

77 Gracechurch Street,
London
EC3V 0AS
info@hydrogen-uk.org
www.hydrogen-uk.org

6th Floor
10 Dean Farrar Street
London SW1H 0DX
+44 (0)20 3031 8750
info@ccsassociation.org
www.ccsassociation.org

To,

Electricity Systems Team Department for Energy Security and Net Zero
3-8 Whitehall Place London
SW1A 2EG

Future System Operation Office of Gas and Electricity Markets
10 South Colonnade Canary Wharf London
E14 4PU

09th May 2024

Dear Electricity Systems and Future Systems Operation Office,

Thank you for the opportunity to respond to the statutory consultation on National Energy System Operator (NESO) licences and other impacted licences. We are writing to you on behalf of the following Trade Associations:

- The Carbon Capture and Storage Association (CCSA)
- Hydrogen UK (HUK)

The trade associations represented in this letter welcome the progress that has been made to date on the implementation of NESO. The opportunities presented by the formation of a strategic network planning organisation, with a duty to independently advise both Government and Ofgem on the needs of the energy system, are wide-ranging and substantive. Alongside enhanced energy security, cost efficiency and, enduring benefits to energy consumers in the long run, a coordinated and centralised approach to network planning is fundamental to enable the net zero transition and fulfil our climate goals.

CCUS and low-carbon hydrogen are noted by the Climate Change Committee¹ (CCC) and International Panel on Climate Change (IPCC) as critical technologies for net zero. Mitigation pathways which reach net zero greenhouse gas emissions include carbon capture and storage (CCS) as an integral part of limiting global temperature rises, alongside widespread use of low-carbon hydrogen². Moreover, the Government has stated commitments to deploy CCUS and hydrogen in the future energy mix of the UK to deliver decarbonisation and ensure energy security. Without these critical technologies, Government's decarbonisation ambitions will not be realised, and energy security could be at risk. It is therefore fundamental that CCUS and hydrogen are critical considerations within the co-ordinated planning regime and advice of NESO now.

¹ Climate Change Committee: Progress in reducing UK emissions. 2023 Report to Parliament. [Link](#)

² IPCC: Climate Change 2023 Synthesis Report – Summary for Policy Makers. [Link](#)

We would like to take this opportunity to highlight a couple of enduring concerns, within the CCUS and low-carbon hydrogen industry regarding the duties and roles of NESO, which we feel require further consideration. These concerns are discussed in greater detail below, alongside potential solutions that could be adopted by NESO.

1. Centralised Strategic Network Planning:

Concern: The materials published to date appear to show that NESO will analyse the Electricity and Gas systems of the UK in silos from Day 1 and for a significant period thereafter whilst it ramps up its operations. While both systems will be analysed under one ‘single roof’, NESO will assess the following independently:

- *Electricity roles;* electricity control centre operations electricity market development and transactions, and electricity system insight, planning, and network development.
- *Gas roles;* gas strategic planning, gas forecasting, and market strategy functions.

Whilst we understand that it will take a period of time for NESO to fully establish itself, it is imperative that NESO **does not lose sight of its intended central role of co-ordinated strategic network planning across all energy systems and regular whole-system plan reports**. A central strategic network plan is essential for the net zero transition, and fundamental for CCUS and hydrogen build out, in order to provide a holistic overview of the future network requirements of these emerging sectors.

Within the documents published on the NESO licences, there is limited reference to CCUS, and hydrogen is noted as only being fully considered from 2026 onwards. We would stress that **whole system strategic planning roles need to be considered now in order to be implemented on the timescales outlined by Government**. The formation of NESO has been in discussion for a significant period of time, yet with the ‘whole system’ Centralised Strategic Network Planning (CSNP) only to be addressed in 2026, the trade associations represented in this letter believe this is too much of a delay for this critical aspect of NESO’s intended roles and duties.

Proposed Solution:

- 1) We believe that **faster progression towards the CSNP is warranted**, and would push for this to be developed as soon as is practicable, ahead of proposed timelines where feasible, so long as this focus on pace does not impact deliverability.
- 2) It is our view that **the Strategic Spatial Energy Plan (SSEP) should be ‘ambitious’ in its scope**, and conduct much of the initial investigations and determinations which could be built on by the CSNP, given the needs of the energy system now. There are a significant number of available resources and organisations which could help form this view of ‘whole system’ needs, including but not limited to, the infrastructure assessments produced by the National Infrastructure Commission³; hydrogen network analysis by Project Union⁴; the independent Xodus research into North Sea CCUS infrastructure opportunities to 2050⁵; the integrated spatial analysis platform being developed by the Crown Estate for determining seabed demand⁶, and significant experience developed to date by the work of the current electricity and gas network operators and regulators. Critically however, deliverability should not be inhibited by this focus on an ambitious scope for the initial SSEP.

³ National Infrastructure Commission (2023): The Second National Infrastructure Assessment. [Link](#)

⁴ National Gas Transmission (2022): Project Union Launch Report. [Link](#)

⁵ Xodus (2023): Forecasting the North Sea CCUS Infrastructure to 2050. [Link](#)

⁶ 2023: The Crown Estate to digitally map scenarios to inform co-ordinated approach to future seabed use. [Link](#)

2. Wider Infrastructure Considerations:

Concern: The energy system is dependent on a number of interlinked systems which enable its everyday functions. NESO will therefore need to either incorporate this wider system planning into its advice to Government and Ofgem, or rely on expert external resources to inform its planning of future system needs. The two critical infrastructure systems that we would highlight include;

- *CO₂ and Hydrogen transportation networks* - both to storage sites, inter and intra cluster networks and dispersed site connections; and
- *Water networks* - strategic water network planning and investment is critical for CCUS for power as well as low-carbon hydrogen.

Without these associated networks the energy system will not be able to function as intended.

Proposed Solution:

- 1) We would welcome further engagement on this topic and reassurance to the CCUS and low-carbon hydrogen industries that **infrastructural considerations, outside of the direct scope of the energy system will be given due consideration** in the assessments delivered by NESO.
- 2) Further reference should be made to CCUS, hydrogen and water infrastructure within the licence conditions of NESO and explanations given as to how external resources, such as that produced by Ofwat for water networks, will be incorporated into NESO's analysis. Memorandums of understanding between Ofgem and Ofwat regarding water strategic planning, to ensure demand for water is accurately accounted for in the strategic plans for water, could also be considered.

3. Resourcing of NESO:

Concern: There are now a significant number of proposed roles and duties that NESO will need to have regard of from Day 1. In order to hit the ground running and give trusted advice and direction, NESO will need to have expert knowledge of all of these systems to understand how they operate both technically and financially. Given the driving role that NESO will play in the planning of the future energy system, it is critical that it is capacity built with experienced people. This is especially the case for nascent industries including CCUS and low-carbon hydrogen where extensive understanding of the nuances of combining CCS with existing energy technologies; for instance, gas power and bioenergy power generation, and green hydrogen production is limited. Without this experience, an undesirable scenario could develop where Government and Ofgem may not receive the most accurate and detailed information needed for these new and unique energy system vectors.

Proposed Solution:

- 1) The CCUS and hydrogen industry is ready to **assist with the knowledge capacity building of NESO** and to help provide information on the future needs of the CCUS and hydrogen networks, as well as the opportunities that are on offer. We recommend NESO engage with the sector as early as possible.
 - a. This could be achieved through regular engagement from the CCUS and hydrogen industry to **provide input to its network planning deliberations**, in anticipation of the release of network plans which incorporate CCUS and hydrogen.

As an independent organisation, with a duty to report to Government and the regulators, NESO has a unique opportunity to be the bridgehead of the energy system; synthesising the needs to Government

policy and regulatory procedure on one side, and the opportunities and risks facing industry on the other. Moreover, for nascent emerging industries, collaborative thinking will be required from the outset to ensure these networks can be up and running in the most efficient manner, without any danger of NESO having to revisit/redesign any critical aspect of all system planning because a siloed approach was implemented initially, and available expertise was constrained.

The trade associations represented in this letter are confident that NESO can fulfil its role to Government and Ofgem and provide the needed advice and support at this critical juncture for the energy sector. To complement this, we would advocate for:

1. **Greater ambition in the scope and timelines for the 'whole-system energy spatial plan'.**
2. **A concerted effort to reassure industry that fundamental infrastructure decisions, beyond the direct remit of NESO, will inform its advice to Government and Ofgem.**
3. **Further facilitation of early, formal engagement opportunities between the power CCUS and low-carbon hydrogen industry and NESO.**

We thank you for your consideration of these concerns and would welcome the opportunity to discuss these with you in further detail.

With regards,



Ruth Herbert
CEO, Carbon Capture and Storage Association



Clare Jackson
CEO, Hydrogen UK

Acknowledgments



Energy UK would also like to acknowledge their support for the positions put forward in this letter. Please refer to their response for further considerations.