Public

Hydrogen Centralised Strategic Network Plan workshop

October 2025

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Welcome

- Duration: 1:00pm – 3:30pm
- Please ask questions on slido.com, or by scanning the QR code
- Camera and microphones are disabled
- We will record this session

We will moderate and answer questions that are relevant to CSNP and reflect a diverse perspective. You can also get in touch via ***GWEND@neso.energy***

Contents

- Overview - 30 minutes
- Approach – 30 minutes

- Break – 10 minutes

- Drive/Identify: system requirements
  15 minutes
- Develop: options development
  15 minutes
- Appraise: options assessment
  15 minutes
- Q&A - 25 minutes
- Closing - 10 minutes

Presenters and facilitators

Bridget Hartley
Head of RESP

Jeremy Brutus
Head of Hydrogen

Archie Corliss
Whole Energy Network Manager

Omar Ibrahim
Hydrogen Stakeholder & Insight Analyst

Muki Liu
Whole Energy Stakeholder & Insight Analyst

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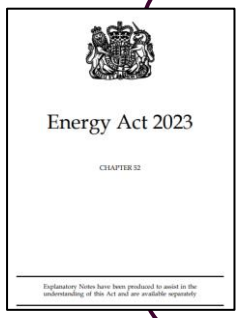
NESO overview

Who we are:

The National Energy System Operator, NESO, is an independent, public corporation at the centre of the energy system taking a whole system view to create a world where everyone has access to reliable, clean and affordable energy.

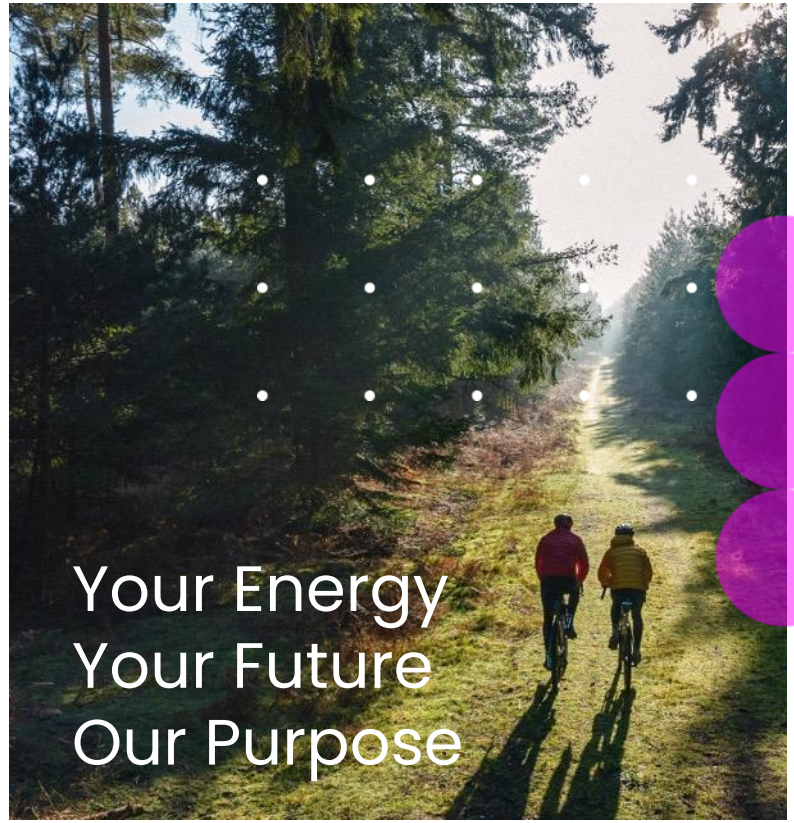
Our work will be the catalyst for change across the global community, forging the path to a sustainable future for everyone.



Net Zero

Efficiency & economy

Security of supply



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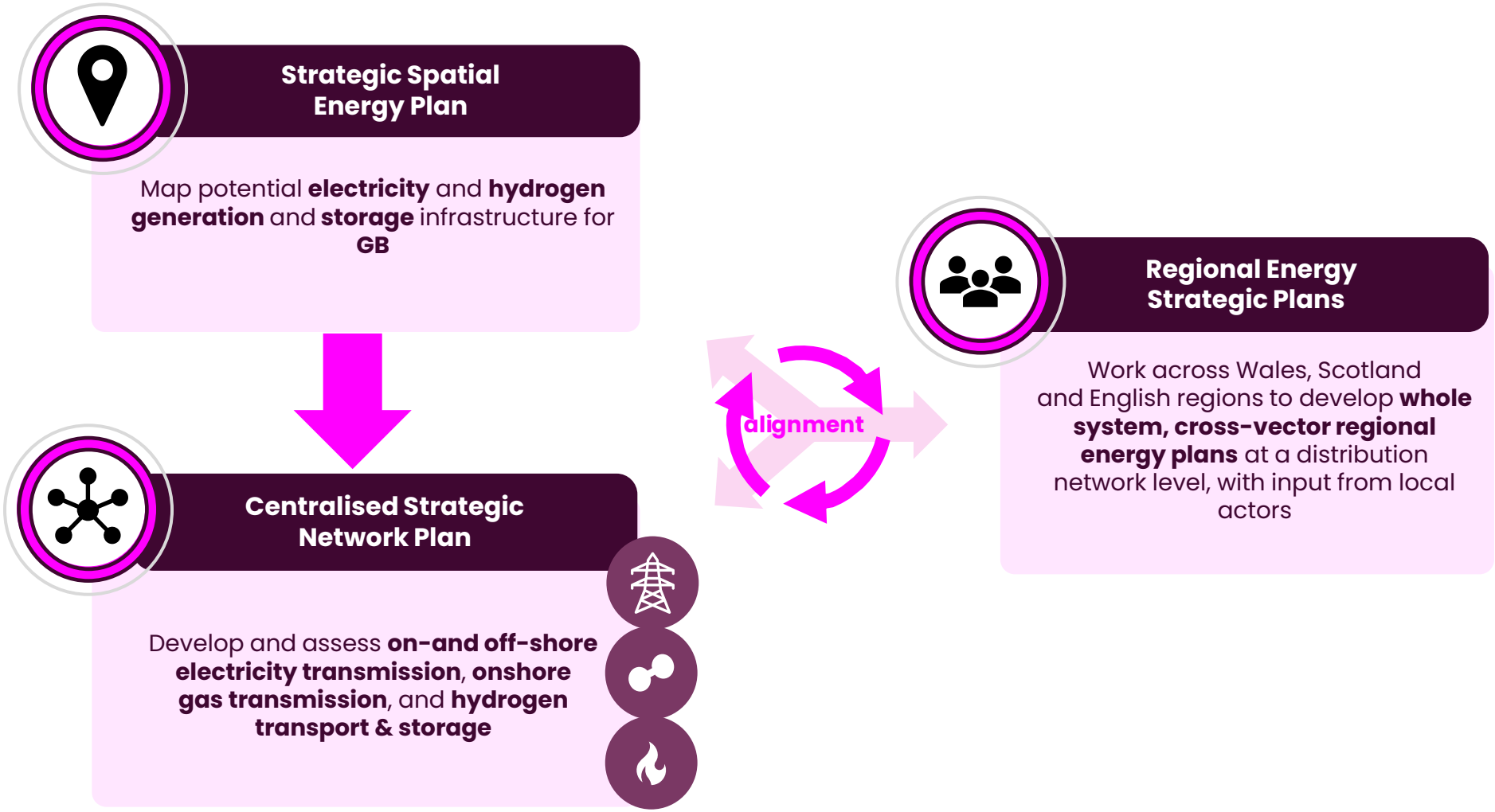
How we are planning the energy system



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DESNZ hydrogen policy statement

- DESNZ previously stated an ambition is for NESO to formally take on strategic planning for hydrogen transport and storage (T&S) infrastructure from 2026

- Last week's Policy Statement sets out:
  - DESNZ's view for how NESO will consider hydrogen T&S infrastructure within the strategic planning functions detailed in the GSP licence
  - That NESO is considered best placed to determine the different types of hydrogen T&S infrastructure to include in its SEPs
  - How DESNZ will have 'due regard' for NESO's strategic planning in the design and allocation of its hydrogen business models

Overview

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What we will cover today

- **Overview:** The overall process we shared in our consultation
- **Update:** The latest view of hydrogen within the CSNP
- **Discussion groups:** to develop further detail of the CSNP methodology
- **Next steps:** Timelines and participation
- **Q&A:** Regarding your questions about hydrogen in the CSNP

Whole system CSNP

Today, our **energy networks** cover onshore and offshore **electricity transmission**, international **electricity interconnectors**, and **onshore gas**.

Electricity networks need to keep growing, so we must get ready to **support an expanded power system**.

While gas demand is likely to reduce, **we still need some supply**.

And there may be **more demand for hydrogen in future**, which will affect the electricity and gas networks.

Ensure efficient energy network development by holistically planning the onshore and offshore electricity networks, and strategic gas and hydrogen networks.

Plan strategically, ahead of need, to enable investments required to ensure reliable, clean and affordable energy.

Accelerate delivery of network by providing certainty on the needs case and strategic parameters of options to support planning and regulatory processes.

Conduct a consistent, robust and transparent assessment on a broad range of network options considering multiple assessment criteria.

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Whole system framework

1. Drive	The SSEP will be used as the core data input to the CSNP, complimented by the FES, so we can plan the energy networks required for the wider transfer of electricity, gas, and hydrogen.
2. Identify	The CSNP will provide a view of the current capability and future needs of the networks to inform network options development for each energy vector.
3. Develop	Considering each vector's system requirements, a range of reinforcement options will be identified and put forward by NESO, Network Owners and broader parties, as appropriate.
4. Appraise	Options will be assessed across multiple assessment criteria to determine the best design across GB, with required reinforcements progressing into the delivery phase.
5. Plan publication	A draft plan will be published, followed by a consultation window to shape the final CSNP publication, including necessary statutory consultations for environmental assessments.
6. Deliver	Following the final CSNP publication, reinforcements will progress through detailed design, consenting, and delivery. A change control process will ensure delivery alignment with the plan.

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Delivery of a whole system CSNP

To reflect different regulatory and engineering considerations, the current proposal is that the whole system CSNP will consider all three vectors, but with different levels of detail:

- Electricity transmission
- Gas transmission
- Hydrogen transmission & distribution*

All three vectors will present a whole-system approach, aligning on assumptions, language, modelling approaches and assessment methodologies.

*Currently, no distinction is made between transmission and distribution for the hydrogen network. For the initial CSNP we expect to cover all common carriage systems, but not single-party connection systems.

Hydrogen network planning approach

We propose a three-tier approach for hydrogen network planning

- **National strategic view models:** informed by hydrogen flows between zones from SSEP outputs
- **Industrial cluster systems models:** considering initial hydrogen supply and demand projects
- **Broader industrial view models:** these are informed by both the previous two approaches and will consider the buildout of hydrogen networks beyond initial supply and demand connections

No hydrogen market exists, but hydrogen storage is likely to be a vital part of a hydrogen system at some point in the future and hence we propose to include it in the CSNP.

The CSNP framework applied to hydrogen network planning processes

Across the three vectors, the CSNP will use the same framework to identify network needs, develop and appraise options, and make a decision or recommendation.

Identify

- **SSEP** determines the need for GB hydrogen transport & storage
  - **FES** supports and augments the analysis

- Use **SSEP zones** to model flows across boundaries
- Consideration given to gas network **RIIO zones**

Develop

- Expect **multiple parties** to put forward options (licenced parties, 3rd party, NESO)
- Both **repurposing** of gas assets and **new build** options to be developed

Appraise

- **Consistent approach** to gas and electricity, where possible
- Considers **impact on gas network** of repurposed options
- Assessment criteria includes:
  - **Economic**
  - **Environment**
  - **Social**
  - **Deliverability**

Deliver

- NESO provides analysis and an optimal network solution for hydrogen network build decisions
- **DESNZ's HTBM & HSBM** to confirm funding allocations

Clarifications from the consultation

- The CSNP considers **all potential proposals that could be part of a strategic network**, not only those applying for DESNZ funding at this time.

- Both **new build and repurposed** options will be considered holistically, the process won't have a bias to one over the other

Timelines and next steps

Methodology Development

- **July 2025:** CSNP methodology consultation and webinars
- **August 2025:** Ofgem CSNP guidance consultation
- **September to December 2025:** stakeholder engagement and development of hydrogen network planning methodology

CSNP milestones

- **2026:** Share full methodology and finalised timelines.
- **Summer 2026:** publish 'Identify' – system requirements
- **December 2027:** publish full CSNP

Approach

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Proposed approach

- Small scale discussion groups (15-20 people)
- Representative cross-section of industry
- Three workstreams:
  - Drive/Identify
  - Develop
  - Appraise
- Regular cadence of meetings across approximately 6 weeks

Selection principles

- Stakeholders to put themselves forward for inclusion

- NESO will select representatives to cover a broad cross section of industry including:
  - Hydrogen production
  - Hydrogen demand
  - Hydrogen transport
  - Hydrogen storage

Timing and structure

- Three workstreams covering the core areas of the CSNP methodology
- Regular meetings across a 6-week period
- Kick-off sessions to be arranged depending on participant schedules w/c 27th October or 3rd November
- Up to 3 x follow up virtual meetings - 1 hour

Feedback – *Via Slido*

- What else should we consider in our approach?
- Should there be any requirements on expertise?
- Is there anything else we should consider as part of the selection criteria?
- How else should we communicate with the wider stakeholder group on progress?
- What else would you like us to consider?

Break

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Drive/Identify

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Drive/Identify

The identify process will be undertaken by NESO. It will take input from the SSEP and model hydrogen flows across boundaries of the SSEP zones. Consideration will need to be given to impacts on boundary flows on the gas network RIIO zones.

Purpose

We will need to define future system requirements for hydrogen based on input from the energy pathways we are considering from the SSEP and the Future Energy Scenarios. To get hydrogen from where it is produced to where it is used, a hydrogen network will require sufficient transfer capability to move this energy.

The aim of the assessment is to identify the required network capacity to transport hydrogen.

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Drive/Identify

What do we know?

- The SSEP will optimise across electricity and hydrogen
- We take inputs from single SSEP pathway, as with electricity for consistency.
- SSEP zones won't align with existing gas modelling zones
- Need to consider specific project based data relating to industrial clusters

What do we need to define?

- Availability of wider data on hydrogen supply and demand projects
- Any specific data inputs beyond the SSEP and FES and how they are used
- What outputs are most useful to industry as part of a System Requirements publication
- Granularity of data we provide and what that looks like

Develop: Options development

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Develop

The options developed here could be proposed by regulated energy system participants or be put forward by NESO or other third parties.

Purpose

The CSNP will need to consider a range of options for meeting the identified hydrogen network capability and storage needs. Options for both repurposing of existing gas network assets and new build hydrogen assets will need to be developed. We will consider repurposing and new build options, dependent on SSEP outputs.

The aim is to develop suitable hydrogen network options, both repurposed and new build, that can meet the identified hydrogen network needs.

Develop

What do we know?

- Our ‘Identify’ step will set out the need for hydrogen transport in different areas
- Existing hydrogen network proposals have been developed in a range of areas
- Options development is open to NESO, licensed gas sector participants and wider third parties
- Repurposed and new build options will need to be considered

What do we need to define?

- Technical requirements options need to meet
- What pre-filtering process looks like
- What other data should be submitted as part of options development to allow us to assess options
- What support is needed by industry to develop and submit proposals

Appraise: Options assessment

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Appraise

The appraisal process will be undertaken by NESO. It will consider the suitability of options developed and assess them, considering impacts on the wider energy system, for example the effect on the gas network of repurposing pipe(s) for hydrogen transport.

Purpose

The appraisal of options for hydrogen is to assess the suitability of proposed investment options that could meet the identified hydrogen network needs. For hydrogen, we intend to provide analysis of network options to identify optimal solutions including comparison of repurposed and new build options.

The aim of the assessment is to assess the submitted options considering economic, environmental and social impacts as well as deliverability.

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Appraise

What do we know?

- We will evaluate Economic, Environmental, Social and Deliverability aspects
- Assessment process should be consistent across electricity, gas and hydrogen where possible
- The deliverability of repurposed options will need to include assessment of the impact on the gas network

What do we need to define?

- Full assessment criteria considered
- Scope of gaseous network modelling of the hydrogen network at this stage
- How we consider operability of overall hydrogen network

Q&A

Please ask questions on this topic on slido.com via the code or by scanning the QR code

Closing

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Next steps in H2

Publish CSNP Methodology

Hydrogen methodology working groups in Q4 2025

Preparing gas network planning role for future CSNP responsibilities

Continued stakeholder engagement

We will continue engaging with our stakeholders throughout the development and refinement of our methodologies and analyses.

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Thank you

Sli.do will be open until 5pm today

Slides to be published
to the website

If you have questions/feedback, please contact: **GWEND@neso.energy**

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