#)

⁵⁵ [The Electricity \(Early-Model Competitive Tenders for Onshore Transmission Licences\) Regulations 2025](#)

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Government's hydrogen business models will play a key role in supporting most hydrogen production, transport and storage and hydrogen-to-power projects in the early years of the hydrogen economy. It is expected that government will use the assessed options to help inform funding decisions across various hydrogen business models as appropriate. This does not exclude the possibility of hydrogen heating or blending costs related to activities within the gas price control framework being considered under those gas price control net zero uncertainty mechanisms.

- 9.33 We expect that the first CSNP should focus primarily on higher pressure tier infrastructure that is of sufficient capacity and significance to be considered under current or future rounds of these business models.

10. Other planning roles in CSNP

- 10.1 This chapter sets out the CSNP Methodology requirements in respect of areas that are not covered within the stages of CSNP sections above. It also provides guidance on our expectations for how the licensee defines its role in these areas in the CSNP Methodology. Unless otherwise specified, this chapter applies to electricity, gas and hydrogen.

Climate and Broader Resilience

- 10.2 In the CSNP, we expect the licensee to evaluate the climate and broader resilience of network infrastructure, except where such resilience is more appropriately considered outside of the CSNP. Where the licensee judges that is the case, it must set out in the Methodology, those links and reasoning for exclusion from the CSNP analysis. This evaluation should include:
- identifying climate change related risks at the system level
 - HILP events, including extreme weather and cascading events
 - stress testing future plans to evaluate the system's resilience
- 10.3 We expect the licence to be consistent and align with approaches being developed across the wider sector by engaging with government, Ofgem, the Met Office, academia and industry. This may include:
- consistent use of metrics
 - using forward looking approaches and data which considers future climate impacts to the system
 - the use of appropriate time horizons and climate scenarios, using the best available climate data
 - considering both qualitative and quantitative approaches to the treatment of HILP events
- 10.4 We expect the licensee to consider broader resilience issues including credible risks, in alignment with relevant licence conditions related to the licensee's energy resilience and resilience reporting requirements, including ESO C7 and GSP C6, and set out in the Methodology how it will consider these.

Electricity - interconnectors

- 10.5 This section solely relates to the electricity part of the CSNP. Gas and hydrogen interconnectors are considered in section 10.28 below.
- 10.6 For electricity, we expect the licensee to set out in its CSNP Methodology how it will integrate its analysis for interconnectors and OHAs within the CSNP for identifying and communicating optimal locations, capacities, and delivery timelines for future OHAs and interconnectors. As well as making clear the integration of these assets, we expect the CSNP Methodology to set out how the

licensee will model interconnectors and OHAs. The licensee must clarify the interaction between the CSNP and SSEP in strategic planning of interconnectors and OHAs and it may propose in its submission of the CSNP Methodology to Ofgem if the requirements of this Guidance will be met partly by the SSEP instead.

10.7 We expect that the licensee will make recommendations for interconnectors and OHAs as part of the CSNP three-year cycle, including by:

- identifying opportunities for additional interconnectors and OHAs that will contribute to the effective development of the NETS and specifying the location, capacity, timing, technology, and connecting market. Where the SSEP recommends an interconnector, the CSNP must give equal consideration to determine whether it should optimally be delivered as an OHA or a point-to-point interconnector
- assessing the impact of OHAs and interconnectors on network design, operability, costs and benefits through a robust cost-benefit analysis, considering strategic value beyond minimum enabling works and ensuring compatibility with European partners
- enabling early engagement as part of the development process for third parties
- assessing the potential value of such new cross-border capacity to the system and to GB as a whole, including:
 - (1) the impact on GB wholesale energy prices
 - (a) the impact on security of supply, decarbonisation, ancillary services provision, flexibility, and other operational factors
 - (b) the costs of any transmission reinforcement required to connect the interconnector or OHA
 - (2) the likely consequential impact on GB consumers and other energy market participants
 - (3) publishing, as part of the CSNP, recommendations for additional interconnectors and OHAs so that interested parties have sight of the identified options to meet the system needs

10.8 We expect the licensee to inform and support any potential future interconnector application windows, or other development processes, and to support future needs case assessments of candidate projects by:

- reviewing its analysis and recommendations for interconnectors and OHAs if requested by Ofgem in anticipation of any potential future interconnector application windows or other development processes
- presenting its updated recommendations to Ofgem, DESNZ and Devolved Administrations to assist design of any future interconnector application windows or other delivery processes

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- publishing its updated recommendations for additional interconnectors and OHAs for stakeholder participation in any future application windows or other development processes
- engaging bilaterally with prospective interconnector developers and other interested persons, who have completed application window pre-registration, to assist with reasonable requests for needs case analyses

10.9 Effective offshore network planning must recognise the importance of international collaboration to ensure compatibility with neighbouring systems, support cross-border projects like interconnectors and OHAs, and uphold the UK's commitments to regional energy integration and market alignment.

Electricity - offshore network planning in the CSNP

- 10.10 The SSEP will determine future offshore wind generation capacities and locations as an input to the CSNP. The licensee should use this input to plan offshore connections strategically and in a coordinated manner within the CSNP, to produce a holistic offshore and onshore electricity plan. It should ensure that this is done by considering community and environmental impacts, deliverability, and operability and ensure that recommendations are economically justified.
- 10.11 We expect the licensee to utilise the lessons learnt from previous network design exercises, recognising that those exercises had their own limitations and circumstances that may not be applicable to the CSNP.
- 10.12 Coordinating offshore and onshore network designs presents significant technical challenges. These arise due to the sequential nature of offshore planning and the constraints such as the timing of when generation materialises, the final power output of the generators, and changes to the onshore network. The methodology must therefore set out a coordinated and adaptive planning framework that integrates both offshore and onshore network design, accommodates evolving system constraints, and addresses technical trade-offs to ensure whole-system optimisation and operability.
- 10.13 Offshore network requirements, such as interface points, cable capacities, and spatial layouts, should be considered alongside onshore reinforcement needs. Offshore network designs must also remain adaptable to evolving system constraints and technological advancements to ensure optimised whole-system efficiency; the licensee should consider how best to enable this in its process.
- 10.14 A disconnect between offshore and onshore assumptions can result in suboptimal configurations, especially when offshore assumptions do not align with onshore grid capabilities or future flexibility requirements. Ongoing feedback is therefore necessary between offshore and onshore designs, to incorporate electrical coordination or integrate OHAs, which need early and repeated input to work well.

10.15 The risk of stranded capacity and the challenge of managing operability under weak grid conditions both underscore the need for a more integrated, adaptive, and technically robust planning approach. Faced with these challenges, the CSNP Methodology must:

- incorporate strategic offshore connection designs as a core component of the CSNP process, ensuring that outputs from the SSEP inform offshore network designs and investment recommendations
- explain the assumptions used in defining future strategic connections and how strategic connection-driven network designs are developed and validated
- set out the feedback loops within and between different stages of the SSEP and the CSNP in the context of the offshore network designs
- align with the SSEP, and the licensee should consider if SSEP inputs into the CSNP need to be supplemented with other data, as set out in Chapter 4, CSNP Stage 1: model future energy supply and demand
- include early-stage consideration of all forms of offshore electrical coordination, including OHAs, for the offshore connections design, as soon as practical in the process
- consider how uncertainties within critical inputs (such as changes in generator capacity commitments, spatial layouts, and cable availability, as a key factor impacting deliverability of options) will be managed, given the longer time horizons involved in strategic planning. While it is not practical to model every possibility, we expect the licensee to qualitatively assess these parameters within its holistic assessment of designs and, where appropriate, engage with expert bodies. Where uncertainties arise, these should be addressed through an ongoing structured review process

Electrical Coordination and Spatial Coordination

10.16 The strategic and spatial planning of offshore wind farms and their associated offshore transmission network can be used to reduce the number of electrical interface points, provide increased certainty for onshore network build, and bring about efficiencies in technology choices, among other benefits.

10.17 Electrical coordination, such as meshed offshore networks, bootstraps, windfarm-to-windfarm links, and OHAs can enhance system operability, resilience, deliver consumer value, and/or reduce community and environmental impacts of networks.

10.18 The CSNP Methodology must provide a clear and transparent framework for when and how spatial and electrical coordination options will be considered. The licensee should qualitatively and quantitatively evaluate forms of coordination in line with the overall CSNP approach when determining the optimal degree of electrical coordination and spatial coordination.

Evaluate Standardised Export Configurations

- 10.19 In setting out its approach, the licensee must assess trade-offs between asset and configuration standardisation and site-specific optimisation. This includes impacts on flexibility, long-term costs, seabed use, and the risk of stranded capacity or operability issues under weak grid conditions.
- 10.20 In configuring its design, the licensee should consider how best to ensure that the benefits of standardisation can be realised considering commercial availability, practical deployment constraints and future leasing strategies. The licensee should engage with seabed leasing bodies and supply chain to inform its work.
- 10.21 The licensee must clearly communicate, as part of the justification for each recommended design, the rationale, limitations, and system impact of standardisation. This should, where possible, include how it supports spatial coordination, simplifies delivery, and explain any alignment with European standards or divergence, where justified.

Adaptive planning - Change Control and Governance

- 10.22 The licensee must robustly integrate offshore designs into the CSNP governance and change control processes. This will ensure that onshore reinforcements remain adaptable to changes in offshore design, and where appropriate, vice versa.
- 10.23 To support the delivery of a technically robust offshore coordination strategy, the offshore network design must be accompanied by a clear governance framework. In line with onshore processes, it should result in structured engagement with TOs. In addition, engagement should include offshore wind developers and OFTO bidders, for the purpose of ensuring alignment on key design parameters (including reactive compensation, meshing interfaces, transfer capacities, and control responsibilities). The licensee should endeavour to engage these parties as early as possible in the process, to limit the scope of changes.
- 10.24 Recognising the long lead times and sequential nature of offshore development, the CSNP Methodology must embed a strong and structured change control process. Furthermore, the CSNP Methodology should include mechanisms to manage the impact of changes on both offshore and onshore networks. It should support the reallocation of capacity where necessary, ensuring that investment decisions remain justified and aligned with system needs. This approach ensures that the CSNP remains a dynamic and responsive plan, while seeking to minimize the scope of any changes.

Offshore-specific Transmission Owner Input and Stakeholder Engagement

- 10.25 Due to the complexities of offshore network design, the licensee should seek early input from TOs on offshore designs in the CSNP, to ensure robust designs that are aligned with the onshore part of the plan.
- 10.26 Similarly, recognising the additional complexities of offshore network design and development, we expect the licensee to seek feedback at appropriate stages from industry and relevant stakeholders on the offshore designs specifically. Stakeholders could include windfarm developers, potential OFTOs, supply chain representatives, local authorities, and community groups.
- 10.27 For the purpose of planning the offshore network, the licensee should engage with the two offshore leasing authorities, The Crown Estate and Crown Estate Scotland. While most of the early engagement with these bodies is expected to happen as part of the licensee's development of the SSEP, the licensee should consider how this engagement should continue to inform the offshore network aspects of the CSNP, and how its plans can inform the activities of the leasing bodies. This engagement can help the licensee to consider marine constraints in developing the CSNP, and this should continue as appropriate to support delivery bodies in developing the detailed network designs.

Gas and hydrogen - offshore planning and interconnectors

- 10.28 NESO must set out how it will assess the potential roles of gas and hydrogen offshore network, storage and interconnectors, including how it will incorporate future government decisions into the network planning process.

Electricity - onshore competition

- 10.29 We expect the licensee to set out within the CSNP Methodology an analytical approach that ensures third-party options, including non-network solutions, can be fully considered within the CSNP development process alongside TO-proposed options to meet identified system needs.
- 10.30 We expect the licensee to set out within the CSNP Methodology how it will integrate the competition delivery model and how CSNP processes will support the recommendation of appropriate projects for competition.
- 10.31 We expect the licensee to ensure that recommended projects meet all relevant criteria set out in the Electricity (Criteria for Relevant Electricity Projects) (Transmission) Regulations 2024 ('the Criteria Regulations') and are justified through robust Cost-Benefit Analysis.

Customer connections

- 10.32 The design of individual onshore connections is outside the scope of CSNP. We expect the licensee to consider interactions between the CSNP and the overall

onshore and offshore connections process, as well as any reforms to those processes and how the timings of those reforms interact with the CSNP.⁵⁶

- 10.33 The CSNP should provide a strategic framework that ensures that individual connections for all three energy vectors in the scope of the CSNP are aligned with long-term system planning. CSNP should inform where and how new connections should be made, helping to coordinate necessary reinforcements and avoid inefficient or piecemeal infrastructure development. By integrating assumptions about future connections, the CSNP should support the production of aligned and efficient connection offers that reflect system needs and capacity constraints.
- 10.34 Additionally, the CSNP should manage the impact of changes to individual connections, such as delays or cancellations, by incorporating feedback loops that consider where reinforcement plans need to adjust accordingly. It also plays a role in identifying access to limited infrastructure, like substation bays. We expect the licensee to set out in its methodology how it and TOs will effectively coordinate capacity allocation transparently and strategically and how this approach will align to the approach set out in the Connections Network Design Methodology.⁵⁷
- 10.35 We expect the licensee in its CSNP Methodology to include consideration of wider transmission network reinforcements required to support both existing and anticipated connections, including extensions of the MITS into areas of potential new generation and demand.
- 10.36 The licensee should set out how the CSNP will use the reformed connections process (the gate-based framework to ensure that new generation and demand projects are both ready and needed before progressing through the connection pipeline) and the SSEP as inputs and manage any misalignment between the two. The licensee should set out clear feedback loops and enhanced coordination with TOs on the connections process so that the CSNP can support efficient network development and capacity allocation.

⁵⁶ [Ofgem recently approved NESO's proposals for a reformed connections process](#)

⁵⁷ [Connections Reform design documents and methodologies | National Energy System Operator](#)

11. CSNP publications

- 11.1 This chapter sets out requirements in respect of the CSNP publications. It gives guidance on how the licensee should define the frequency and content of the CSNP publications in the CSNP Methodology.

Our expectations

- 11.2 We expect the licensee to set out the scope and timings of the CSNP publications in its CSNP Methodology.
- 11.3 We expect these outputs to clearly explain the analysis and decision making undertaken at each stage of the CSNP process and how the stages interact to inform CSNP recommendations. The detailed requirements for the publications are set out in Stage 5 in Chapter 8 of this document.
- 11.4 We require the licensee to publish a CSNP and update it every three years. We expect this to cover the outputs defined in this document for the onshore and offshore electricity transmission networks, electricity interconnectors, gas transmission and new hydrogen and storage networks. We expect the publication to:
- provide the licensee's decision for the purpose of its plan on solutions that should proceed to the Delivery Pipeline, that looks ahead for circa 10 years for natural gas transmission and hydrogen, and 12 years for electricity transmission
 - identify a Funnel of Options - potential projects - for CSNP system needs out to at least 25 years, and those that should be developed incrementally in preparation for moving into the Delivery Pipeline when the need is more certain
 - assess system operability challenges and solutions to resolve them
 - provide government with advice, and industry with recommendations, to inform planning the wider energy system together with networks

Send us your feedback

We are keen to receive your feedback about this guidance. We would also like to get your answers to these questions:

- Do you have any comments about the quality of this guidance?
- Do you have any comments about its tone and content?
- Was it easy to read and understand? Or could it have been better written?
- Do you have any further comments?

Please send your feedback to stakeholders@ofgem.gov.uk.