The voice of the energy industry

Strategic Spatial Energy Plan Draft methodology- Energy UK response

20.01.2025

Executive Summary

Energy UK is the trade association for the energy industry with over 100 members - from established FTSE 100 companies through to new, growing suppliers, generators and service providers across energy, transport, heat and technology. Our members deliver nearly 80% of the UK's power generation and over 95% of the energy supply for 28 million UK homes as well as businesses.

The sector invests £13bn annually and delivers nearly £30bn in gross value - on top of the nearly £100bn in economic activity through its supply chain and interaction with other sectors. The energy industry is key to delivering growth and plans to invest £100bn over the course of this decade in new energy sources. The energy sector supports 700,000 jobs in every corner of the country.

Energy UK plays a key role in ensuring we attract and retain a diverse workforce. In addition to our Young Energy Professionals Forum, which has over 2,000 members representing over 350 organisations, we are a founding member of TIDE, an industry-wide taskforce to tackle Inclusion and Diversity across energy.

Energy UK overall supports the proposed SSEP Methodology and its general intention to integrate economic model with spatial evaluation and optimisation.

We do urge NESO to consider a wider range of stakeholders from across economic sectors in its proposed governance structure for the SSEP.

We also stress the need for wider economic plans (most notably plans on the data centre sector) and policy workstreams to be included in the model and for clarity on how the environmental assessment will interact with existing processes led by environmental authorities, especially the Crown Estate.

Overall, the SSEP must provide clear policy recommendations aligned to its scenario outputs and hold legal weight with respect to its application to local planning.

If you would like to discuss this response in further detail with Energy UK and its members, we would welcome further engagement.

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Consultation Response

1. **Methodology - Overall, does the methodology feel appropriate and cover the requirements for the SSEP?**

Overall, the intention to create an iteratively refined model based on economic analysis, technical analysis, ensuring operability and security of supply, environmental exclusions and stakeholder input is welcome. The general structure of the approach is right-minded.

Spatial planning holds real potential to unlock needed major energy infrastructure at pace.

Energy UK welcomes the stated intentions to embed the Strategic Spatial Energy Plan (SSEP) within statutory spatial planning frameworks and to align the SSEP with leasing and development processes. However, unfortunately it is not clear how this is to be achieved and further clarity is required regarding how the SSEP will be integrated into spatial planning frameworks.

Energy UK is concerned that there appears to be a lack of a clear detailed statement of purpose, as well as any firm description or example of how the output will be visualised. Without a clear understanding of the desired aims, final output form or its function after publication it is difficult to provide an informed and meaningful assessment of the methodology.

We strongly encourage the National Energy System Operator (NESO) to clearly indicate in their methodology that they will provide specific methodology for the Government in line with their shortlisted scenarios.

There needs to be a clear delineation in terms of the handful of investment decisions that could be sensibly centrally planned as a direct outcome of the SSEP assessment, and the thousands of smaller-scale investments and operational decisions which cannot. We consider that the SSEP needs to focus mostly on the material spatial decisions around larger strategic investment, namely offshore wind energy, nuclear energy, and new Carbon Capture and Storage (CCS)/hydrogen generation investments, and the spatial feasibility of the transmission system required to meet the overall pathways. We welcome the methodology's plans for cost-optimised offshore wind allocations and believe this is an area where the SSEP can potentially add considerable value in terms of delivering a least cost system for GB. The SSEP should do its utmost to minimise overly granular and prescriptive outputs for decentralised and lower density onshore technologies, such as solar, storage and onshore wind. We appreciate an approach similar to the 'regional technology buckets' used for the *Clean Power by 2030* (CP30) plan will be needed for the SSEP.

However, going forward beyond 2030, the exact makeup of these lower capacity technologies is best left to the upcoming Regional Energy System Planners (RESPs), as long as wider national decarbonisation goals are met.

We fully recognise the need for NESO to promote an efficient, coordinated, and economic network in accordance with statutory duties, but believe this should not override the specific requirement for NESO to develop a coherent strategic spatial plan to contribute to spatial planning in accordance with the SSEP commission. We are concerned that, as drafted, the proposed methodology is overly deterministic and unlikely to produce a robust spatial plan which can be integrated into existing spatial planning frameworks as intended. As the aim is to produce a national spatial plan, we suggest that the SSEP should ultimately be driven by spatial factors and issues and not a top-down economic model.

A strategic plan for GB energy should consider the wider aims of society for its energy system. Not only the carbon intensity and costs, but also (and not limited to) energy security and resilience to a wide range of future potential events, the industrial strategy of jobs and growth to underpin it, and the levels of infrastructure intrusion on the landscape and seascape. We believe that the current SSEP methodology may lead to an outcome which misses the bigger picture of the GB economy, with impacts on its deliverability and long-term political viability.

However, going through each of the stages of the methodology in turn, key shortcomings emerge:

- Foundations: As described in our answer to question 2, the governance structure proposed by NESO for the SSEP lacks representation from engineering experts and representatives from wider industry beyond the energy sector. It is insufficient to simply engage with these groups through forums. A more integrated approach to the broader economic implications of energy system planning is needed now.

  Further, whilst the approach to spatial exclusion through integration of the SEA and HRA along with marine modelling is welcome and we support strategic-plan level assessments, clarity is needed on how these assessments will meaningfully interact with EIAs and other environmental assessments on the ground for individual projects, most notably marine assessment by the Crown Estate.

  Finally, while the consideration of other key energy workstreams is welcome, including the Review of Electricity Market Arrangements (REMA), RESPs, connections reform, other spatial plans and the reform of the planning system, there are a number of other plans the SSEP must

account for. These include the Industrial Strategy, the Industrial Decarbonisation Strategy, reform of network charging, the strategic plans of other infrastructure vectors, and other emerging spatial energy plans like the Heat Network Zoning. It is also insufficient for the SSEP methodology to simply model the optimal energy system under a national pricing scenario while encouraging the Government to model the market zones on the SSEP economic zones should it pursue zonal pricing. The SSEP must instead model an optimised system based on both national and zonal pricing. This is a key uncertainty that the SSEP must account for given the substantial impact it may have on future investment decisions.

- Prepare: On the range of technologies being considered at the outset of the methodology, as described in our answer to question 7, it is disappointing to see that offshore hybrid generation and non-standard interconnectors are not technologies being considered in the model. These are assets that will doubtlessly form part of GB's energy system in the near term and must be accounted for.

  Generally, there is a need to consider sites in in conjunction with local demand needs, including co-locating demand with supply.

  There is also the question regarding the zonal approach to modelling the energy system at the preparation stage. The SSEP Methodology proposes 17 economic land zones. At the same time the Clean Power by 2030 (CP30) plan outlines 11 transmission zones and 8 distribution zones for the energy mix required for a decarbonised power system by that time which, in turn, will inform the connections queue. This is in addition to the 10 proposed Regional Energy System Plans (RESPs) across GB. How the regional modelling of the future energy system interacts with regional plans and the formation of which projects can connect when needs serious thought and clarification from the NESO.

  Indeed, some members are concerned that the proposed use of electricity transmission boundaries to define terrestrial zones to underpin SSEP development and economic modelling is misaligned with existing spatial planning areas. This presents difficulties for integrating the SSEP into existing planning frameworks and risks the SSEP inadvertently becoming dominated by transmission considerations, which would fail to deliver on the aim of the SSEP being focused on electricity generation and storage.

On the policy scenarios, we encourage the NESO to consider policy scenarios relevant to the energy system that exist outside the energy system, namely the AI Opportunities Action Plan, the Industrial Strategy and the Industrial Decarbonisation Strategy. Getting this right at the outset is essential for the for the PLEXOS model, designed to optimise system cost against other variables, is essential. Indeed, we are concerned that, if the SSEP does not consider wider economic and energy security impacts and objectives at the outset, it may lead to an outcome which misses the bigger picture of the GB economy, with impacts on its deliverability and long-term political viability.

On the considerations for deliverability, labour availability should form a factor for consideration among the already listed variables.

As noted in our answer to question 6, the Government must consider the development of Artificial Intelligence (AI) technology and subsequently its energy demand as a variable in its model, not merely the policy environment for AI.

We are disappointed that the SSEP model will not consider national pricing and zonal pricing as separate variables to model the future of the system from the outset. Given the essential need to harmonise the shift to strategic planning with the, still yet unknown, outcome of the Review of electricity Market Arrangements (REMA) and the significant impact of zonal pricing on investment decisions, we believe there is an essential need to include it as a sensitivity in the model at the outset and not pending the Government's decision on the matter as per section 2.8.3.

As noted in our answer to question 7, further clarity is needed on how demand will be modelled in external countries. This includes the treatment of hybrid assets and non-standard interconnectors, differing bidding zones in European markets, and the Carbin Border Adjustment Mechanism (CBAM) charges on electricity.

Regarding the security of supply, page 63 mentions including 'multiple' weather years data in the modelling. More clarity would be good here – wind supply can vary over time scales of decades and the Royal Society Report on LDES which used weather data over 37 years highlighted that 'studies based on less than several decades of weather data are liable to very seriously underestimate the need for storage'.

It also appears that the SSEP methodology regards DSR as 'spatially agnostic'. We note that this is not yet clear. Whilst 'demand turn down' should be widely available as it is not limited by network constraints, 'turn up' could be limited especially at distribution level by network constraints. Similarly, there will be geographical impact if either a localised market signal (DNO or constraint market) encourages higher take-up in an area, or if there is a high ability to respond in a certain area (perhaps due to high concentration of smart devices both from domestic and non-domestic consumers).

With respect to the Strategic Environmental Assessment (SEA and Habitats Regulatory Assessment (HRA), while we overall support the approach, NESO must think carefully about how these two processes and their impact on the spatial evaluation will meaningfully interact with Environmental Impact Assessments (EIAs), marine assessments by the Crown Estate and other environmental evaluations on the ground on a project-by-project basis. While the exercise may be useful for the SSEP itself, to meaningfully inform policymakers it must reflect the day-to-day approach to environmental assessment for energy projects.

- Model: As detailed in our answer to question 8, on the approach to spatial evaluation, while we overall agree with the philosophy of the approach, we caution that the multi-criteria analysis approach may not be compatible with the approach to spatial evaluation taken by national and local policymakers as well as the market and it is unclear how they will interact with the need for 'market-friendly' system optimisation.

  Some members have particular concerns regarding the proposed approach to consider and plan for future offshore wind deployment. It is not appropriate to attempt to spatially optimise future offshore wind deployment in planning through the lens of onshore transmission limitations and terrestrial zones. Considering offshore wind as being within terrestrial zones risks prioritising transmission assets over offshore wind viability, artificially limiting its potential or separating rather than integrating the planning of offshore wind and associated grid terrestrial grid connections.

  If a zoning approach is used to underpin the SSEP, this should apply equally across terrestrial and marine environments in order to provide parity between onshore and offshore deployment. Offshore zones could be devised based on existing marine plan boundaries.

There is a need for clarity on how the stakeholder impact will influence the development of the scoring system and a need for a wider range of factors be considered in spatial evaluation, such as regional and local plans.

Energy UK is also concerned at the proposal to adopt a radial-only approach to the planning of future offshore wind connections for the purposes of developing the SSEP and later seek to retrofit a co-ordinated network design through centralised strategic network planning (CSNP) and project-level consenting processes. This would fail to learn key lessons from the recent experience of developing grid connection proposals for ScotWind projects through the Holistic Network Design, where a change from radial to co-ordination network designs mid-way through planning processes has generated significant delays and additional complexities.

- Appraise: It is at this stage that the implications of the SEA and the HRA on the practicals of EIAs and other environmental consents needs consideration. The consideration of alternatives against the SEA is reasonable. However, this stage should also consider ongoing acts to national legislation, like the upcoming Planning and Infrastructure Bill or changes to the National Planning Policy Frameworks (NPPFs) and how that might affect the appropriateness of each given SSEP scenario.

  There is need for clarity on SSEP's status in the planning process and decision making at this stage, as this is currently unclear to industry. This is especially the case regarding the SSEP's legal status. It is very important there is clear guidance on how the SSEP will interact with planning frameworks. And it is critical that planning authorities and local governments are actively involved in its development at this stage to avoid any conflicts down the line.

- Consult: As stated in our answer to question 2, consultation at this stage of the methodology requires a broader set of representatives from non-energy sectors as part of the expert advisory groups.

  There is also a need for clarity on the meaningful expected impacts stakeholder feedback at this stage will have on the output. This section of the methodology appears as somewhat of an afterthought compared to the rest of the methodology. NESO must think proactively about the impact feedback is expected to have on the SSEP. Without this, stakeholder will be

left, as they have been so often, feeling like their voice has either been unheard or ignored.

The first consultation on the SSEP comes only after the Secretary of State (SoS) has selected a single pathway. The development, selection and presentation of the earlier pathway options is arguably the key decision to be made by the NESO, and we consider the NESO's approach is insufficient if there are genuine concerns with the modelling outcomes. We would welcome a revised approach from the NESO to engagement and consultation before SoS selection that allows for genuine industry scrutiny of the pathways, presentation approach, and NESO's view on the underlying trade-offs.

We also welcome the use of AI to handle stakeholder feedback, clarity is needed on exactly what kind of feedback AI is intended to be used for. It would not be appropriate for AI to be used for some of the engineering assessments vital for security of supply, for instance. Guardrails are also needed to ensure hallucinations to not distort or oversimplify stakeholder feedback.

- Refine: As stated previously, a more holistic approach to which stakeholders are involved in the SSEP design process and what input they have is needed. Further, as also previously stated, a more exact expected outcome from stakeholder feedback needs upfront consideration now.

- Publish: As per our answer to question 7, we encourage NESO to consider mediums of publication and access to the SSEP that are harmonised with the emerging publicity campaign for national energy infrastructure. There is a keen need for consumer with little direct knowledge of energy policy to feel like policymakers are actively involving them and not going over their heads.

2. Stakeholder engagement - Do you agree with how we are engaging stakeholders and wider society throughout the development of the plan?

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scrutiny of the pathways, presentation approach, and NESO's view on the underlying trade-offs.

Energy industry groups should also be engaged in SEA Scoping given that this will consider the approach to assessment of effects on material assets and set a framework to inform subsequent plan development, especially with regard to the consideration of spatial and environmental issues.

There is a serious lack of engineers from the energy industry in the proposed governance structure. The only opportunity for many in the energy industry to engage with the SSEP is through industry associations, and that is just not sufficient. There are a lot of industry (i.e developer) insight that can be used in technical, engineering design, planning.

Equally importantly, representatives from wider economic sectors are not represented in the governance structure. This includes large energy demand manufacturers, other utilities sectors, potential battery gigafactory developers, logistics companies looking to develop charging hubs, port authorities, housing construction companies, airports and those looking to develop data centres (apparently a key uncertainty in NESO's model and yet seemingly unrepresented).

The currently proposed approach proposes to use a survey of roughly 9,000 people, focus groups, engagement campaigns as well as direct engagement with interest groups political representatives and representatives from the host areas. However, how this engagement will exactly impact the spatial evaluation remains unclear. There is a need for clarity on how the individual concerns of differing stakeholders will be ranked against each other when considering a zone for exclusion in the model. While we recognise this is an inherently political question beyond the official remit of NESO it nonetheless needs engaging with.

There is also a need for further nuance with the interest groups identified. For instance, large energy users should be split into groups covering data centres, steel plants, water drainage pumps, CCUS clusters and so on. All of these large energy users have differing operating models, policy priorities, and business plans that are not all aligned with the energy sectors' understanding of the system.

Thorough consideration is needed for the interactions between different iterations of the SSEP. A detailed plan must be developed to address how projects adversely affected by changes between SSEP iterations will be managed. This plan should outline the steps and measures to mitigate any negative impacts on ongoing or planned projects due to these changes.

3. **Environment - Do you agree with our environmental approach, including how we have integrated SEA and HRA into the SSEP?**

We agree with the approach for SEA and HRA. However, much of the detail is likely to arrive in future consultation, so while we agree with the detail on integration of SEA and HRA into the SSEP as it currently stands, further information is needed for us to provide a meaningful view.

We support the extensive environmental considerations in the SSEP methodology. However, there are concerns about a risk of hindrances to development and increased costs due to the proposed environmental approach. There is need to ensure the environmental approach does not result in an overly precautionary and inflexible approach to development.

Environmental analysis should focus on constraints, opportunities and impacts, rather than merely providing a points-based trade-off between the relative sustainability merits of different pathway options or scenarios. The environmental analysis and accompanying impact assessments should together result in the identification of clear assessment conclusions and plan-level mitigation recommendations.

It will be vital to scope and undertake the SEA carefully to ensure that it adds value to the plan development process and resulting outputs, rather than merely seeking to comply with minimum statutory requirements. In this regard, the framing of SEA articulated in Section 2.6.2 should be expanded to reflect the need for SEA to test and refine emerging plan components as well as to address identified likely significant effects through developing plan-level mitigation recommendations. The SEA should have a broad scope and focus on impact assessment and acceptability, rather than comparing relative impacts between potential pathways.

It is important that potential impacts (including cumulative) on communities hosting clusters of major energy infrastructure are considered from the outset and that the process to develop the SSEP is fully transparent.

There is also a need of clarity on how the SEA and HRA will work alongside planned alignment with devolved authorities and the MMO's Marine Plans as well as the Crown Estate itself and EIAs on the ground. There needs to be an emphasis on the need for alignment with wider policies, onshore planning processes, and local plans. Another risk is overlap between NESOs SEA/HRA and those undertaken by the Crown Estate. Clarity is required regarding the difference between the SSEP, and work being undertaken by the Crown Estate and how they are aligning.

It is essential for the SEA of the SSEP to include transparent identification and assessment of all reasonable alternative connection options, meaningful developer and stakeholder engagement throughout and clear demonstration that all proposals within the SSEP are likely to be acceptable in planning, environmental and amenity terms.

As SEAs are based on many of the same principles of EIAs, there is a risk of some of the inefficiencies that can found in that framework, such as highly individualised data collection and wide parameters. As with other parts of the consenting system, resource is a key barrier, and reviewing options for efficiency whilst maintaining the high-level principles for SEAs should be an area of focus.

Environmental consenting more generally is due to be reviewed in the UK planning system, with likely knock on effects for the SSEP. Therefore, we would strongly advise being able to keep any proposals under the SSEP flexible for these changes, being able to adjust parameters. It is likely more changes will be outlined in the Planning and Infrastructure Bill as it is introduced in 2025. Joining up policy between the crafting of the draft SSEP and the planned reforms will save valuable time, so we encourage cross-policy working where possible.

We agree with the proposed statutory consultees. Ensuring these consultees have adequate availability and resourcing for the timeframes of the SEAs at an early date can give additional stability to this process.

While covered in the SEA and HRA process, we would emphasise a particular focus on water abstraction and availability. This will be an especially critical factor for Clean Power by 2030, as low-carbon dispatchable power such as hydrogen and CCUS are large abstractors of water, which need constant access to water to run and could have an effect on water availability in their local area. Further breakdown of strategic water use in the energy sector elsewhere in NESO would be valuable data for the SSEP.

On climate change impacts, it is essential that the SSEP works alongside existing climate change adaptation policy. Understanding of impacts should be based on the National Adaptation Plan framework, and the regimes of the devolved nations.

4. **Other plans or policies - Are there any other plans or policies we should consider that could potentially interact with the SSEP?**

We believe the following plans need active consideration within the SSEP. Although we recognise that addressing many of these aspects may fall outside NESO's primary remit, it is crucial to distinguish between economic modelling and energy modelling. This distinction highlights the plan's shortcomings as an economic modelling paper, underscoring the need for a more comprehensive approach that integrates broader economic considerations:

- NPPFs – we note that the reference to and consideration of the NPPF requires to be updated as a new NPPF was published in December 2024. The new

NPPF now provides an entirely new policy framework in respect of energy planning and consenting.

- Environmental plans that are ongoing – including the Marine Management Organisation's (MMO's) Marine Plan Policies, the Crown Estate's Whole of Seabed Approach
- Devolved administration's existing and emerging climate change plans – energy strategies published at both UK and Devolved Administration levels appear to be missing from those identified and should be included.
- RESPs – in that they will be collating demand in each area eg new housing development, an activity performed by the tRESPs in the interim period.
- REMA – it is disappointing that NESO have stated that the differing scenarios for the SSEP will only consider national pricing Given the period of the SSEP is expected to cover the period from 2030 to 2050, and the keen focus on achieving a cost-effective energy transition, it is essential that such a large policy area be considered as part of the differing policy scenarios. This is a key policy area that the energy sector needs direction on imminently in order to improve much needed business confidence.
- The Long Duration Energy Storage (LDES) cap and floor scheme administered by Ofgem - the applications which open Q1 2025 will be assessed based on the system benefits as established by the SSEP. There is a need for clarity on harmonising these two processes given the overlap in timings.
- Heat Network zoning – Optimising the location of network build alongside emerging heat network zoning is essential for the SSEP considering that they are expected to make up 20% of heat demand by 2050. Their use cannot be out of scope of the demand modelling or spatial optimisation modelling.
- Industrial Strategy and industrial decarbonisation strategy – the availability of timely grid connection for new sites and existing sites electrifying heat or transport will be vital for economic growth and to maintain competitiveness of existing industrial and commercial sectors. The currently agnostic approach to optimising energy plans with emerging wider economic plans is a state of affairs that will not be able to continue if the UK is to remain internationally competitive. Within the spatial evaluation model, the 'pull' element should consider opportunities for the co-optimisation of energy infrastructure with other industries.
- AI Action Plan – The recent publication outlining the UK's emerging AI strategy needs to consider the spatial element of data centre placement in GB. The SSEP must integrate its spatial evaluation with emerging policy on the potential creation of spatial designations for data centre development.
- Local economic and housing plans – it is disappointing that NESO have stated that many existing local plans, including LAEPs will not be used in the spatial

evaluation criteria. Such considerations are essential for the effectiveness of the SSEP and achieving the local buy in of stakeholders.

- The plans of other infrastructure vectors – it is welcome to see a wide range of factors being considered in the spatial evaluation model. Care must be taken to ensure that all the plans of other infrastructure vector, including road, rail, telecommunications, and water are considered in the model. Further, opportunities for co-optimisation of energy infrastructure with other infrastructure should be built into the spatial evaluation model.

5. Economic modelling - Do you agree with our economic modelling approach?

Broadly, using an established energy system model is sensible. As with any modelling exercise, the quality of the outputs will only ever be as good as the quality of the inputs.

However, considering this is an "economic model" there is relatively little detail on how it will model the economy. Given the importance of population and economic growth to energy demand, this should be considered more fully. Where possible, input from the ONS, OBR and other economic forecasters should be included.

Further, the implication from Figure 14 is that there is a single set of "economic inputs" from which different scenarios are derived based on policy decisions. It should, however, be emphasised the degree to which there is uncertainty around those economic inputs. This is true both of the costs of technology as they develop, but also to core inputs such as the cost of capital and commodity prices. The potential for different economic scenarios and/or sensitivities should be explored.

Some previous NESO analysis – such as that accompanying Clean Power 2030 – illustrates that merely because an input is published by DESNZ does not mean that there is no discretion or bias on the behalf of NESO in choosing how to interpret it or choose between scenarios.

The technical engineering design requirements considered within the economic modelling appear to focus on minimum viability constraints rather than optimising generation performance. This would not result in spatially optimised locations being selected per technology and is at odds with the stated intention for the SSEP to be generation-led, with transmission viewed as an enabler.

We are concerned that the proposed methodology appears to be imbalanced towards economic modelling based on transmission derived considerations. This section is twice as long as others and imposes rigid parameters on what decisions the SSEP can make. Environmental and spatial aspects appear to be reduced to being inputs to the economic model rather than equal pillars of the SSEP

methodology. It is essential that societal and environmental inputs are not relegated to merely having the status of model inputs and are instead a equal and fundamental component.

6. Data centres – Out of the options A, B, and C, set out in section 3.4.5, which option do you feel is best for the SSEP?

We welcome consideration of the impacts of new data centres in the modelling. While we appreciate that AI presents a novel uncertainty in the demand modelling, there are also a range of uncertainties that need an equal degree of consideration, including domestic electricity demand. As well as data centres it will be important to factor in other key demand drivers such as industrial electrification.

Another key uncertainty regarding the projection of data centre demand and location is the potential impact of zonal pricing, should it be pursued by the Government. As stated in our answers to questions 1 and 4, it is for reasons like this that including a potential move to zonal pricing in the policy scenarios is essential for the SSEP.

The implication of section 3.4.5 is that policy uncertainty is the only cause of uncertainty about the growth and location of data centres. Conversely, uncertainty in the development of computing technology is likely to be a larger driver. Given the transformational nature of the technology, humility is required on behalf of UK policymakers about what is and is not in their gift. More regular reviews than 3 yearly might be required given the fast evolution of the sector.

The key drivers for the location of most data centres will be customer demand and ease of delivery (access to optical fibre networks, water supply, ability to get planning approval and a timely electricity network connection which can vary significantly between DNOs). It will therefore be aligned with areas with significant economic activity and growth i.e. city centres and will be fastest where the enabling infrastructure is readily available.

The SSEP should be aligned with broader Government AI strategy which should consider how best to manage the energy sector impacts of different data centre growth both in terms of peak demand, and regional impacts including impacts on distribution and transmission level constraints. The AI strategy needs to guide the location of key development zones. For example, the strategy must account for data centres servicing AI language models that can be located anywhere regardless of end users or other data centres that need to be close to end users as well as data centres that can be more flexibly located. It also must account for data centres that simply need cheap, reliable access to electricity at all times compared to those that can flexibly use energy. As well as defining the key zones for large data centre

develop, the strategy should consider minimum energy and sustainability requirements on all new data centres.

It is worth noting that colocation of data centres with low carbon energy sources offers a number of benefits including easing stress on network. Many developers are already in talks with data centre developers regarding these collocating arrangements. This must be another consideration within the SSEP. It is recommended NESO engages with low carbon energy developers as well as data centres developers to gain more insight on arrangements being explored and consider accordingly in the modelling exercise.

Given the scale of uncertainty over both the future energy demands and location of data centres (even if some areas are incentivised for large data centre development), Option A of conducting sensitivity testing without optimisation of data centre location may be most appropriate.

7. **Modelling external markets - Do you have any views on how we should model external markets? Please provide any views in relation to section 3.4.11 and appendix 6.2.**

A number of issues require further clarification, including:

- Demand in third countries would be modelled by NESO as part of the price modelling.
- Clarification of how offshore hybrid assets and non-standard interconnectors would be treated, including how any associated offshore bidding zone would be incorporated into the model.
- Modelling only neighbouring countries may lead to modelling inefficiencies given market coupling algorithms e.g. Euphemia for SDAC are applied across the EU market.
- The model's treatment of bidding zones, and changes to bidding zones, in the EU.
- Modelling EU CBAM charges on electricity will also be important in any model. These will change weekly depending on the carbon price differential in the UK and EU and will impact flows from GB to the IEM.

8. **Spatial evaluation - Do you agree with our spatial evaluation approach?**

We welcome the inclusion of a spatial pillar within the proposed methodology, which would be fundamental to the development of any coherent spatial plan. However, we

are concerned that the approach to spatial exclusions, filtering and analysis is limited to very high-level treatment and would highlight that the deliverability of projects is significantly more complex than only considering the minimum size and shape of a spatial footprint. It is also important that criteria to evaluate spatial suitability are objective and allow for impacts to be identified and assessed, rather than only making relative comparisons between options.

We are concerned that the proposed methodology is overly deterministic and risks producing an economic output which is neither fundamentally strategic nor spatial in nature. As proposed, the methodology risks simply producing a limited set of possible forecasts of regionally disaggregated energy demand and supply based on a modelled set of assumptions, rather than a national strategic plan which could readily be integrated into spatial planning frameworks or provide a strategic direction to influence the siting and deployment of infrastructure.

It would also be useful have understand more about the outputs and how 'market-friendly' these will be. For example, if an area/ sub-area if assessed as 'constrained', what further characteristics about this will it indicate - likely frequency, duration, related system needs etc voltage. The more info NESO can provide, the more developers can design the right projects at the right scale for the right locations.

While we overall agree with the philosophy of the approach, we caution that the multi-criteria analysis approach, centred on 'pull' and 'push' factors for an area's suitability for given energy technologies, may not be compatible with the approach to spatial evaluation taken by national and local policymakers as well as the market. These parties do not evaluate regions through this variable 'push' and 'pull' lens necessarily, but rather on the basis of more binary questions. To be clear, Energy UK agrees that it is important to measure the relative suitability of sites. However, industry requires further information on how such suitability measures will be translated into their decision-making process which is somewhat differently structured.

There is a need for clarity on how the stakeholder impact will influence the development of the scoring system for spatial evaluation, including the potential weighting of scores.

It is also disappointing to see that both regional and local plans, whether energy related or not, are not considered in the evidence base for the spatial evaluation. This is a serious shortcoming that risks the SSEP not matching other national and local economic plans.

Indeed, there appears to be a potential contradiction in the approach to local planning. This is because the SSEP will inform the RESPs, which in turn will be informed by local plans, including the Local Area Energy Plans (LAEPS). However,

the RESPs and LAEPs will be unable to influence the spatial evaluation at the outset due to either their immaturity or heterogeneously developed nature respectively.

9. **Accessibility - We continually look at ways to present information in a more accessible and engaging way. Is there anything we can do to make our future publications more accessible and interactive?**

The decision on how the SSEP is visualised will also have major implications on how the SSEP is used, particularly if it is included within the planning balance. Energy UK therefore recommends that NESO clarify the intended function of the SSEP and further consults with industry on a range of visualisation options that it is considering.

We note that the work on a public engagement campaign on energy infrastructure, headed by NESO, is progressing.

We urge the NESO to harmonise the various outputs from the SSEP with this engagement campaign once finalised. There is a need for consumers to feel part of the wider SSEP and to feel like they are being brought on the journey to a clean energy system and understand how it will affect them in their localities. This is essential for obtaining the support of the wider public.

There is a need for this engagement and involvement with the SSEP to be frank and honest in an intelligible ay to consumer while also making clear the benefits to them.