Consultation response

Centralised Strategic Network Plan Methodology

Author: Tamsyn Lonsdale-Smith, senior energy analyst tlonsdalesmith@regen.co.uk

Andrew Barry, senior energy analyst abarry@regen.co.uk

Alex Temple, policy analyst atemple@regen.co.uk

Approved by: Ray Arrell, associate director rarrell@regen.co.uk

About Regen

Regen provides independent, evidence-led insight and advice in support of our mission to transform the UK's energy system for a net zero future. We focus on analysing the systemic challenges of decarbonising power, heat and transport. We know that a transformation of this scale will require engaging the whole of society in a just transition.

Regen is a membership organisation with over 200 members who share our mission, including clean energy developers, businesses, local authorities, community energy groups and research organisations across the energy sector. We manage the Electricity Storage Network (ESN) – the industry group and voice of the grid-scale electricity storage industry in GB.

Summary and recommendations

Regen welcomes the ambition behind the Centralised Strategic Network Plan (CSNP) and its role within a wider whole-system planning framework. However, to ensure the CSNP delivers its intended impact, our response identifies critical areas for improvement, including the need for greater inclusion of distribution network planning, alignment with existing governance structures such as the Regional Energy Strategic Plans (RESPs) and Strategic Spatial Energy Plan (SSEP), and a clear prioritisation of outcomes that unlock generation capacity, alleviate constraints and reduce outages.

The CSNP must be more explicitly connected to electricity distribution network planning. It is often at the distribution level where constraints arise, connection applications accumulate and local system needs evolve most rapidly. Distribution networks must play a much greater role in the CSNP, with representatives from each of the Distribution Network Operators (DNOs) and

the Energy Networks Association (ENA) actively involved in CSNP stakeholder engagement. The CSNP should also directly consider the outputs of Distribution Future Energy Scenarios (DFES) and their reconciliation with RESP regional plans. Without this coordination, national plans risk being disconnected from the realities of local delivery.

Regen strongly advocates for better integration between the CSNP's governance and the structures developed through the RESP. As currently proposed, CSNP governance risks operating in a silo, without fully reflecting the democratic accountability and local system insight embedded in the RESP process. To that end, NESO should integrate RESP governance into the CSNP, either through shared group membership or well-defined input and data-sharing arrangements. Without RESP-informed stakeholders involved in CSNP governance, there is a risk that transmission planning remains disconnected from local and distribution-level needs. Regen recommends that NESO publishes a clear register of how the different stages of the Strategic Energy Plan (SEP) – and the organisations involved – will interact, including key data handover points, timings and feedback loops. NESO should also outline how the CSNP will inform future iterations of the Future Energy Scenarios (FES).

In addition, the CSNP should place greater emphasis on achieving practical outcomes – unlocking more low-carbon generation, reducing curtailment and enhancing the grid's resilience. This involves incorporating more granular constraint modelling, especially at the boundary of transmission and distribution systems. Regen recommends including analysis of high generation flows and constraint risks, using modelled future scenarios where possible. The economic assessment should go beyond cost comparisons to reflect the wider value of each option, including its potential to unlock renewable generation, ease network constraints and reduce carbon emissions. We recommend that NESO sets out its economic modelling approach in more detail, including how the societal cost of carbon is included and what assumptions are used.

The CSNP must also account for the changing role of gas and hydrogen networks. Regen recommends that gas network planning explicitly considers network shrinkage as more customers disconnect due to electrification. This includes modelling the impact on remaining users, who may face rising costs as the number of connected customers falls. A managed and equitable approach to decommissioning parts of the gas network will be needed to avoid creating stranded assets or placing undue financial pressure on households and businesses. For hydrogen, given the high degree of uncertainty in hydrogen policy and market development, the CSNP should avoid presuming the emergence of a single national hydrogen network. Instead, planning should focus on the specific needs of emerging industrial clusters and remain responsive to shifts in demand, technology and government decisions.

The plan must be flexible enough to adapt to major policy or market shifts. Our response recommends that NESO introduce a mechanism within the CSNP process to reopen or revise the plan in response to significant external changes. Transparency is also key; NESO should

clearly publish the assumptions and results of its scoring methodologies and ensure stakeholders can see how their inputs have influenced outcomes.

Finally, Regen recommends that the final network design be reviewed by a panel of expert decision makers to ensure that the outcome reflects practical judgement as well as modelling outputs, and to avoid the risk of technically sound but suboptimal solutions being chosen.

The key recommendations from our response are as follows:

- **Key recommendation 1:** The overall CSNP methodology must consider the necessary interactions with distribution network planning processes already being explored as part of the RESP/SSEP.
- **Key recommendation 2:** NESO should formally integrate RESP governance structures into the CSNP process, either through joint membership on advisory and coordination groups or through clearly defined data sharing mechanisms. This will ensure that local priorities, democratic accountability and whole-system alignment are embedded from the bottom up.
- **Key recommendation 3:** The CSNP should consider the impact of gas network shrinkage and customer disconnections (in response to societal electrification), in particular the impact on remaining users, who may face rising costs as the number of connected customers falls.
- **Key recommendation 5:** Due to a higher degree of uncertainty, hydrogen network planning must be adaptable and flexible to wider policy considerations and market shifts. Presuming the development of a national hydrogen network may not accurately reflect the development of hydrogen demand sectors and government policy decisions.

Responses to questions

Whole system network planning

Question 1: Do you agree that NESO is intending to engage with the right stakeholder categories to successfully deliver the CSNP? Do you have any additional comments on the stakeholder categories we are planning to engage with for the CSNP? (Page 18)

We agree that using existing working groups proposed through the RESP process, and including a number of other key representatives, as identified in the diagram, is a positive approach to engaging stakeholders.

We do, however, think it is vital to engage with the DNOs as well as the Transmission Network Owners (TOs). In many cases, the downstream load growth and reinforcement requirements at the distribution network level will have a significant impact on transmission network planning, and it is essential that the CSNP directly considers DNO planning processes and data. Hence, representatives from each of the DNOs (as well as the ENA) should be added to the proposed list of CSNP stakeholders.

Recommendation: NESO should identify the best approach and representatives to ensure that DNOs are included in the stakeholder engagement processes for the CSNP.

Question 2. Do you agree with our current position that the SEA/HRA assessment should not be extended to cover gas and hydrogen? If you do not agree, can you provide a reason why? (Page 28)

Whilst we agree that the SEA/HRA is prioritised on electricity transmission network build, the same level of scrutiny around environmental/habitat impacts must be applied in relation to existing gas networks (including proposed network shrinkage/decommissioning off the back of electrification) and future hydrogen infrastructure development and design.

Recommendation: In the context of the CSNP (and associated SSEP), NESO and National Gas (and/or GDNs) should clarify the environmental and habitat impact assessments (including, or in addition to, EIAs for more localised capital projects) that will be required for gas network decommissioning and future hydrogen infrastructure development.

Question 3. Do you agree that the methodology steps (drive, identify, develop, appraise, deliver & plan publications) outlined in the whole system CSNP overview are appropriate for developing a whole system CSNP? (Page 29)

Overall, the steps identified seem like a sensible sequential process. The interlinks between SSEP, FES, RESP and the CSNP are useful to see, but additional clarity on the specific 'data handover points' between these assessments would be useful. The continuation of this feedback cycle into the future is unclear – for example, how will the CSNP results feed into the next iteration of the FES in 2028?

Also, as discussed above, the overall methodology seems to omit any input from or provision to electricity distribution network planning processes. Whilst it is important to provide strategic focus on the electricity transmission system, the SSEP and RESPs will be directly interacting with DNO planning processes, for example, the 'transitional' RESP (tRESP) is currently being developed specifically to provide guidance to RIIO-ED3 business plans.

Recommendation: The overall CSNP methodology must consider the necessary interactions with distribution network planning processes already being explored as part of the RESP/SSEP.

Recommendation: NESO should outline how the CSNP will inform future iterations of the FES.

Question 4. Do you have any comments on the specific assessment steps shared within the whole system CSNP overview? (Page 30)

Regulated energy network planning methodologies (such as RIIO-ED2) have included mechanisms to adapt to significant changes to policy or shifts in the development market. This includes so-called 're-openers' that enable additional (or adjusted) volumes and investment requirements to adapt to unforeseen demand or circumstances. The whole-system CSNP methodology does not refer to a similar type of mechanism that would enable flexibility post-appraisal.

Recommendation: NESO should consider including a mechanism (within the CSNP cycle) to adapt or re-open the CSNP, should significant external factors (e.g. policy, market, societal, technological) change and require the plan to be adapted or revisited.

Question 5. Do you agree that the whole system approach for the centralised strategic network planning has been clearly set out in the CSNP draft methodology? (Page 30)

With the wider SEP as a cyclical process, we would like to understand more about how the CSNP, as the latter component of the SEP, will feed into future iterations of the FES (and SSEP/RESP).

As part of the SEP methodology, the RESPs have been identified as an input to the SSEP and CSNP. However, the tRESP and enduring RESP methodology outlines that the RESPs will be used to directly inform the regional network (DNO/TO) planning processes. This will almost certainly involve a reconciliation process between RESPs and detailed, granular assessments

like the DFES produced by DNOs each year. It is likely that through these reconciliation processes at the DNO level, there will be some variances identified between regional plans/forecasts (e.g. DFES) and the RESP pathways. It is not clear how the CSNP might be able to adapt to this RESP and DNO reconciliation process under the timeline identified. This further endorses the critical need for DNOs to be involved in the engagement and development process of the CSNP.

Recommendation: NESO should provide a clear 'organisation to organisation' register of how the various steps of the SEP (and the organisations involved) will need to interact with each other, identifying key data handover points, timings and reconciliation feedback loops.

Question 6. Do you agree that the outlined governance structure proposed in the methodology is appropriate to support the delivery of the whole system CSNP? (Page 34)

We broadly agree with the intent behind the proposed governance structure, particularly its tiered design and emphasis on multi-stakeholder involvement. However, we see a clear need for closer alignment and integration between CSNP governance and the RESP governance framework.

Given that transmission capacity decisions under the CSNP will be significantly influenced by distribution-level needs captured through RESP and DFES processes, the governance structures mustn't operate in silos. Our key points are:

- **Governance integration**: RESP and CSNP governance processes should be more explicitly linked, potentially via one or both of:
    - Formal representation of RESP regional boards or working groups within CSNP Tier 3 advisory groups (vector- or sector-specific).
    - A defined RESP-informed coordination function within the Tier 2 CSNP group to ensure bottom-up priorities are reflected.
- **Democratic accountability**: RESP introduces a level of place-based democratic accountability and regional economic prioritisation that is not yet clearly replicated within CSNP. Local authorities are incentivised to engage with RESPs because they offer a channel to shape energy system design around local ambitions such as decarbonisation, economic growth and fuel poverty reduction. The CSNP should articulate where and how these locally driven RESP priorities influence transmission-level decisions, ensuring legitimacy and public buy-in. The CSNP must not be seen to override locally agreed priorities developed via the RESP process.
- **Pragmatic engagement**: We recognise that many local authorities are resource-constrained and already juggling multiple statutory responsibilities. Therefore, CSNP governance must aim for efficiency, not duplication, in engagement. This might include:

- Shared representation between the RESP and CSNP governance boards where appropriate.
- Clear documentation and feedback loops (e.g. ‘you said, we did’) to ensure inputs are respected and used.

Recommendation: We recommend that NESO formally integrate RESP governance structures into the CSNP process, either through joint membership on advisory and coordination groups or through clearly defined input/data sharing mechanisms. This will ensure local priorities, democratic accountability and whole-system alignment are embedded from the bottom up.

Question 7. Do you agree that the membership, roles, and responsibilities set out for the governance process will support the delivery of a whole system CSNP? (Page 34)

As covered under Question 6, we are concerned that the current proposed membership does not sufficiently reflect the distribution-level and place-based expertise emerging through the RESP and DFES processes. For the CSNP to deliver a whole-system plan, it must draw on insight from both infrastructure owners and place-makers.

Recommendation: CSNP governance groups must include RESP-informed stakeholders; otherwise, there is a risk that national transmission planning will remain disconnected from local system needs and reduce the impact of true whole-system planning.

Question 8. Do you have any additional comments on the whole system approach we're taking for the CSNP? (Page 35)

There are some other areas we consider might be important:

- **Transparency and feedback loops** – as highlighted in RESP workshops, the approach to publish ‘you said / we did’ feedback provides clarity and value to local authorities, industry and wider regional/local stakeholder groups. This type of output would provide a view of tangible activities within a new structure, which may be seen as complex or obscure.
- **Clarity on interaction with other evolving reforms** – it is important that new processes, such as the CSNP and wider SEP suite of outputs, consider other impactful policy and regulatory reforms in the energy development sector. Examples include:
    - Network connections reform
    - Implementation of Clean Power 2030 (CP30) (2030 and 2035 streams)
    - The remit of Great British Energy
    - Reforms to spatial planning policy
    - Reforms to electricity markets after decisions not to proceed with zonal pricing
    - Pending decision not to proceed with policy to enable hydrogen space heating.

Electricity network planning

Question 10: Do you agree with the scope and framework, consisting of the options funnel and delivery pipeline, for electricity transmission network planning? (Page 47)

Regen agrees with the overall approach. It is critical that this process includes options related to distribution network constraints. Options that enable distributed renewable and storage technologies to connect at the distribution network level should also be considered and prioritised as necessary within the appraisal process.

Recommendation: NESO should consider network options that enable the connection of distributed renewable energy and storage assets.

Question 11. Do you agree with our approach to use both spatial and electrical coordination to develop offshore networks? (Page 66)

Regen agrees with this approach.

Question 12. Do you agree with our plan to design using current cable standards to provide certainty for connections? (Page 66)

Regen agrees with this approach.

Question 13. Would it be helpful to see the indicative offshore design before the system requirements publication? (Page 78)

Yes, it would be helpful to have a view of the indicative offshore design, as well as an understanding of how much it could evolve/change in the timeframe to its final edition.

Question 14. Do you have any additional comments regarding the offshore design process?

As part of the spatial planning process, it would be useful to consider up-to-date resource assessments for tidal energy. Where significant offshore wind and tidal potential is present, offshore and onshore assets should be strategically upgraded to make way for projects that may wish to connect in the future, moving towards a strategic and proactive offshore network planning approach.

Question 15. Do you agree with the scope of analysis under the identify step? (Page 98)

Regen agrees that the focus on bulk power flows at system boundaries is crucial and agrees with the winter peak demand stress analysis method. NESO could also consider assessing high generation stress within the scope of analysis, relating to its aim to identify and reduce wind and solar generation curtailment and outages.

The proposed thermal overload approach is a positive aspect of the analysis. The thermal analysis could include a modelled view of future thermal constraints as well as historic data, using a modelled approach as informed by FES, RESP, DFES and other modelling datasets.

Depending on the depth of consideration for distribution network impacts (as discussed in previous sections), NESO could consider the value of including DSO network models (perhaps at the Bulk Supply Point (BSP) or DNO-to-GSP (Grid Supply Point) level) as part of the Model Exchange step (page 99).

We believe it is also important to consider interconnection and constraints at the boundary of transmission and distribution.

Recommendation: NESO should consider high generation power flows and provide clarity on how constraints and outages will be considered in the analysis methodology. This could include transmission and distribution boundary considerations.

Question 16. Do you have any feedback to improve the presentation of system requirements, as shown in the Identify chapter? (Page 98)

The presentation of system requirements seems clear. A future projected 'view' of requirements would be useful, including for thermal analysis and residual stability.

Regional heatmaps of short circuit level (SCL) requirements could be more granular to enable analysts to identify specific geographical trends and causes.

Boundary charts are useful, but it is unclear to non-technical readers which direction across the boundary is causing constraint.

Recommendation: NESO could update boundary charts to clearly demonstrate the direction of power flow.

Question 17. What information would be useful to enable you to submit an option in the Expression of Interest window? (Page 110)

A list of existing options being considered by the networks would be useful to include, so that Expression of Interest (EoI) options are not repetitive or proposing solutions that have already been considered. Information around existing and future demand and generation constraints in a worst-case scenario would also be useful to include.

Question 18. How would you like that information to be communicated? (Page 110)

Information can be communicated on NESO's website and signposted through various social media platforms and mailing lists. Webinars to summarise the information may also be useful.

Question 19. What additional support would you need to develop options? (Page 112)

No additional support is required.

Question 20. Do you agree with the options development process and the required information? (Page 118)

Yes, Regen agrees with the options development process and the required information.

Question 21. Are there any other elements that we should include within the economic assessment? (Page 123)

The economic assessment should be considered alongside a wider assessment of the potential for the investment to unlock renewable generation capacity on the network and/or reduce generation constraints at key pinch points of the network. To achieve this, assumptions behind the societal cost of carbon should be considered as a high priority alongside outright capital expenditure (CapEx) and operating expenses (OpEx). A parallel assessment of the volume of capacity created or constrained generation unlocked could be considered alongside this.

Recommendation: NESO should publish more details of the economic calculation assessment methodology with clear examples of how options have been assessed, including how the societal cost of carbon has been quantified and the specific value assumptions used for each economic modelling parameter.

Question 22. Do you agree with our approach regarding sensitivities? (Page 124)

We support the proposal to align the CSNP to the chosen SSEP pathway for consistency and alignment. However, more detail is needed on the specifics of the proposed approach to test the GB network design against NESO's FES. In particular, we have a number of follow-on questions:

- Will this approach use FES 2025 or FES 2028? FES 2025 will be used as the basis of the DFES, RESP and SSEP processes to follow, but is likely to be superseded by these follow-on studies (in terms of specific projects and reinforcement requirements at a sub-national level).

- Will the testing process be at a GB level only or regionally tested/reconciled? From undertaking detailed DFES analysis and reconciliation to the FES regional (GSP) level data, there are a number of data anomalies in the FES GSP datasets, and from initial analysis, the FES GSP data does not seem to reflect CP30 pipelines at a sub-national or regional level. This may make comparison of the CSNP to the FES difficult.

NESO should also advise what actions are planned in the event that stress tests fail or do not meet system requirements, or if the proposed network design does not meet the requirements of the SSEP pathway.

Recommendation: NESO should provide more details of the specific approach to test the identified network design against the FES.

Recommendation: NESO should also state the process to be undertaken in the event that future network designs do not align with the SSEP or meet wider system requirements. A commitment should be made to ensure that a majority of net zero system scenarios and their network requirements will be met by the final network design, to ensure a design that allows for some flexibility and changes in market/technology activity and uptake.

Question 23. Are there any other specific sensitivities you think we should consider? (Page 124)

The CSNP should consider strategic distribution network modelling as fed into the SSEP pathways.

Question 24. Do you agree with the proposed scoring approach for environmental and community? (Page 129)

Regen welcomes the approach to scoring community and environmental impacts. In particular, we agree that the scoring approach should be standardised across all parties proposing solutions. We also welcome the joint qualitative and quantitative methodology approach undertaken during the second stage.

Question 25. Do you agree with the proposed flag system to highlight when an individual indicator within an impact category has reached the maximum score? (Page 130)

Regen agrees with the flag system approach.

Question 26. Do you agree with the deliverability and operability sub-criteria listed and their scoring characteristics (Appendix C2 and C3)? (Page 137)

Regen agrees with the deliverability and operability sub-criteria as outlined in Appendix C2 and C3.

Question 27. Are there any new criteria you believe should be included, or any existing criteria that you think could be removed? (Page 137)

Regen agrees with the current list of criteria.

Question 28. Do you have any additional comments regarding the deliverability and operability sub-criteria and their scoring characteristics?

No additional comments.

Question 29. Do you agree with our approach to the GB design decision-making framework? (Page 143)

No additional comments.

Question 30. Do you agree with the approach to progressing required reinforcements into the delivery pipeline? (Page 156)

Regen has no comments at this stage relating to the approach to progressing required reinforcements into the delivery pipeline.

Question 31. Do you agree with the change control process? (Page 156)

Regen has no comments relating to the change control process.

Gas network planning

Question 32: Are there any additional processes or analyses you believe should be considered in gas network planning? (Page 160)

As heating and industrial processes become increasingly electrified, overall gas demand will decrease, and customers will look to terminate their connection. This will increase the use of system charges for the remaining connected consumers. The FES models a decrease of gas consumption in the UK across all scenarios, with Holistic Transition showing a 75% decrease from baseline (2024) levels. Even Hydrogen Evolution, the net zero scenario with the highest share of gas, sees a natural gas consumption reduction of 40% by 2050.

Recommendation: NESO should look to undertake an assessment of the shrinkage of the gas network based on higher electrified FES pathways (and SSEP pathways to follow). This would enable the identification of a managed gas network decommissioning process at a national, regional and sub-regional level, in such a way that reducing numbers of connected customers are not adversely affected by fixed asset costs.

Question 33: Should gas network planning align with electricity and hydrogen planning by publishing proposed options before assessment? (Page 161)

Yes, for whole-system visibility and consistency, gas network planning should align with and follow similar obligations to electricity and hydrogen network planning.

Question 34: Do you agree with our approach to base gas planning activities within the CSNP on needs from the SSEP, supplemented by FES net zero pathways and the Counterfactual? (Page 163)

Regen welcomes the use of FES scenarios in this approach, but encourages the use of only the three pathways that achieve net zero (i.e. discounting Falling Behind/Counterfactual). These scenarios reflect a decrease in gas network usage of at least 40% by 2050. There needs to be a planned and coordinated phase-out of gas network infrastructure, reflecting a proliferation of electrification and associated gas network customer disconnections, ensuring that reducing residual customers are not bearing unreasonable infrastructure costs and pricing.

We would also encourage the CSNP to scrutinise the RESPs and any network reconciliation that is conducted against the RESPs (e.g. DFES for electricity DNOs and any regional gas network long-term forecasting processes undertaken by the GDNs). This will ensure any granular or strategically identified shifts in network requirements are considered.

Recommendation: The Gas Network Capability Needs Report (GNCNR) should consider FES pathways that are compliant with net zero targets, reflecting a minimum reduction in natural gas consumption of 40% by 2050.

Question 35: Do you agree with using the GNCNR methodology for CSNP system requirements analysis in gas transmission network planning? (Page 176)

The use of the existing GNCNR (which has been consulted on within the last year) is a sensible proposal and source of evidence. Alongside this, whilst a zonal approach is understandable for a centralised network planning process, sub-regional details around gas network reinforcement and shrinkage may become important at a zonal level. As with our recommendations to consider DNO upstream impacts for the electricity transmission network CSNP process, NESO should consider a way to reflect gas distribution network strategic priorities and information to feed into the CSNP.

Question 35: Do you agree with using the GOA methodology for CSNP options development in gas transmission network planning? (Page 178)

Regen has no comment regarding the methodology approach for developing CSNP options in gas transmission network planning.

Question 36: Do you agree with using the current GOA methodology for the 2027 CSNP, or should there be another consultation for the next GOA cycle? (Page 179)

Regen has no comment.

Question 37: Do you agree with using the GOA methodology for carrying out the CSNP options assessment for planning of the gas transmission network? (Page 183)

Regen has no comment.

Question 38: Are there other elements of social impact we should consider in gas network planning? (Page 187)

Regen has no comment.

Hydrogen network planning

Question 39: Do you agree that the hydrogen CSNP should follow an approach consistent with the gas and electricity transmission network planning process where possible? (Page 194)

The potential for a hydrogen network is likely to be more sporadic and disaggregated across GB. However, for whole-system visibility and consistency, hydrogen network planning processes should align with and follow similar obligations to electricity and gas network planning, in particular, concerning social and environmental impacts assessment.

Question 40: Do you agree that the modelling of initial hydrogen networks growing out of industrial clusters should be included within the CSNP? (Page 194)

Yes, Regen agrees that modelling of initial hydrogen networks should be centred around and focused on industrial clusters, and that this approach is within the scope of the CSNP.

Question 41: Do you agree that the modelling of this broader industrial view should be included within the CSNP? (Page 195)

Whilst we believe that there is yet to be any clear evidence for the need for a national hydrogen network (related to the pending decision on deprioritising hydrogen for space heating or other residential use in heat or transport), the wider approach to adapting the hydrogen infrastructure needs of the CSNP to the conclusions of the SSEP is sensible.

We are of the view that hydrogen infrastructure will likely remain focused on key industrial clusters and off-takers, and where hydrogen storage is accessible. The CSNP should be able to be adapted and updated to reflect significant or shifting policy decisions around the role and scale of hydrogen for net zero in the UK.

Question 42: Do you agree with our three-tiered approach for hydrogen network? (Page 195)

Regen has no comment.

Question 43: Do you agree with the need to limit the scope of hydrogen network planning within the CSNP primarily to projects supported under the hydrogen transport and storage business models? (Page 196)

Regen has no comment.

Question 44: Do you agree with our approach to engage further with industry on the detail of the hydrogen network planning methodology in winter 2025/2026 subsequent to further policy detail being set out? (Page 196)

Regen agrees with the approach to further engage with industry in winter 2025/2026.

Question 45: Do you agree with our treatment of hydrogen storage within the CSNP? (Page 198)

Regen agrees with the treatment of hydrogen storage within the CSNP.

Question 46: Do you agree with our proposal to use the outputs from the SSEP and the Future Energy Scenarios to model a potential national strategic hydrogen network? (Page 200)

As with the other vectors, the use of the FES pathways and SSEP analysis is sensible. We would reiterate the potential need to incorporate regional information from the RESPs and any reconciliation processes undertaken by the GDNs (and DNOs/TOs in terms of hydrogen electrolysis, hydrogen-fuelled power generation, etc).

There is a wider uncertainty range for the scale of hydrogen infrastructure development that may be required. This means that the hydrogen element of the CSNP should be adaptable to policy decisions and market activities around the development of hydrogen (still a very nascent market in the UK). There is inevitably an interlink between gas network shrinkage, blending and hydrogen network development (as well as the scale of electrification displacing hydrogen demand). Through the adoption of the SSEP pathway (and FES stress-testing process), it is important that NESO can demonstrate how the electricity, gas and hydrogen network elements of the CSNP fit together.

Question 47: Are there any other data sources or pathways that we should consider? (Page 200)

We have highlighted that the outputs from the RESPs, DFES and any equivalent long-term forecasting information from GDNs would be useful to feed into hydrogen network planning.

Question 48: Do you agree that boundary zones for hydrogen network analysis should be initially based on SSEP boundaries? (Page 203)

Regen agrees that boundary zones should be as consistent as possible across different strategic plans. Therefore, the hydrogen network analysis should be based on SSEP boundaries,

but also include more granular hydrogen industrial zones and allow these zones to cross SSEP boundaries if necessary.

Question 49: Do you have any other comments or feedback on our approach to establishing hydrogen network needs? (Page 203)

No further comments.

Question 50: Do you think there should be any restrictions on who should be able to propose options to meet hydrogen network needs? (Page 205)

Regen has no comment.

Question 51: Should NESO undertake pre-filtering of proposed hydrogen network options? (Page 205)

Yes, NESO should undertake pre-filtering of proposed hydrogen network options in a similar way to how electricity network options are filtered.

Question 52: Do you agree with our approach outlined above to establish suitable technical requirements? (Page 205)

Yes, NESO should ensure that minimum technical requirements are met to ensure the safety and operability of future hydrogen infrastructure. In particular, concerns about the risk of leakage and fugitive hydrogen emissions should be considered, and plans to mitigate and address should be outlined.

Question 53: Should we always consider new build asset options as an alternative to proposed repurposed assets? (Page 205)

Yes, the CSNP should always weigh the economic costs and benefits of repurposing old assets versus constructing new assets, alongside safety and technical considerations.

Question 54: Do you have any other comments or feedback on the approach to hydrogen network options development? (Page 205)

Regen has no further comments.

Question 55: Do you agree with our proposed decision-making framework? (Page 208)

Yes, Regen largely agrees with the high-level proposed decision-making framework. Further information around the assumptions and criteria weightings would be useful to see. Carbon impact should also be a consideration.

Question 56: Given the lack of a market framework within which to quantify the commercial impact of a network that is too small, are there other economic factors or costs that you consider we should be including in the economic assessment? (Page 209)

Regen has no comment.

Question 57: Do you have any other comments or feedback on our approach to hydrogen network options assessment?

Regen has no further comments.

Question 58: Do you agree with taking a consistent approach to environmental and community assessment to that followed for gas network planning? (Page 210)

Regen believes that environmental asset assessments should consider the different impacts of hydrogen network assets that are likely to integrate green hydrogen (via electrolysis) or blue hydrogen (via methane reformation).

Question 59: Do you have any other comments or feedback on our approach to environmental and community assessment? (Page 210)

Regen has no further comments.

Question 60: Do you have a view on how we should engage stakeholders when further developing our methodology and approach to hydrogen network planning? (Page 212)

Regen has no comment.