

Governance of Data Sharing Infrastructure

Response to the Ofgem consultation

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Structure of the response

This response has been produced by the Royal Academy of Engineering and draws on expert input from the National Engineering Policy Centre Working Group which recently produced a report on '[Rapid decarbonisation of the GB electricity system](#)'.¹

In Section 1, we have provided some general comments on the Data Sharing Infrastructure proposals and the broader digitalisation needed to achieve clean power by 2030. Section 2 provides responses to the consultation questions.

Further information and support

The Academy 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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¹ National Engineering Policy Centre (2024), [Rapid decarbonisation of the GB electricity system](#)

Section 1: General comments

In July, the National Engineering Policy Centre², commissioned by the Gatsby Charitable Foundation, published a report on '[Rapid decarbonisation of the GB electricity system](#)'³ which set out the steps necessary to accelerate decarbonisation of the GB electricity system as fast as possible to support delivery of the new Government's mission to provide clean power by 2030. The report examines the actions required and sets out recommendations in the areas of developing a vision, governance, whole system planning, procurement, skills, digitalisation, low carbon generation, the transmission and distribution grid and flexibility in addition to the contribution of different renewable energy generation and technologies to ensure security of supply. The elevated ambition of the target to achieve clean power by 2030 will require a radical shift in approach, and this includes in the area of data sharing and digitalisation. The consultation document does not situate the plans around data sharing infrastructure (DSI) development in the context of the Government's 2030 clean power target and the scope as described does not reflect the 2030 delivery timeline. Clean power by 2030 will require delivery in this area at greater pace and to expand to include delivery of real time, live data sharing.

Digitalisation will be an essential enabler and accelerant of not just decarbonisation but will also play an important role in the future energy system. In the highly diversified electricity system that decarbonisation by 2030 requires, strategic digitalisation will provide the near real-time understanding of system performance and control that will be critical to automation and optimisation of the existing capacity. This in turn will reduce the need for new construction and infrastructure and deliver better resilience. Successful strategic digitalisation should also enable and support better and faster decisions, create more buy-in from domestic consumers through expanded participation in demand side response and alignment of energy tariffs to customers' needs, and provide options to help manage wider risks (e.g. in the supply chain for building physical assets).

Digitalisation is the key to diversifying customer offerings and allowing customers to interact at device level with low carbon technologies such as electric vehicles, heat pumps and domestic solar. However, a major barrier to progress in this area is the smart metering programme which has been slow to build and has not sufficiently engaged consumers in the benefits of smart management of domestic technologies. As we state in our report, smart meter installations must be accelerated to optimise the contribution of demand side response and flexibility.

² The National Engineering Policy Centre is a partnership of 42 professional engineering organisations that cover the breadth and depth of our profession led by the Royal Academy of Engineering. Together we provide insights, advice, and practical policy recommendations on complex national and global challenges.

³ National Engineering Policy Centre (2024), [Rapid decarbonisation of the GB electricity system](#)

The DSI described in the consultation document is a part of the digitalisation required to decarbonise the electricity system and achieve clean power by 2030. Successful digitalisation will require the right data being available at the right time and the DSI infrastructure is what will make this possible. However, the goal of this infrastructure should not simply be to share data but to enable data-driven decision making and control, as well as collaboration and innovation within the sector. Data sharing, and the infrastructure that underpins it, is the first piece of the puzzle: it will contribute to unlocking the value that comes from more accurate, timely and trusted decision making and control. Though DSI is a valuable requisite step, more work and delivery in digitalisation infrastructure will be needed to achieve the outcomes needed from it.

The imperative of the 2030 target has changed the problem and meaningful progress on the target will require ambitious delivery of digitalisation on a much broader scale than that set out in this consultation. A broader plan for embedding digitalisation in the energy system is needed to make data accessible, drive standards and interoperability, implementation of digital processes and building necessary digital infrastructure including communications infrastructure. Digitalisation should not be seen as something that is bolted on and should instead be embedded throughout changes in technology, the networks and the energy suppliers. Much of the thinking in the DSI consultation appears to focus on longer timeframes, adopting a more traditional energy system paradigm of forecast-and-plan rather than the fully digital sense-and-respond approach that is more rapid, iterative and adaptive and is required to respond to the challenge of clean power by 2030. This will need to be done in stages, addressing simpler and higher-value decisions and control points first but with a clear view to the end goal. Rather than attempting to develop detailed and complex systems at the outset, in the first instance work in this area should begin by digitalising simple processes defined by the early strategic plans commissioned by the Department for Energy Security and Net Zero (DESNZ) for achieving clean power for Great Britain by 2030, as set out in the letter from DESNZ to the system operator on 23 August 2024.⁴

The DSI and wider digitalisation will need to be shaped around the needs and sequencing of the grid build and development that results from the strategic planning of the system currently in train with the system operator and DESNZ, via 'Mission Control', and due to report initially in late October. In terms of approach, a process of simple-to-complex digital migration alongside the development of strategic planning will be the most rapid and sustainable approach – not everything will need to be automated to begin with. Existing methods may be adequate or interim measures may be possible with appropriate migration plans to support the delivery of the target and these should be utilised in the first instance rather than developing complex, bespoke approaches.

⁴ Department for Energy Security and Net Zero (2024), [Letter to Fintan Slye, Director of the ESO](#)

As set out in our report, beyond the development of a DSI, what is needed now is the development of a clear digital strategy via a single point of coordination, bringing together the reviews that have already been carried out by the Energy Data Task Force, the Energy Digitalisation Task Force, the Electricity Networks Commissioner and others.

Section 2 Questions

A1.1 Q1. Do you see potential uses for the DSI within your day-to-day operation in the energy sector?

The Royal Academy of Engineering would not be a user of the DSI in its operations. However, we agree there is a need for the capabilities that the DSI is intended to provide as critical enablers of the digitalisation that will help enable energy system decarbonisation to achieve clean power by 2030. As above, we would note that data sharing is one aspect of the advances in digitalisation that will be required and needs to be considered in the broader context of other services, processes and technologies necessary to meet 2030 ambitions and to deliver Net Zero in 2050.

A1.2 Q2. Do you have any comments on the funding mentioned within this section?

The funding mechanisms described would seem to be reasonable for the governance approach described, particularly if the preferred system operator option is implemented.

A1.3 Q3. Do you have any comments on the timeline shown?

The timeline set out in the consultation is not in line with the requirements of the Government's recently announced target to deliver clean power by 2030, the delivery of which will be a considerable driver for digitalisation and substantial data sharing. Further thinking is needed regarding how the electricity system outcomes that depend upon digitalisation might be delivered earlier in pursuit of the 2030 target. The outcomes required should be guided by the strategic planning that is being led by the system operator.

We need to start moving at pace. Establishing an interim governance structure and then transitioning to a final arrangement could risk creating a hiatus just as momentum will be building. We should accept that the initial structure won't be perfect and build in a pathway to evolve it towards the end structure, implementing performance management measures and corrective actions as needed and adding new capabilities as requirements emerge. We support starting out with an interim coordinator, but with a need to plan to refine and enhance its remit and capabilities over time to evolve seamlessly into the final structure to avoid losing the context and momentum that might come from transitioning to a new body or organisation. A specific milestone for review could be put in place for the end of the interim period, with the objective of

confirmation rather than replacement of arrangements. This would provide a mechanism for assurance of the arrangements but seeks to avoid uncertainty and potential disruption. The coordinator needs to be prepared to take interim and evolutionary decisions, to create multiple options and then choose which ones to pursue and on what timeframe as strategic planning of the system evolved and new information is gathered.

Moving at pace will mean pursuing multiple paths in parallel to build a portfolio where some elements can fail but there is sufficient redundancy to ensure success. A core requirement of the coordinator will be to think and operate at this portfolio level and to absorb some failures within the portfolio of initiatives. Pursuing multiple lines of work across a broad portfolio will require the coordinator to think across various levels of the DSI infrastructure. These include:

- Functionality: what it needs to do
- Architecture: how it is structured
- Technical: how it will deliver the required capabilities across multiple domains such as communications, data services, etc.
- Integration: the need to merge and integrate the capabilities that the portfolio delivers. This is linked to architecture but includes the need for a pragmatic capability to connect, integrate and adapt components as they're built.

Some data sharing is already happening and so this also needs to be folded in and accommodated into the new system. A steering and challenge function will also be needed to ensure the approach and pace is maintained.

One possible approach is to explicitly distinguish between governance of data sharing and governance of data sharing infrastructure during the immediate, initial period. During this period existing or temporary data sharing arrangements might be used to enable delivery of early capability in the electricity system. These initial arrangements would be governed by the DSI Coordinator to ensure they are known and understood and a coordinated process of migration to the data sharing infrastructure as its development and priorities permit. This approach has the potential to provide early pace while assuring greater coherence over time with the intent and value of the DSI.

Use Cases

The new clean power by 2030 target has implications for the prioritisation and selection of use cases. Delivery of digitalisation and DSI will need to be quicker and more comprehensive. The use cases detailed in the consultation document need revisiting in this context. As detailed in our report, meeting the target of clean power by 2030 will mean that effective use of flexibility and demand side response will be even more important and architecting and implementing digitalisation in these areas will be a key component of success. Delivering flexibility requires strategic decisions to be made about what assets to build and

where to site them, operational decisions about which markets to participate in and real-time decisions to dispatch assets and tune their response. Given the critical role that flexibility is going to play across the system, including through the management of demand side response, developing a use case of data sharing for flexibility is crucial for ensuring and optimising flexibility for grid balancing and managing intermittency of a high-renewables system.

Additionally, given the pace at which complexity is going to be added to the system, there will be considerable benefit in developing a use case for the control room for a diverse, high-renewables system with a much higher number of assets across the grid than at present.

For developing use cases, perfect and full interoperability is not necessary from day one. Key considerations for each use case are well understood and their development needs to be prioritised and ordered according to the outcomes required for the changing system as it develops towards the target of clean power 2030.

Section 3 Questions

A1.4 Q4. Do you agree with our short-term governance structure model where the Interim DSI Coordinator is responsible for leading the short-term governance (2024 – 2028) of the DSI?

Given the Government's commitment to accelerated decarbonisation, we agree that governance arrangements need to be established with urgency and we support developing a short-term governance arrangement evolving into more enduring governance plans. This is a sensible approach given the scale of the challenge and the potential for learning and improvement. However, given the context of the 2030 target for clean power, 2024-2028 represents around two-thirds of the remaining time available. It may be better to approach this challenge thinking in terms of months rather than years. We would suggest that the DSI project take an iterative, adaptive approach to foster continuous learning and improvement through what is going to be a period of rapid change in the electricity system. A smooth transition at the end of the interim arrangement should be prioritised and thought should be given to the timing of the end of the interim arrangements in 2028 and the 2030 target for clean power.

The model of 'Digitalisation Orchestrator' as set out by the system operator⁵ takes the right direction and creates the appropriate infrastructure for digitalisation. However, as discussed in our response to Q3, rather than transitioning from one infrastructure model to another (the DSI to the Digitalisation Orchestrator), the process should instead be of rapid and continuous evolution through learning and avoiding the need to set up new infrastructure twice. A specific milestone for

⁵ ESO (2024), [Delivering energy sector digitalisation: The role of a digitalisation orchestrator](#)

review could be put in place for the end of the interim period, with the objective of confirmation rather than replacement of arrangements.

A1.5 Q5. If not, state your reasons and propose an alternative governance model or improvements to our proposed solution.

The Academy agrees with the principle of an interim period that precedes the enduring arrangements but would argue that these should be established in a way that prioritises continuity and certainty (as suggested in the response to Q4). We believe this can be achieved by ensuring that the right feedback mechanisms are established and that the required outcomes are being delivered.

A1.6 Q6. Are there any additional governance roles that are not covered by the proposed governance model? If so, what are these?

The roles identified would seem to be suitable. The Academy would recommend that these are part of what is considered in the continuous improvement and evolution of the arrangements. Additional clarity may emerge on the nature and execution of the identified roles, or new roles may be added.

We strongly believe that the governance arrangements for DSI should not be treated as separate from the considerations that shape and define those for digitalisation more broadly for energy system transformation. This is particularly important given the pace needed to achieve 2030 ambitions.

A1.7 Q7. Do you agree with the responsibilities of the interim DSI Coordinator? Are there any additional responsibilities that it should undertake?

The DSI Coordinator should be tasked with explicit monitoring and measurement of performance and maturity of the arrangements and provide data and information to enable continuous improvement.

A1.8 Q8. Do the proposed deliverables reflect the outputs that the Interim DSI Coordinator should focus on in the initial DSI stages? Do you suggest any additional deliverables?

The DSI Coordinator should deliver the outputs noted in the response to Q7.

Section 4 Questions

A1.9 Q9. Do you agree with us that the System Operator is the best option as the Interim DSI Coordinator? If no, explain your reasons and justify your proposed option.

We agree with the general findings of the consultation that the best option for the interim DSI coordinator would be the system operator but would advocate that implementation explicitly addresses the matters of transparency, accountability and concerns that may exist regarding potential conflicts of interest. This suggests the need for well-structured engagement and participation of expert parties from industry and the engineering profession to

support the system operator in executing its role. This is due to the complexity and technical expertise required to successfully deliver the data sharing and broader digitalisation required. This view aligns with the recommendation made in the Academy report that a “digital architect” be established as part of what is needed to achieve acceleration of decarbonisation of the power system. The report also highlights the relationship between this function and delivery and, on this, clarity on the role of DESNZ, via ‘Mission Control’, regarding digitalisation efforts is required.

The system operator will need to be overall accountable for this work area while being closely aligned with the development of the DSI and further digitalisation of the system so that the work is embedded into and driven by the needs arising from the strategic planning already underway. Digitalisation will require significant technical and digital expertise due to the novel and complex nature of this area of development. We note that the system operator has proposed the creation of a ‘Digitalisation Orchestrator’ (DO), an independent organisation responsible for coordinating the sector’s shared digital energy system infrastructure and that the interim DSI coordinator is the first step on the way to realising a DO.⁶ The system operator document suggests that once the DO is created and staffed, the core DSI capabilities could be transitioned to the responsibility of the DO to oversee.

Key to the success of this approach will be appropriate technical input into the decision-making process. Given the very technical nature of digitalisation and the lack of real-world working examples, we are pleased to see the inclusion of independent technical advisors in the DO architecture. This technical expertise needs to be prioritised, to have sufficient influence over delivery. We recommend that the system operator develop a working relationship with a technical partner (or partners) to inform design and implementation as well provide technical support and training to system operator staff. We envisage this input of technical advice being very closely coupled to the system operator, hosted within the system operator to maintain close links to the strategic planning work. The key goal here should be to embed strategic digitalisation planning, including data sharing and data sharing infrastructure, in strategic energy system planning.

The matter of authority and methods for decision making for digitalisation needs to be made clear as well as assurances around transparency and accountability. Given the different organisational competencies, it would be sensible for the system operator to be involved in designing the DSI even though they will also be users of the final system. However, demonstrable measures should be taken to ensure that there are no conflicts of interest. Establishing the technical digital working group discussed above would strengthen the competency of the system operator and address some of the concerns around conflicts of interest. We note that the consultation does not consider the role of DESNZ and its Mission Control

⁶ ESO (2024), [Delivering energy sector digitalisation: The role of a digitalisation orchestrator](#)

function in the development of DSI. Given the salience of the clean power 2030 target, the role of DESNZ in delivering DSI and wider digitalisation will be key and required clarification.

A1.10 Q10. What assessment criteria do you foresee being required when transitioning from short-term governance to an enduring governance model?

The Academy believes governance of DSI needs to be integral to governance of wider digitalisation which in turn should be integral to energy system governance. This will help ensure coherence and timeliness in decision making and therefore good transformation outcomes.

We would reinforce the idea of “transitioning from short-term governance to an enduring governance model” and would recommend that this be the basis on which governance is established. As covered in our response to Q4, this means that the principle of transition or evolution should be applied rather than moving from one approach to another thereby risking discontinuity, disruption and delay.

A1.11 Q11. What suggestions or feedback do you have for refining these governance assessment criteria to better meet the requirements and challenges of digitalisation in the energy sector?

The Academy advocates for an iterative, adaptive approach with inbuilt feedback as the best approach to refinement. We would also suggest that DSI governance should be responsive to the maturing of digitalisation governance and energy system governance. Digitalisation must not be considered to be separate from energy system transformation: it should be embedded therein, not an add-on. This means that alignment of planning and delivery is needed. Assessment criteria should be refined to reflect this.

There is a need for urgency and pace in establishing these arrangements, particularly in view of the ambitions of Clean Power 2030.