

Consultation: Strategy and Policy Statement for Energy Policy in Great Britain May 2023

Response from the National Engineering Policy Centre

August 2023

This response

This response has been produced by the National Engineering Policy Centre (NEPC). The NEPC brings engineering thinking to the heart of policymaking, creating positive impacts for society. The NEPC is a partnership led by the Royal Academy of Engineering between 42 professional engineering organisations that cover the breadth and depth of our profession. Together we provide insights, advice and practical policy recommendations on complex national and global challenges.

This response draws from the NEPC's existing programme of policy work on decarbonising the electricity system, with expert input from the NEPC Net Zero Grid Working Group, which is chaired by Dr Simon Harrison and includes representatives from the Energy Institute (EI), the Institution of Engineering and Technology (IET), the Institution of Civil Engineers (ICE) and the Institution of Mechanical Engineers (IMechE) as well as the Energy Systems Catapult. The Academy has closely worked with these NEPC partners in the review and approval of this response on behalf of the NEPC.

Structure of the response

We have provided a general comment on the Strategy and Policy Statement for Energy Policy in Great Britain, followed by answers to the three questions posed in the consultation.

Further information and support

The NEPC would be very happy to work with the review team to provide follow-up engagement for further exploration of any of the areas outlined in this response.

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General comment

1. As the first time that a Secretary of State has designated a strategy and policy statement for energy policy in Great Britain, this step is welcome. However, it is important that the statement aligns with the wider policy landscape, including for example the Climate Change Committee's Carbon Budgets. As the consultation document states, both Ofgem and the Future System Operator (FSO) are vital in delivering government's strategic priorities for the energy sector and now is the time to recognise both the considerable urgency of the establishment of the FSO and the need to develop key capabilities within both Ofgem and the FSO. This needs to be accompanied by the development of governance and other arrangements to ensure effective working and decision making across government, Ofgem and the FSO. As the energy landscape changes at pace and is characterised by uncertainty, the SPS needs to be able to adapt and evolve to ensure that it remains relevant. These latter challenges form a key focus of this response, as set out below.

Response to the specific questions

- 1. Does the strategy and policy statement identify the most important strategic priorities and policy outcomes for government in formulating policy for the energy sector in Great Britain? If not, please provide details of the priorities that you think should be included.**
2. The Strategy and Policy Statement (SPS)¹ sets out the following strategic priorities:
 - Enabling Clean Energy and Net Zero Infrastructure
 - Ensuring Energy Security and Protecting Consumers
 - Ensuring the Energy System is fit for the Future
3. The strategic priorities cover the main ambitions of the UK's aims for net zero emissions by 2050 as outlined in previous policy statements for low-carbon energy. However high-level targets and ambitions must be supported by specific commitments, schemes, and the milestones and roles for decision-making to achieve them. Hence, we encourage DESNZ to articulate the above in a more coherent way. The SPS lays out the policy statements and priorities but fails to detail the delivery strategies necessary to achieve the targets. This makes it difficult to see how Ofgem and the future FSO could use the SPS to guide decision making and how it will affect their decisions and accountability. There is also a gap around systems thinking in the SPS, as distinct from lists of piecemeal intervention solutions.
4. In addition, some gaps exist in the strategic priorities and policy outcomes stated in the consultation document, these cover the following areas:
 - **Retail market reform:** The SPS should be more specific about the government's plans for retail markets reforms and their potential impact on customers' interaction with the system.
 - **Resilience, reliability and security of supply:** While the consultation document includes "Security and resilience of the gas and electricity systems against the full range of threats and hazards facing the power sector now and in the future" as a policy outcome, there is a need to focus more on what resilience entails in a vastly different electricity system. As we move away from carbon intense energy sources, where storage is inherent in the fuel itself, our understanding of resilience needs to adapt. Decarbonising the electricity system will require largescale build and retrofit of infrastructure, from renewable generation capacity to grid reinforcements. This is an opportunity for investment and economic growth, to progress the levelling-up agenda

and, crucially, to embed climate resilience alongside decarbonisation and economic renewal. However, without due attention to climate adaptation and the resilience of new and existing energy infrastructure, security of supply will remain at risk. Climate adaptation and resilience are not prominent enough in the priorities and outcomes stated in the consultation document. The SPS needs to include risks of and response to unexpected climate or geopolitical events, especially given the lighter, more asynchronous distributed system to which we are moving.

- **Skills and critical capabilities:** Decarbonisation of the energy system at the necessary pace will require a range of skills and capabilities within regulatory and delivery bodies and within industry and supply chains. Constraints on the availability of skills and supply chains risk being a significant drag on infrastructure roll out. Despite this there is no reference to skills within the consultation document and the only reference to supply chains is in reference to one of many things which Ofgem will need to balance in their promotion of competition. Consideration should be given to how the SPS could be further used to drive the generation of the skills and supply chains that will be needed.
- **Transitioning oil and gas:** While transitioning to a decarbonised electricity grid by 2035, there will be a continued reliance on oil and gas for the coming decade. The oil and gas sector also consists of a talented workforce that needs to transition. This transitioning of oil and gas needs to be dealt with explicitly, to ensure it is used in the most efficient way in the interim period.
- **Strategic decommissioning of assets:** The consultation document does not answer the critical question of the future of high carbon assets, such as the gas grid. While it may be unrealistic for the SPS to set out decisions on this, it would benefit from recognising that government will need to decide about these assets. Among other things, this is important because of the way price controls and mechanisms like the iron mains gas replacement scheme works since Ofgem does not have the mandate to decide on the future of the gas networks.
- **Establishing a suitable digital infrastructure:** As the electricity system is becoming increasingly digitalised, there is a need to consider the co-dependence between electricity and telecommunication systems. If digitalisation is to be an enabler, there is a need to ensure the interoperability of data, common data standards and information flow. Ensuring effective information flows across interconnected systems will be an essential enabler of an effective transition. At the same time, through the digitalisation of the energy system, the underlying telecommunication systems can become a substantial risk for energy security. There is therefore a need to also address cyber security, digital exclusion, and the risks of digital monopolies, through appropriate principles, regulatory structures, and infrastructure.
- **Dependence on other sectors:** In addition to the increasingly critical co-dependence with telecommunication systems, one crucial element of the ongoing energy transition is the increased interaction and dependence with other sectors. These include, but are not limited to, heating, water, land use, the built environment, transportation, and industry. Sectors which have particularly strong relationships with the energy system need to be acknowledged and processes developed to manage these dependencies. This will require collaboration between relevant regulators and government departments as well as processes for the FSO to engage with non-energy sectors.

- **Energy efficiency:** The consultation refers to energy efficiency in seven places, but does not specify commitments, relevant policies, or targets. Improved energy efficiency could contribute to achieving many of the objectives in a manner that is both cheaper and easier. For example, reducing the overall energy demand is likely to reduce or limit peak power demand, and the need for network infrastructure, as well as environmental impacts. Relying only on market forces to stimulate energy demand reduction assumes a level of sophistication in the market and its representation of externalities that is not realistic. The past ten years have seen a disappointing record of energy efficiency in buildings, partly as a result of neglect or poorly designed policies in this area: including a series of home insulation initiatives which under delivered (2013's Green Deal or 2020's Green Home Grant), delays to the market-wide smart meter rollout, and sluggish take up of heat pumps.
- **Flexible demand:** While the consultation document makes some mention of flexible demand, it fails to recognise its importance in the overall transition. Similar to the potential for energy efficiency, a more flexible demand will allow the system to transition in a cheaper, quicker and more efficient manner. Flexible demand is critical when it comes to smart charging and smart heating, but also for the growing industrial electricity demand.
- **Nuclear:** The consultation document states that, with the Regulated Asset Base (RAB) licence, nuclear companies will be entitled to "a regulated revenue channel in exchange for the design, construction, commissioning, and operation of the nuclear project, funded in part by levies on all licensed electricity suppliers in Great Britain (who will presumably pass those costs to their consumers)." It is generally accepted that, where government policies require levies to be collected through customer bills, suppliers will indeed pass on those levies. It is disingenuous to pretend there is a genuine choice about this and therefore it is advised to reconsider wording and describe the procedure with full transparency.
- **Supply chains:** Supply chains are only mentioned in passing in the consultation document but are in fact a crucial component of the energy transition. Supply chains are critical when it comes to procuring and building the infrastructure needed but could also be an opportunity domestically and for exports. Considering other countries' simultaneous endeavours to decarbonise their energy systems, both the risk and the opportunity are further increased. Failing to recognise this at strategic level could lead to insufficient supply chains, hindering the necessary build throughout the energy sector as well as increasing costs.
- **Citizens:** While the consultation document rightly goes into some detail about the new role of consumers in the energy transition, it fails to explicitly address citizens and communities. The enormous expansion of energy production, transmission and distribution infrastructure necessary to reach net zero will only be possible if there is some support or acceptance from communities. This needs to be addressed both for planning purposes, ensuring that communities understand and are properly reimbursed for infrastructure they host that does not directly benefit them, as well as connecting this reality to the goals of the net zero transition and why it is being pursued.

Not all of the above sit fully in the purview of either DESNZ, Ofgem or the FSO, however they are nonetheless critical aspects of system decarbonisation at the pace required and of achieving this alongside the maintenance of reliability and

affordability as well as achieving a just transition. This highlights the need for cross-government collaboration and coordination to enable specific commitments, across DEFRA, DSIT, DLUHC, DfT, DfE, HMT as well as DESNZ, FSO [Independent System Operator and Planner (ISOP) in legislation], the National Grid ESO, the National Infrastructure Commission, the Climate Change Committee, Ofgem, and other relevant regulators such as Ofcom. The range of responsibilities must be specified with clear mechanisms for coordination of areas of mutual interest and responsibility and for addressing competing priorities and making decisions on complex, multi-faceted trade-offs.

II. Does the strategy and policy statement effectively set out the role of Ofgem in supporting government to deliver its priorities? If not, please identify where these expectations could be made clearer.

5. If, as the draft SPS states, Ofgem must publish a document setting out its strategy for delivering policy outcomes, the SPS needs to clarify how it intends for the role of Ofgem to evolve from a downstream electricity regulator for gas and electricity, to one that has the remit to deliver much broader government policies on energy. This should specify not just the duty to regulate gas and electricity retailers but its role in a decarbonised electricity system with multiple energy vectors feeding into supply and with significantly more distributed sources of generation, including more localised forms of retailers and the emergence of hybrid consumer-suppliers (so-called 'prosumers'). This, in addition, raises the question of whether Ofgem remains an economic regulator or evolves into a delivery organisation for policy outcomes, of which economic regulation is just a part.
6. In support of the broader evolution of Ofgem's role, we reiterate the main recommendations of our NEPC partner, the Institution of Engineering and Technology's (IET) response to the Consultation on the future of local energy institutions and governance (June 2022)² and how government and Ofgem need to consider Ofgem's future role:
 - The energy system needs to change profoundly if it is to decarbonise affordably while remaining resilient and secure.
 - While energy infrastructure for heat and transport is of national strategic importance, its development will take place largely at a local/regional level, and hence this will also be a function of local energy planning.
 - Local or regional approaches can respond to users' needs and make best use of available resources.
 - Though Ofgem's remit does not currently extend across the wider agenda of social goals and co-benefits of healthy societies, such as inclusive growth, great care should be taken not to limit the transformational change opportunities that a more local, digitalised, integrated energy system can bring.
 - Local area energy planning provides an opportunity to establish regional whole systems strategies, including energy, water, digital and transport, with a focus on place-based needs and opportunities that would appear opaque from a central planning perspective.
 - Legislation should be framed to be flexible to allow further change beyond that envisaged currently.
 - Critical to local area energy planning capability will be development of an organisational culture which embraces inclusivity and agility in decision-making.
 - Key to success will be a fit-for-purpose governance framework and operating environment.
 - Also critical to success will be development of local area energy planning (LAEP) capability, using compatible methods and tools to ensure quality and consistency

of decision making, not only within local authorities but also across the energy community. However, funding for Local Area Energy Planning (LAEP) is a potentially serious challenge.

- Effective implementation of an effective local energy plan will depend on identification of individual, sometimes niche, opportunities at a much more granular level and aggregating these to a regional level.

7. The role of Ofgem will evolve in multiple ways, especially if the FSO will report to it. Therefore, it is crucial that government is clear on the priorities of Ofgem, particularly distinguishing between those which are in Ofgem's control and those it can influence, and how the delivery of these priorities will be measured and enforced.

III. Given the Future System Operator does not exist yet but will need to have regard to the strategy and policy statement once it does, do you consider that we have effectively reflected the Future System Operator's role in this document? If not, please identify where these expectations could be made clearer.

8. We welcome the development and establishment of the Future System Operator and the evolution of Ofgem, to enable the decarbonisation of the electricity system, but further clarity is required on the responsibilities of the FSO. We encourage the design of the Future System Operator to encompass the role of a systems architect, so that it can engage in planning for and delivering a decarbonised energy system. For effective delivery and planning, the FSO will need to be sufficiently different from the current role of the National Grid ESO, so that it can work with long-term time scales and the range of uncertainties that brings. In addition, the FSO will also have the agility to proactively and reactively respond to local, as well as regional and national, challenges. This includes coordinating with DSOs for distribution planning and operations.
9. One substantial concern is that without sufficient clarity on roles and responsibilities at each regional and local tier, the expectations placed on the FSO may exceed its capabilities. It is crucial that the FSO, Ofgem and all relevant bodies that will need to play a role in system planning and delivery from national to local levels are set up to succeed as quickly as possible. This requires careful and urgent clarification of the roles and duties of all relevant bodies, including on delegation of responsibilities with both regional bodies under the FSO and the various government departments and local and regional authorities. To enable Ofgem's transition and provide clarity to stakeholders, there is a need for a realistic, carefully executed plan laying out how its operations will change over time to meet its new responsibilities.
10. In addition, clarity is required on whether grid-code capabilities, including requirements for aggregators and renewables, DSOs, charging infrastructure, smart buildings, and micro-grids, should be placed with the FSO or elsewhere.
11. Fundamentally, there is a need for balance between how much can be placed on the new FSO and how much should be enabled elsewhere and coordinated. Without such a clarification and balance, it is very difficult to see how the establishment of the FSO will facilitate the energy transition.
12. In support of the proposed FSO to encompass the role of a systems architect and the rapid upscaling of its capabilities to fulfil this role, we reiterate the main recommendations of IET's response to the Consultation on Proposals for a Future System Operator Role (September 2021).³

- True whole-systems capacity must be in the FSO's remit, extending to local communities, smart homes, the grid edge, and in due course to cross-vector energy interactions. As part of this, it is recommended that legislation is drafted sufficiently widely to allow these important areas to be embraced appropriately by the FSO as consensus emerges in these areas, in order to support the governance and legislative model to encompass a more multi-vector definition of 'system-operation' in the future.
 - Early enablement by DESNZ and Ofgem is key to the FSO being able to establish new roles and respond to the pace of technological change and needs of market participants. There is genuine urgency to establish the FSO and there are concerns that the likely timescale for legislation may cause harmful delay. The FSO will bring new value only once it extends the current ESO's remit to include more effective strategic planning, management, and greater technical and market coordination across the energy system.
 - The FSO organisation requires clean-sheet design to ensure management focus on the diverse areas of critical, real-time system operation, and new and complex strategic/advisory responsibilities. There should be suitable managerial separation between system operation, technical coordination, and strategic advice. With technical coordination, it should also encompass both engineering and relevant aspects of market design, operation, evolution, and the facilitation of innovation. Relationships around IDSOs, community energy enterprises, wider developments in cities and local authorities, and wider considerations of 'place' need to be considered. Whether strategic decision-making on place-based issues needs to sit between the new FSO and the Future DSO functions needs to be explored.
 - The ownership of the FSO should guarantee absolute impartiality in its operation and a focus on best value engineering/market outcomes.
 - The complex relationships with other actors must be set on a path that is crystal clear, with a particular emphasis on the integration of ESO and DSO functions. The continuous transformation of the electricity distribution system from a largely passive system to an actively managed system requires a whole systems approach.
 - It is imperative that agile governance and change processes are established, arrangements resembling those of today will undermine the capacity for the FSO to deliver its intended benefits. The authority of the FSO remains unclear and in the case of technical coordination, an advisory role is not sufficient. Greater clarity is needed as to what the FSO is to be held accountable for – in what areas must it have authority to act. Also, compliance with codes and standards is a growing issue, and the role of the FSO here needs to be clarified.
13. To supplement the above recommendations by IET, we would like to add the following on the strategy and policy of the FSO.
14. The SPS states "Both the Secretary of State and Ofgem must carry out their respective functions in a manner that they consider best calculated to further the delivery of policy outcomes in this statement. This duty is not extended to Ofgem's role in delivery of social and environmental schemes." Processes of accountability must be designed internal to the functioning of the FSO, Ofgem and the Secretary of State to maintain transparency on their prioritisation and approach to the delivery of policy outcomes.
15. The SPS states "We have therefore kept references to the FSO's roles and responsibilities at a higher level in this statement and instead plan to reflect how best to cover the FSO in its substantive role once it is established". Strategic priorities for the FSO must be set out before the role is established and, as already stated, this should be an urgent priority. With that, there is a need to ensure that the FSO has the capabilities and capacity to fulfil all of its statutory roles and duties. These roles and duties must also be practical in that they are commensurate with the timeline

required to fulfil them, as well as the milestones set out in the relevant decarbonisation policies to meet the legal commitment of net zero emissions by 2050. There are serious concerns about the demands of these roles and duties exceeding the capacities and capabilities of the future FSO and the FSO being set up to succeed needs careful and urgent attention including clarity on delegation of responsibilities either as regional bodies under the FSO, or to the various government departments and local or regional authorities.

16. Of the key capabilities which will need to rapidly develop is that of whole systems architect and the provision of clear strategic planning and alignment with policy development, infrastructure planning, regulation development, incentive planning, markets design, resource partnership and skills development. In this the FSO should work in close cooperation with Regional System Planners.⁴
17. The SPS states: “As part of this duty, the FSO should consider the extent to which energy sector participants are providing the kinds of products and services that consumers want, and the effect of current and anticipated consumer behaviour on the development and functioning of markets for energy products and services.” This appears to go beyond the role that most commentators had envisaged for the FSO and risks encroaching on the responsibilities of Ofgem to regulate energy suppliers and anticipate customer behaviour. This approach needs a further scrutiny and clarification for clarity of roles and for feasibility in practice.
18. With regards to all of the above, the SPS does not adequately outline the role of the FSO. Among what is additionally needed are:
 - The SPS states the duty of the FSO to draw on investment but needs to specify whether the FSO has the ability to specify budgets and the process by which it can draw on public funding.
 - For the FSO to consider holistic network design, suitable coordination across government departments should be specified in the SPS.
 - The future distribution of decision-making across the FSO, Ofgem and government is unclear and needs to be set out in detail. While it is legitimate for Ofgem to act as a robust challenge, this should ensure that the FSO is sufficiently independent of Ofgem to be able to determine the scope of technical areas it needs to take account of in the execution of its future role as systems architect.
 - The remit for FSO to focus on security and resilience of gas and electricity systems needs to be expanded to include other energy vectors, the system design inherent in more distributed and decarbonised energy systems, adaptation to climate change, its role on international interconnectors and the use of digital systems and black-start (for example, in the event of a failure of digital communications systems).
 - Whether the FSO will have oversight of the transmission and distribution infrastructure (as well as on building it etc.), if a departure from current arrangements needs to be detailed, along with how it will be paid for.
 - What role, if any, should the FSO and Ofgem have with regards to strengthening industry and skills for the sustainable management of energy policy outcomes for multiple decades into the future need to be clarified.
 - Clarity on whether the FSO should have a role in setting standards.

References

1. *Strategy and Policy Statement for Energy Policy in Great Britain: Consultation*. (2023). DESNZ. <https://www.gov.uk/government/consultations/strategy-and-policy-statement-for-energy-policy-in-great-britain>
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4. *IET Response: UK Parliament Public Accounts Select Committee, Oral Questions—Decarbonising the power sector 23 March 2023*. (2023). Institution of Engineering and Technology. <https://www.theiet.org/impact-society/government-policy-and-submissions/submissions-archive/decarbonising-the-power-sector-2023/>