

Consultation

Governance of a Data Sharing Infrastructure

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Contact:	Jeff Finch
Team:	Energy Sector Digitalisation
Email:	digitalisation@ofgem.gov.uk

We are consulting on the governance structure for a Data Sharing Infrastructure (DSI). This is based on our commitment in the Future Systems and Network Regulation (FSNR) Framework Decision Overview, published in October 2023, to develop a pathway towards delivery of a DSI.¹

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at [ofgem.gov.uk/consultations](https://www.ofgem.gov.uk/consultations). If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

¹ [Future Systems and Network Regulation: Framework Decision Overview](#)

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General information: referencing the System Operator

This document uses the term “System Operator” throughout to refer to either the current electricity system operator (National Grid Electricity System Operator Limited (NGESO)) or the National Energy System Operator (NESO), as the context requires. NESO is the intended name of the company which will become the Independent System Operator and Planner (ISOP); previous Ofgem and government publications refer to the ISOP as the Future System Operator (or FSO). Once established and designated as the ISOP, NESO will be responsible for operating the electricity system and the strategic planning of Britain’s electricity and gas networks. NESO will inherit all the existing responsibilities and functions from NGESO and have new additional functions including long-term planning roles related to the gas system. When we refer to existing System Operator or NGESO obligations and activities, it is intended these will transfer to NESO. The establishment of NESO is still subject to final decisions to proceed. Government is aiming for NESO to be established in 2024, subject to a number of factors, including agreeing timelines with key parties.

Executive Summary

Our energy system is becoming more complex as we progress towards net zero. To overcome this complexity, sector participants will require higher quality data and more easily accessible data than is available today to fulfil their roles. This is because the management of capacity across networks, the proliferation of millions of distributed assets, the interconnected nature of different systems and operators, and the need for decentralised flexibility each require reliable and standardised data transfer to operate effectively. A Data Sharing Infrastructure (DSI) is a decentralised technology solution that meets these challenges – by supporting energy sector participants to exchange data in a standardised format.

Ofgem, government, and Innovate UK have previously described these challenges and the opportunities that go with them in our joint Energy Digitalisation Strategy². The strategy sets out a joint vision to build foundational capabilities to enable sector-wide access to data. The Energy Digitalisation Taskforce (EDiT) report³ that followed then recommended the creation of a 'digital spine' – what we are now calling a DSI – for the energy system to enable seamless sharing of data between entities. This consultation follows the EDiT and FSNR¹ reports, which make a strong case for further actions from Ofgem. In response, Ofgem has produced this consultation on governance of the DSI and oversight of the development of a Minimum Viable Product (MVP) of the DSI.

The constituent elements of a DSI are already in development across the sector, and we are requiring the System Operator to develop an MVP. This consultation focuses on the initial, short-term, governance model for the DSI that will approximately span from 2024 to 2028.

In this consultation, we propose that the initial governance of the DSI should involve:

- Establishment of provisional rules, roles, and mechanisms to facilitate initial data sharing activities during infrastructure development.
- Annual generation of reports on existing and proposed use cases of the DSI.
- Production of a report on the platform's evolution based on its initial two years in operation.
- Accumulation of key information and knowledge on managing and establishing use cases on the DSI.
- Conducting a forward-looking technology assessment to maintain a future-proof platform.

² [Digitalising our energy system for net zero: strategy and action plan](#)

³ [Delivering a Digitalised Energy System](#)

We intend to publish a further consultation at a future date, yet to be decided but within the interim DSI governance period from 2024 – 2028, which will consider how the initial governance framework will evolve into an enduring digitalisation governance solution from 2028 onwards.

This consultation sets out the need for robust governance of the DSI to ensure transparency, trust, compliance with regulations, and effective data sharing within the energy sector. We also aim to highlight the crucial role that the DSI will play in supporting decarbonisation, flexibility, and resilience objectives. We support this by providing an overview of the current landscape and emphasising the challenges posed by existing inefficient data sharing processes. Finally, we outline our essential criteria for assessing the proposed governance model's effectiveness and our minded-to option for the role of Interim DSI Coordinator.

We encourage stakeholders to provide their views and comments on our proposed governance options so that we can better meet the sector's evolving needs and challenges in a digital future.

1. Introduction

Section summary

This section provides the background and context for the consultation. It outlines the background to data sharing strategies within Ofgem and government, the problems caused by limited data access in the energy sector, and published reports advocating for sector-wide access to data. It also introduces why the DSI is needed to improve data access in the energy sector.

Structure of the consultation

This consultation is structured as follows:

Section 1: Introduction

- 1.1 Section 1 introduces the background and context to this consultation, as well as the structure of this consultation and how to respond.

Section 2: What is a DSI and why is it needed?

- 1.2 Section 2 sets out what a DSI is, and why it is important to introduce one in the energy sector. It also describes international examples of data sharing actions. We introduce the System Operator's plan for a pilot to MVP of the DSI and explain how this will be funded.

Section 3: Our vision for governance of a DSI

- 1.3 Section 3 summarises why we see the need to create a new governance structure in this case, and what we consider as the essential design principles of a DSI governance model. It then proposes a model for governance, including governance bodies, roles and responsibilities.

Section 4: Options for delivery of an Interim DSI Coordinator

- 1.4 Section 4 puts forward our proposed options for the entity that should take on the Interim DSI Coordinator role. It then assesses these options against a set of necessary criteria for fulfilling this role.

Section 5: Conclusion and next steps

- 1.5 Section 5 sets out our conclusions and the next steps following this consultation.

Context

- 1.6 Ofgem's Data Best Practice (DBP) Guidance⁴ sets out the principle that, subject to Open Data Triage, data assets must be 'presumed open' and should be available for all energy sector participants to use. However, certain sensitive data, such as data which can be used to identify an individual or poses a risk to grid infrastructure, cannot be shared openly.
- 1.7 Sharing operational data requires delicate and secure data exchange practices. We consider that current data exchange practices in the sector often rely on manual, inefficient and uncoordinated processes, which leads to data siloes, inconsistent data standards and increased risk of duplicated or misaligned information.
- 1.8 Knowledge sharing between organisations improves overall understanding of the energy system, allowing for greater visibility of energy generation, transportation, and use. Among other benefits, enhanced data sharing will improve the ability of the system to prepare for loss of service or major supply or demand fluctuations, identify where best to utilise renewable energy resources, and identify the fastest possible connection routes. This will lead to a future energy system which can function in a secure, sustainable and flexible manner.
- 1.9 Increased knowledge and data exchange between energy sector participants will also create key strategic and regional planning benefits. Planning and operation rely on enhanced network visibility, and the ability of Network Operators to collect and utilise data on the operation of their network. Ofgem has identified through stakeholder consultation that increased joint working and knowledge sharing will be necessary for sector participants to support the System Operator to coordinate and ensure strategic planning across the sector.⁵
- 1.10 Ofgem, Innovate UK, and the Department for Energy Security and Net Zero (DESNZ) published a joint Energy Digitalisation Strategy⁶ in 2021, setting out that the government and Ofgem will build foundational capabilities to enable sector-wide access to data. Subsequently, the EDiT report recommended the creation of a 'Digital Spine' for the energy system, to enable streamlined data sharing between sector participants.⁷

⁴ [Data Best Practice Guidance](#)

⁵ [Decision on the initial findings of our Electricity Transmission Network Planning Review](#)

⁶ [Digitalising our energy system for net zero: strategy and action plan 2021](#)

⁷ [Energy Digitalisation Taskforce Report 2021](#)

- 1.11 In 2023, the government procured a feasibility study to examine the opportunities, risks, and potential architectures of a 'digital spine'. The government awarded funding to Arup, Energy Systems Catapult and the University of Bath to deliver the study. Government is assessing the evidence and recommendations set out in the study.
- 1.12 Our Future Systems and Network Regulation (FSNR) Framework Decision in October 2023 (the "FSNR Decision") highlighted that stakeholders and industry experts have called for a greater leadership role from Ofgem⁸ in "developing a pathway for delivery of a DSI. This should include agreed common standards (technical and legal) and streamlined data sharing, while ensuring increased stakeholder engagement and essential cyber security." We committed to developing this pathway, beginning with publishing an assessment of governance options in this consultation.
- 1.13 Licence obligations were introduced in the RIIIO-2 price controls requiring network licensees to create Digitalisation Strategies and Action Plans (DSAPs) and comply with Data Best Practice Guidance, to help meet the actions recommended by the Energy Data Taskforce.⁹ To continue driving digitalisation within the energy system during the next set of price controls, we have set out proposals to require network companies to participate in the DSI.¹⁰
- 1.14 In response to calls for improved data sharing mechanisms within the energy sector, we support the System Operator taking forward the delivery of a Minimum Viable Product (MVP) of a DSI.

What are we consulting on?

- 1.15 We are publishing this consultation in response to the commitment made in the FSNR Decision, and to meet the objective to set governance standards to digitise system data and improve data sharing in Ofgem's Multiyear Strategy.¹¹ In this consultation, we assess three interim governance options for a DSI, present a proposed governance model, and outline how we believe this model meets our requirements for effective digitalisation governance.
- 1.16 We focus on governance of the interim stage of the DSI project in this consultation, between 2024 – 2028. We intend to publish an additional

⁸ [Future Systems and Network Regulation: Framework Decision Overview](#)

⁹ [Energy Data Taskforce: A Modern Digitalised Energy System](#)

¹⁰ [RIIO-3 Sector Specific Methodology Consultation - Overview Document](#)

¹¹ [Our strategy and priorities - Ofgem](#)

consultation at a future date, yet to be decided but within this interim period from 2024 – 2028. This will consider how the initial governance framework will evolve into an enduring digitalisation governance solution.

- 1.17 We are seeking views and input from stakeholders on the governance structure, roles and responsibilities explored in this consultation. We also want to understand which entity is most capable of delivering effective governance in the Interim DSI Coordinator role, and whether we have assessed the correct principles when considering this.

Consultation stages

- 1.18 This consultation was published on 26 July 2024. It will be open for 8 weeks and will close on 20 September 2024. Following review of responses, we intend to publish a decision alongside non-confidential responses in Autumn/Winter 2024.

How to respond

- 1.19 We want to hear from anyone interested in this consultation. Please send your response to the person or team named on this document's front page.
- 1.20 We've asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can.
- 1.21 We will publish non-confidential responses on our website at www.Ofgem.gov.uk/consultations.

Your response, data and confidentiality

- 1.22 You can ask us to keep your response, or parts of your response, confidential. We'll respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.
- 1.23 If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you *do* wish to be kept confidential and those that you *do not* wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we'll get in touch with you to discuss which parts of the information in your response should be kept confidential, and which can be published. We might ask for reasons why.

- 1.24 If the information you give in your response contains personal data under the General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the UK's withdrawal from the European Union ("UK GDPR"), the Gas and Electricity Markets Authority will be the data controller for the purposes of UK GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 4.
- 1.25 If you wish to respond confidentially, we'll keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We won't link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

General feedback


- 1.26 We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:
1. Do you have any comments about the overall process of this consultation?
 2. Do you have any comments about its tone and content?
 3. Was it easy to read and understand? Or could it have been better written?
 4. Were its conclusions balanced?
 5. Did it make reasoned recommendations for improvement?
 6. Any further comments?

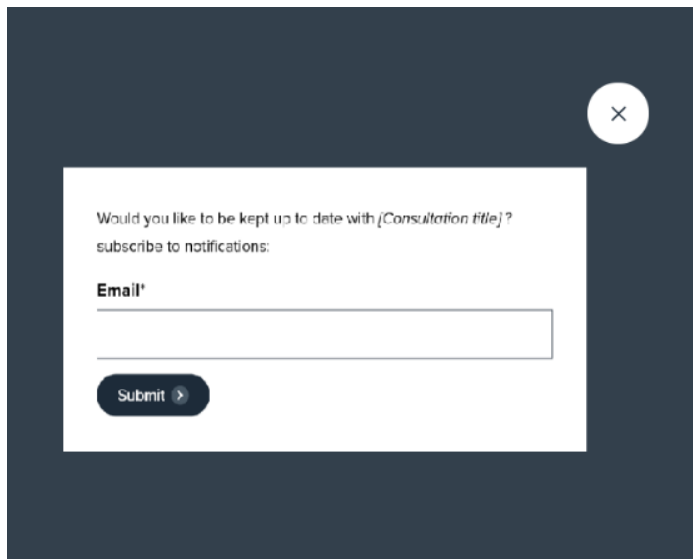
Please send any general feedback comments to stakeholders@Ofgem.gov.uk

How to track the progress of the consultation

You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website.

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Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:

Upcoming > **Open** > **Closed** (awaiting decision) > **Closed** (with decision)

2. What is a DSI and why is it needed?

Section summary

This section outlines why a DSI is needed to improve complex, inefficient and uncoordinated data sharing practices in the energy sector. The Digital Spine Feasibility Study, funded through Net Zero Innovation Portfolio (NZIP), proposes that the three essential components of a DSI are: (1) a data preparation node, (2) a trust framework and (3) a data sharing mechanism. A pilot of a DSI is being developed by the System Operator, in conjunction with the National Digital Twin Programme, using Outage Planning as the initial use case. This pilot has been funded so far through the Strategic Innovation Fund (SIF) and the System Operator's Network Innovation Allowance (NIA).

What is a DSI?

2.1 A DSI is a collection of open-source software packages that enables data sharing. As an open-source solution, the burden of take-up and use of the DSI for sector participants is lessened compared to use of proprietary technologies. However, the end design (once established) of a DSI may incorporate commonly used and generally available proprietary software.

Components of a DSI

- 2.2 In 2023, the government procured a feasibility study to examine the opportunities, risks, and potential architectures of a 'digital spine'. The government awarded funding to Arup, Energy Systems Catapult and the University of Bath to deliver the study. The government is currently assessing the evidence and recommendations set out in the study.
- 2.3 This study outlines the three essential, functional components of the DSI as Prepare, Trust and Share, described in more detail below and shown in Figure 1.

Prepare

2.4 To allow exchange of datasets between different organisations, data first needs to be standardised based on a common, agreed upon set of rules. As well as improving interoperability, standardisation improves the integrity of the dataset, as it removes the need to manually process and translate a dataset to different standards every time it is shared.

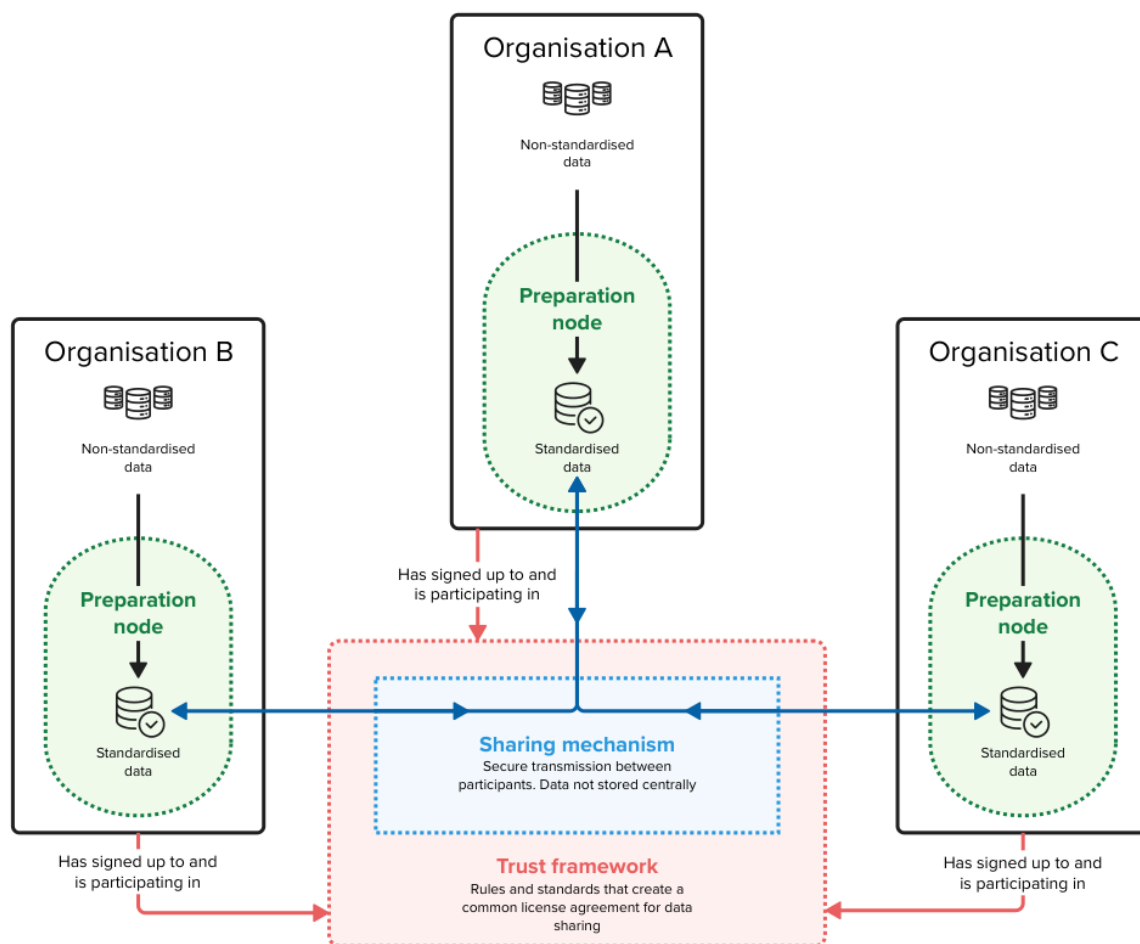


Figure 1: Architectural design of the DSI – data is left at the source and prepared using software which may be deployed onto a cloud gateway or dedicated gateway device.

- 2.5 In the Digital Spine Feasibility Study model, data preparation is performed by software deployed, which standardises an organisation’s data prior to sharing to an agreed format for a particular use case.
- 2.6 The prepare component allows the organisation to:
- control and specify the data they wish to share,
 - align and prepare the data to a minimum operable data standard,

- securely present the standardised data to the sector through standard Application Programming Interfaces (APIs),¹² access controls and security procedures.
- 2.7 These data preparation nodes would form a network with organisations across the energy sector, who all present data to each other in a consistent approach. It can be placed on a cloud gateway or gateway device¹³ to provide a secure point for communication between trusted energy system participants. There should be one consistent cross-sector version of the data preparation node. Preparation of the data using without exception a standardised format ensures interoperability across the platform.

Trust

- 2.8 A trust framework is needed to allow energy sector participants to exchange data in a confident and secure manner. Currently, data sharing agreements are used to establish privacy, security and ownership guidelines. These are created on an as-needed basis between organisations, and often involve complex legal agreements that take time and resources to create.
- 2.9 A trust framework will provide a scalable solution to this problem as it will provide energy sector participants with accurate risk management profiles, common user attributes, identity management, and pre-negotiated agreements based on use cases. This will establish the user's confidence, right, and legality to share data between parties. Participants will have to be part of the trust framework to be able to access or exchange data on the DSI.
- 2.10 A trust framework will include:
- the process of agreeing to rules for data sharing,
 - an integration process for enabling organisations to participate through a data sharing mechanism that can implement those rules,
 - the technical components required to maintain the rules.
- 2.11 The trust framework will need to be kept relevant to both the use cases and user base. One of the main benefits of the DSI is that a trust framework is more flexible than a centralised repository's rigid access and access controls.

¹² Application Programming Interfaces (APIs) are software intermediaries that allow two applications to talk to each other, e.g. to share data within or between organisations.

¹³ A gateway device is a physical device that allows ingress and egress between two points or networks. Examples include firewalls, routers and servers.

Share

- 2.12 To transfer data from one organisation to another, the DSI needs an appropriate, secure sharing mechanism. Currently, various technologies and approaches have been used within the energy sector to tackle this problem. This has led to variable data availability across different organisations and creates a potential financial and technical barrier to entry.
- 2.13 A sector-wide data sharing mechanism would remove this problem by providing the agreed-upon technology, security and governance means for exchanging aggregated data between organisations.
- 2.14 A data sharing mechanism will allow sector participants to:
- discover data shared by other sector participants,
 - securely request and retrieve data from other sector participants through their data preparation node,
 - provide governance, licensing definition and brokerage.
- 2.15 These three design principles, a data preparation node, trust framework and data sharing mechanism, address several key challenges in the current energy sector data sharing environment, as described above. We support delivery of a Minimum Viable Product (MVP) of a DSI using the 'Prepare, Trust, Share' design stated in the FSNR report.
- 2.16 The constituent elements of a DSI are already in development across the sector. The Digital Spine Feasibility study identified IceBreaker One (IB1), the National Digital Twin Program (NDTP) and the current System Operator¹⁴ as being able to define the Trust, Prepare, and Share elements of a DSI, respectively. We brought these groups together in Summer 2023 to discuss the possibility of delivering an MVP, culminating in a Memorandum of Understanding between the System Operator and NDTP.¹⁵ The work to date has been delivered through Network Innovation Allowance funding, but we are working with the System Operator to ensure costs are cascaded and tracked appropriately.
- 2.17 The System Operator has proposed an initial use case of Outage Planning as a pilot of the DSI, as this is an area where they already collect standardised data

¹⁴ See general comments on referencing System Operator on page 5.

¹⁵ The System Operator and IB1 were already working together as part of ESO's Virtual Energy System program. [ESO signs Memorandum of Understanding with the National Digital Twin Programme](#)

from network licensees. This allows the System Operator to focus on trialling the new technologies rather than undertake a full standardisation process.

Why is a DSI needed in the energy sector?

- 2.18 Data that is relevant to grid security and grid infrastructure is regularly exchanged between energy sector participants to fulfil their roles in the energy system. Currently, we consider that the sharing of these datasets between sector participants is a manual, inefficient and uncoordinated process, requiring complex legal agreements on an organisation-by-organisation basis. This results in data siloes and inconsistent data standards, as well as an increased risk of duplicated or misaligned information.
- 2.19 The EDiT report³ and the FSNR Decision¹ highlight that a DSI in the energy system would enable data to be seamlessly ingested, formatted to an agreed (by participants and use case) template, utilising commonly used data transmission and control protocols so that different datasets are interoperable, and then shared between the known participants of the DSI. This would streamline data exchange processes and support government's energy policy objectives relating to decarbonisation, flexibility and resilience.
- 2.20 Improving market access to energy data will contribute towards security of supply, ensure properly functioning energy markets through flexibility provisions, encourage greater energy efficiency and increase opportunities for new green industries.
- 2.21 Decarbonisation of the energy sector will significantly change how traditional processes are operated, including dispatch of assets and planning electricity network expansion. These changes will result in an increasingly complicated energy system, with greater numbers of distributed energy assets and growing reliance on renewable energy. Seamless data exchange will be needed to maintain interoperability, security and efficiency throughout the energy transition.
- 2.22 Ofgem is working to build a digital foundation to enable network and asset visibility. This will create the incentive for the collection and measurement of data from across the energy system, and will make that data available either openly throughout the system or to the right participant at the right time, where appropriate and within legal frameworks. Ofgem is supporting the creation of a DSI to allow for trusted, streamlined data exchange within the sector, by setting out the governance pathways that would most enable efficient adoption of the DSI.

2.23 The issue of access to varying types of data is not a new one in the energy sector. Existing solutions to this problem have created centralised data repositories of the required information. Centralised data repositories involve a single point of access (geographical or virtual through a gateway) to a single owner's dataset that they are willing to share on a limited basis, with a set of rigid access frameworks around this data. While a repository-style approach can be an effective solution, there are several challenges:

- Central repositories are a single ownership platform where data and user access are managed by the owner.
- Central repository access frameworks often aren't flexible enough to accommodate new, previously unthought of, users.
- Centralised repositories are complex to set up and can be challenging to retrofit to allow for new use cases.
- Contractual agreements to allow storage of and access to data within repositories are also complicated to set up and can delay or restrict access to data unnecessarily.
- Centralised data repositories could provide adverse competitive advantage or be used to control the market or future decisions.

2.24 The use of decentralised approaches to accessing data, such as a DSI, have evolved and become more accepted globally. A decentralised data sharing model allows for the sharing of data across multiple organisations and multiple geographical locations with all participants and locations known to all participants. Decentralised data sharing involves core participant data remaining within the participant's governance, and other known participants having access to a standardised version of the data in an agreed format. These approaches have been pioneered by technology giants and financial institutions and are now being used across other sectors. A decentralised approach is particularly useful for systems where there are many users with many different objectives. Using this decentralised approach presents advantages such as:

- With knowledge: having a more complete understanding of the gas and electricity networks and where opportunities exist to prepare against loss of service or major fluctuations or what trends of power use look like across a geography of the country.
- In commercial terms: understanding where best to utilise the benefits of renewable energy resources and fastest routes to connection.

- Going forward: how to make best use of Distributed Energy Resources (DER)¹⁶ and enabling a commercial advantage in assessing where to position distributed resources.
 - In development terms: enabling an advantage in development of commercial packages by having a better understanding of resource optimisation.
- 2.25 The complexity of the energy sector is only set to increase. If the UK is to decarbonise at pace it will need to embrace a more coordinated approach in the way that the sector communicates with itself, other stakeholder agencies and consumers. If it fails to do this, then progress to net zero may be hampered. It is Ofgem's belief that the way the sector communicates and shares data is impactful to the success of net zero.

International examples of DSIs

- 2.26 Solutions to improve access to data in multiple sectors, including energy, are being investigated and introduced internationally. The European Commission has set out pathways to achieve benefits from data within the European Strategy for Data.¹⁷ The strategy highlights the creation of Common European Data Spaces, with shared data infrastructures and governance frameworks, as a key initiative that will allow data to be securely exchanged across the EU.
- 2.27 A Common Data Space is a decentralised infrastructure for trustworthy data sharing and exchange. The first European Commission Staff Working Document on Common European Data Spaces states that Data Spaces will deploy data sharing tools and services, include data governance structures to determine data access and processing rights, and improve the availability, quality and interoperability of data.¹⁸
- 2.28 These goals align with the EDiT¹⁹ report and those set out in the UK through our Energy Digitalisation Strategy joint publication with government and Innovate UK (IUK).⁶ Common Data Spaces within the energy sector aim to achieve the same goals as the DSI and show that other countries are also pursuing solutions to improve the availability of energy data on the route to decarbonisation. We

¹⁶ Distributed Energy Resources (DER) refers to small-scale electrical generation and storage assets that are connected to the grid. Examples include domestic solar panels and battery storage.

¹⁷ [European Strategy for Data 2020](#)

¹⁸ [Staff working document on data spaces](#)

¹⁹ [Energy Digitalisation Taskforce report: joint response by BEIS, Ofgem and Innovate UK](#)

expect the System Operator to continue to engage with EU programs developing a Common Data Space for energy.

- 2.29 Energy sector DSIs are also being introduced outside the EU. The Australian Energy Market Operator's Project Energy Demand and Generation Exchange (EDGE) tested methods for integration of DER, such as solar panels, into the Australian energy market.²⁰ Project EDGE created a DER data hub, enabling efficient data exchange, to help enable DER integration. This project demonstrates the successful use of a decentralised approach when dealing with multiple actors.
- 2.30 It is important that data standards employed in the DSI do not deviate from internationally recognised data standards to ensure interoperability and adoption. Standards evolve over time, and we consider that the System Operator should be responsible for ensuring the maintenance of standards. As part of the DSI deliverables, the System Operator should maintain relevance and future-proof the platform by undertaking and publishing regular reviews of data protection and data sharing standards.

Delivery of a pilot and Minimum Viable Product

- 2.31 The System Operator, in conjunction with NDTP, is taking forward the development of a 'pilot' of a DSI, using Outage Planning as the use case. Pilot development will continue through 2024. MVP development, using Strategic Planning as the use case, will then begin, and will continue until MVP delivery in late 2025. Further selected use cases will begin to be integrated to the MVP in this delivery phase post-2025. This timeline for development of a DSI is shown in Figure 2 below.
- 2.32 The pilot is being delivered through Network Innovation Allowance (NIA) funding. We consider that Outage Planning is a suitable use case for the pilot phase of the DSI as it is a well-understood problem, where the datasets are accessible and new standards will not need to be developed. This means that the pilot of a DSI can be delivered at pace while more complicated use cases are investigated.

²⁰ [Project EDGE Final Report](#)

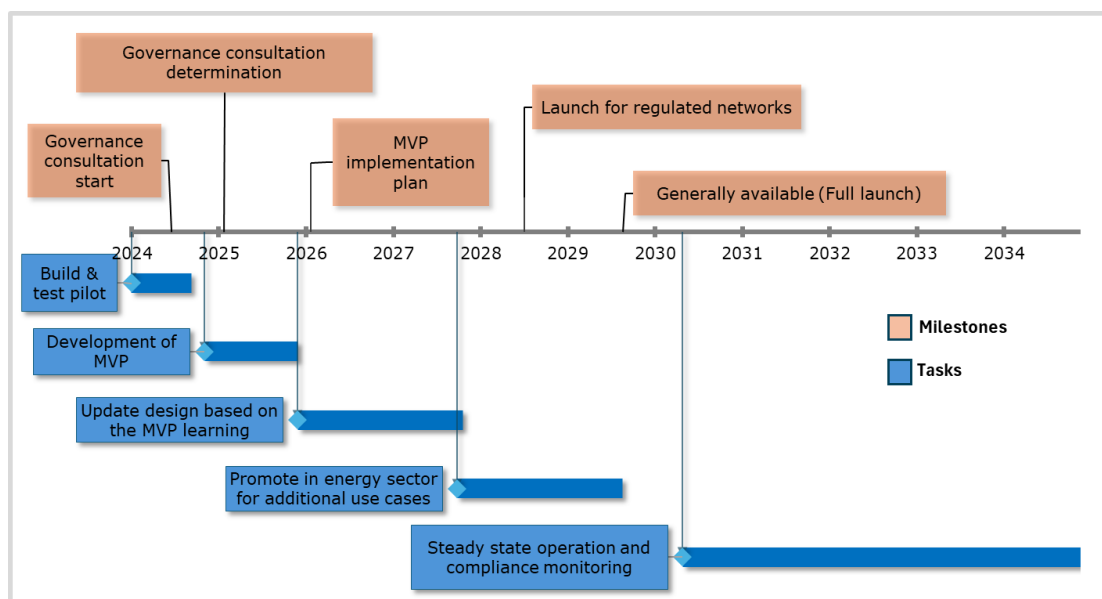


Figure 2: High level roadmap for Pilot and MVP delivery (2024 – 2036)

- 2.33 The current process for Outage Planning and the need for this use case is to alleviate the disparity between System Operator activities, Distribution Network Operator (DNO) activities and Transmission Owner (TO) activities occurring at different timescales. DNOs are required to share their base network model with the System Operator on an annual basis. Once a planned or unplanned outage is identified, the System Operator and relevant DNOs are required to exchange network running information and define the best network configuration in response to the planned outage. This is a reactive and manual process and can be using data that is months or days prior to the outage.
- 2.34 Using the DSI as an enabler would increase the efficiency and coordination of the process. The DSI would facilitate and streamline some of the manual activities of the Outage Planning process. Network planning and operational data would be exported from the power system analysis software and sent in standardised Common Information Model (CIM)²¹ or Information Exchange Standard (IES)²² format, allowing the System Operator, DNOs, and TOs to import the file to a

²¹ The Common Information Model (CIM) is an open standard used to manage and share energy data. It allows models of the network to be shared with users in a common and interoperable format.

²² Information Exchange Standard (IES) is a standard for information exchange developed within UK Government.

modelling tool without requiring conversion activities and the associated potential of data loss.

- 2.35 All files delivered through the DSI would be subject to an assurance process via a schema ensuring the maintenance of the CIM/IES format. All operational scenario data, including demand data and running arrangements, would be sent in a CIM/IES format file. All file metadata would allow organisations to easily query for specific data with the DSI via a distributed (to participants) list of metadata parameters (location, load, participant, etc.) or Outage ID.
- 2.36 Further use cases beyond the pilot stage will be subject to an agreement on funding and a detailed view of investment and timelines. We have outlined our expectations on use cases in paragraph 2.37.
- 2.37 We expect the System Operator to deliver a Strategic Planning use case as part of the DSI MVP (i.e. by the end of 2025). We expect the System Operator will develop a plan for how the DSI could be used to support Connections Reform as part of the DSI MVP. Further use cases of note that we would like to see beyond 2025 are Smart Secure Energy Systems (SSES) and Automatic Asset Registration (AAR). Further information is provided on these use cases below:
- **Strategic Planning:** As currently proposed in the March 2024 statutory licence consultation for NESO licences, once established, NESO will be required to produce a Centralised Strategic Network Plan (CSNP) in the Financial Year commencing 1 April 2026.²³ NESO will need to collect a larger quantity of asset and planning data from TOs than it currently collects. It is envisaged that all the data needed from TOs could be collected via the DSI. We expect this use case to be delivered by the end of 2025.
 - **Connections reform:** We believe the DSI could be used for the connections process moving forward, particularly for aligning Transmission and Distribution data. This will then be displayed through the System Operator's connections portal. This is a key strategic objective for Ofgem and DESNZ. We expect a plan for how this use case could be tackled to be delivered by the end of 2025.
- 2.38 There are strong interactions between the CSNP and Connections Reform. Following Connections Reform, TOs are expected to have greater visibility of which of the connection applications in the queue are more viable than others and

²³ [Annex E - Electricity System Operator Licence Conditions](#)

are therefore likely to connect on their local networks. Through the DSI, we expect the System Operator to have greater visibility of network capacity at specific sites (for example number of spare bays at a substation). The additional granular data will support the System Operator's strategic planning through the CSNP, and conversely the CSNP could provide the backbone from which TOs can undertake strategic investments (for example, buying additional land in anticipation of any substation site expansions, or additional spare bays at a substation at strategic locations in anticipation of new generation) to ensure a more 'connections ready' network.

- 2.39 As the development of the pilot and MVP takes pace and the energy sector is made aware of the capability and how they can utilise the platform, there will be further, as yet unknown, use cases that will be presented. The DSI has already attracted some additional use case candidates and as the MVP matures these will be further investigated and qualified.
- 2.40 We consider it important to note that different use cases for the DSI will have differing needs of the DSI. Some use cases will require the design and implementation of data standards as well as utilising the data exchange mechanism that the DSI provides, for example Strategic Planning and Connections. Some use cases will only need to utilise the exchange mechanism itself, as data standards have been defined as part of other projects, for example Automatic Asset Registration (AAR) and Smart Secure Electricity Systems (SSES).
- 2.41 The DSI will improve market access to energy data that will contribute towards security of supply, and the development of the flexible energy market and encourage greater energy efficiency and increase opportunities for entrance to flexible markets. The DSI could, beyond 2025, provide support with the interaction of the flexible market programmes that are in development:
- **Smart Secure Electricity Systems (SSES):**²⁴ Potential to support interoperability of tariff information across industry participants and to provide the backbone for some of the administrative tasks of SSES.
 - **Flexibility Digital Infrastructure**²⁵: Potential to provide and support the transfer of flexibility market asset registration data between flexibility service providers and the ESO and DSO flexibility market operators.

²⁴ [Delivering a smart and secure electricity system: the interoperability and cyber security of energy smart appliances and remote load control](#)

²⁵ [Call for Input: The Future of Distributed Flexibility](#)

- **Automatic Asset Registration (AAR)²⁶ and broader asset visibility:**
Potential to provide and support the transfer of registration data between smart energy devices and SSES market participants.

Funding the Minimum Viable Product

2.42 The work completed and in progress to date and up to the pilot stage have been funded as part of a combination of the Strategic Innovation Fund (SIF) and the System Operator's Network Innovation Allowance (NIA). We approve of the System Operator using these more agile funding mechanisms to deliver a series of low-cost projects adding incremental value to the DSI MVP proposals. For future funding of the DSI, we have split these into 'near-term' funding (to 2028) and 'long-term' funding (beyond 2028).

Near-term funding (up to 2028)

- 2.43 We expect the level of near-term funding needed to deliver a DSI MVP will require the utilisation of the System Operator's baseline funding mechanisms, primarily the current System Operator's²⁷ pass-through cost mechanism.²⁸ It is Ofgem's minded position that funding to enable the production of an MVP for this service should be provided out of System Operator's Business Plan²⁹ by utilising this mechanism.
- 2.44 The System Operator has committed to building a proposal for DSI MVP funding following the completion of the Pilot and aligned with the HM Treasury's Green Book guidance.³⁰ We expect the System Operator to submit this proposal alongside a request for DSI funding in late 2024.
- 2.45 We intend to put appropriate controls around the spend on the DSI MVP to ensure that the System Operator delivers the DSI at good value for money for the sector and consumers. This level of Ofgem oversight will help to deliver the project in the interests of the sector, however, we consider that additional controls are needed, as proposed in Section 3 of this document.

²⁶ [Automatic Asset Registration Programme](#)

²⁷ See also general comment on page 5.

²⁸ [End-Scheme decision on the Electricity System Operator's performance 2021-2023](#)

²⁹ [Our RIIO-2 Business Plan - ESO](#)

³⁰ [The Green Book \(2022\)](#)

Long-term funding (beyond 2028)

- 2.46 We expect the DSI to have enduring annual costs of a scale unknown until the System Operator provides their proposal. We anticipate that as the number of use cases for the service increases, these costs may grow, and we anticipate the System Operator will confirm their position in their proposal.
- 2.47 As the type of users connected to the DSI expands beyond the regulated network monopolies, we may need to consider the funding routes for cost-recovery of operating the DSI. It may become inappropriate to use System Operator baseline funding to recover all DSI costs due to its impact on consumer bills.
- 2.48 Other digital services in the energy sector use a combination of connection charges, usage-based charges, and targeted (e.g. at certain user groups) charges to recover operational costs. We consider that, depending on the specific use case of the DSI, connection costs should be minimised to prevent a barrier to entry for the service. However, for innovative use cases, we would expect to see smaller entities connect to the DSI who are unable to afford usage-based recovery. We consider these challenges to be similar to that posed by the 'Other User' section of the Smart Energy Code data access framework.³¹
- 2.49 We commit to undertaking further investigation, alongside the System Operator, into the most appropriate cost allocation mechanism for the DSI for both MVP development and business-as-usual operation of the DSI.

Questions

- Q1. Do you see potential uses for the DSI within your day-to-day operation in the energy sector?
- Q2. Do you have any comments on the funding mentioned within this section?
- Q3. Do you have any comments on the timeline shown?

³¹ [Security Controls Framework](#)

3. Our vision for governance of the DSI

Section summary

This section considers the need for Ofgem intervention in the digitalisation of the energy sector and the need for having governance in place as digitalisation evolves. This section also outlines a short-term governance model (2024 – 2028) for the DSI, which will be transformational for the digitalisation of the industry. It discusses the need for a governance structure, essential requirements for short-term governance, the proposed short-term governance model, and assessment criteria for evaluating the principal operator.

Why are we creating a DSI governance model?

- 3.1 We consider that Ofgem, as regulator of the sector, should provide a governance framework to ensure the effective use of resources, and the development and support of initial and key use cases, when building and operating the DSI. Effective governance is key to building trust and ensuring industry engages with the proposed solution and standards for data sharing.
- 3.2 Our proposed governance model of the DSI outlines the framework, controls, processes, and structures that govern how data sharing activities are managed, controlled, and regulated within the DSI. In this model, we outline the roles, responsibilities, decision-making mechanisms, and accountability mechanisms of stakeholders involved in data sharing. This will ensure transparency, trust, and compliance with appropriate regulations and standards.
- 3.3 This consultation concerns an interim period of governance of the DSI, between 2024 and the end of 2028. It is anticipated that governance will gradually evolve from short-term governance to an enduring governance model, which will be in place beyond 2028. Ofgem intends to publish further information on this enduring governance model in the near future.
- 3.4 The interim governance model presented here aims to create and mature the areas required for effective governance of the DSI whilst avoiding actual or perceived conflict of interest by participants. It will oversee aspects such as privilege management, data standards, cybersecurity, and cross-sector integration in a structured manner, as outlined in Figure 3. A key feature of this governance solution, described in more detail below, is the establishment of an Interim DSI Coordinator which will govern the DSI throughout this interim period (2024 – 2028).

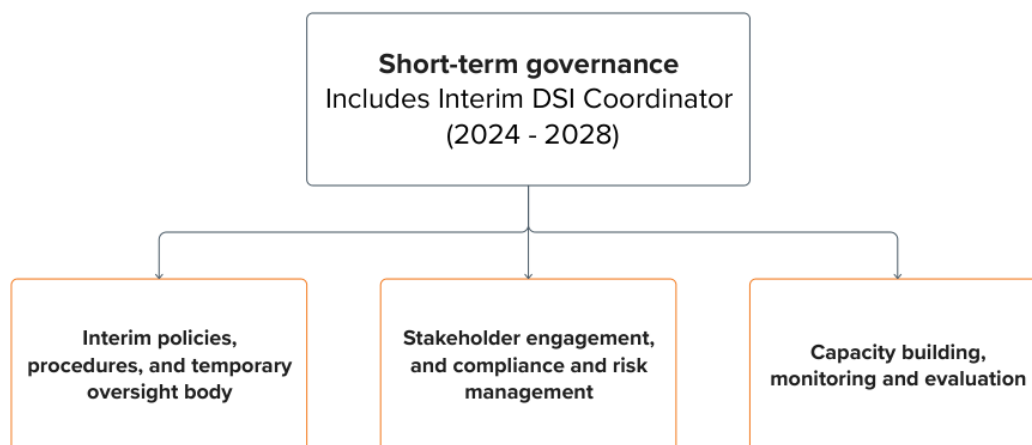


Figure 3: Short term governance model.

- 3.5 Post-2028, it is expected that the Interim DSI Coordinator will have assembled a library of data pertaining to the introduction of use cases on the DSI. This should cover all aspects from concept, characteristics and user requirements through to architecture, design considerations and approvals. It will also cover tendering processes for implementation, program management, additional code/software development and any other areas.
- 3.6 It is currently our intention that, should the enduring governance model come into use or be required prior to the anticipated end of the Interim DSI Coordinator, a process and controls will be established to subsume the Interim DSI Coordinator role into the enduring governance organisation.

Essential short term governance requirements

- 3.7 The short-term governance of the DSI will involve establishing provisional rules, roles, and mechanisms to facilitate initial rollout of an MVP while the infrastructure is being developed and implemented.
- 3.8 Should participants misuse the DSI for commercial gain and violate the trust framework, the System Operator should take appropriate action to seek redress and prevent future misuse of the DSI. We expect the trust framework to set out what this action will entail.
- 3.9 Overall, the short-term governance of the DSI focuses on laying the foundation for effective data sharing while more permanent governance structures and processes are developed.
- 3.10 We will ensure that all the processes, procedures, evaluation models, and use case assessment tools are used and available in an open and accessible manner.

Proposed short-term governance deliverables

3.11 We propose the introduction of an Interim DSI Coordinator as a central body in this governance structure. The purpose of this role is to offer sector participants trust that the DSI will be developed appropriately. This will improve the opportunity for licensees (and in future, potentially other organisations) to be more responsive to the DSI, its uptake and use. The Interim DSI Coordinator and other key bodies involved in DSI governance are shown in Figure 4.

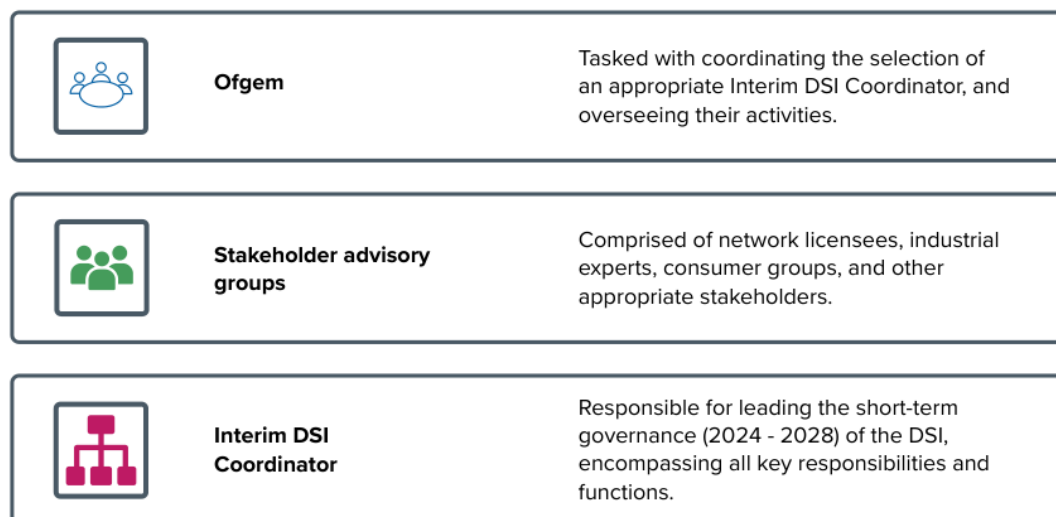


Figure 4: Bodies involved in the short-term governance of DSI.

3.12 The Interim DSI Coordinator's primary roles will be to:

- Undertake significant industry engagement and interaction to determine potential future use cases for the DSI and provide assessment of their appropriateness and development requirements. We propose the Interim DSI Coordinator will be required to publish an annual report outlining existing and proposed future DSI use cases. The first of these reports is to be published on 1 April 2025, to align with the start of the RIIO-3 and RIIO-ED3 price controls in 2026 and 2028, respectively.
- Report, inform and oversee the evolution of the DSI architecture from MVP to steady-state, including extensions of governance areas and forward-looking statement on staffing levels. We propose the Interim DSI Coordinator will be required to publish a report on this evolution two years after the publication of our decision for this consultation.

- We propose the Interim DSI Coordinator will be responsible for creating a knowledge base that covers all the process, procedures, assessment models, cyber security requirements, onboarding and in-life processes for the DSI and its use cases.
- We also propose that the Interim DSI Coordinator undertakes a forward-looking technology assessment to future-proof the DSI, to expose novel digital tools/techniques that should be integrated into the DSI. We propose that this technology assessment is published on 1 April 2028, to coincide with the end of the Interim DSI Coordinator period of activity.

3.13 Ofgem will oversee the activities of the Interim DSI Coordinator.

3.14 The key roles and responsibilities of the Interim DSI Coordinator are summarised in Figure 5 below.

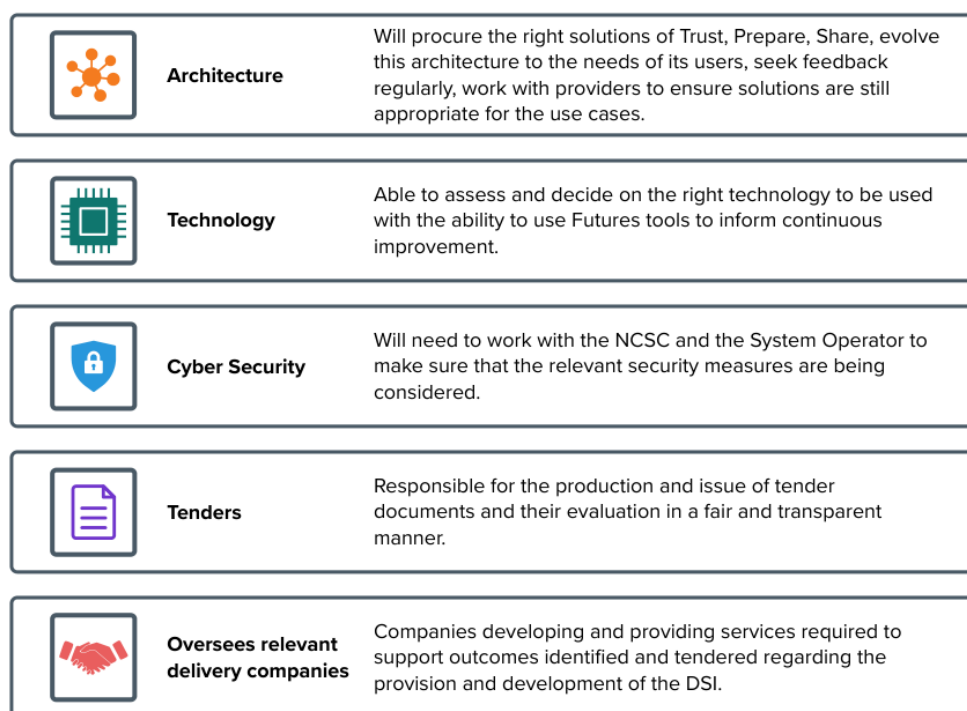


Figure 5: Key roles and responsibilities of the Interim DSI Coordinator.

Questions

- 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?

- Q5. If not, state your reasons and propose an alternative governance model or improvements to our proposed solution.
- Q6. Are there any additional governance roles that are not covered by the proposed governance model? If so, what are these?
- Q7. Do you agree with the responsibilities of the interim DSI Coordinator? Are there any additional responsibilities that it should undertake?
- 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?

4. Options for delivery of an Interim DSI Coordinator

Section summary

In this section, we propose the System Operator, Ofgem and an independent working group as three bodies who could each convene the Interim DSI Coordinator role. We put forward a set of criteria which reflect the necessary functional characteristics of the Interim DSI Coordinator. We then assess the ability of the System Operator, Ofgem and an independent working group to fulfil these criteria, with the System Operator as our preferred option.

- 4.1 We consider that there are three main options for delivery of the Interim DSI Coordinator role: the System Operator, Ofgem, or an independent working group.
- 4.2 The Interim DSI Coordinator must exhibit five essential criteria. Within these criteria, we have highlighted some initial deliverables for the Interim DSI Coordinator. These criteria and deliverables are summarised below.
- 4.3 **Interoperability and common standards:** this involves promoting and where possible ensuring that the correct standards are chosen to ensure interoperability of data being requested and shared using the DSI. Additionally, data standards employed in the DSI should not deviate from internationally recognised data standards to ensure interoperability and adoption. The Interim DSI Coordinator:
 - Should encourage interoperability under the latest available Data Best Practice⁴ Guidance.
 - May consider participation in international forums by contributing to or reviewing proposed or established standards aimed at improving system and data interoperability, to show engagement with international DSI examples.
 - Where possible be aware of development of any new standards, or extensions of existing standards (GB), required for the operation of the DSI.
- 4.4 **Operational capability:** the Interim DSI Coordinator should have the resources, expertise and experience available to govern the initial stages of the DSI effectively and efficiently. The Interim DSI Coordinator should convene members with:
 - Internal digitalisation expertise.
 - Cross-energy knowledge, perspective and resources.
 - Resource allocation capabilities, using external expertise where necessary.
 - Good understanding of sector-specific use cases.

- 4.5 **Independence:** The Interim DSI Coordinator should be suitably independent within the energy sector to allow for a diverse range of perspectives when developing future use cases. It should be able to balance the goals of government and industry. It should also be able to:
- Balance needs, roles and responsibilities.
 - Adopt scenarios across the sector and drive these independently.
 - Be non-partisan to potential use case opportunities.
- 4.6 **Engagement:** Strong stakeholder engagement is necessary to ensure the needs of DSI users and participants are met. The Interim DSI Coordinator will need to:
- Have a strong cross-sectoral presence.
 - Cultivate relationships with industry members, stakeholder groups and other interested parties.
 - Be a trusted partner/collaborator in the energy sector.
- 4.7 **Cyber security:** The DSI will use existing National Cyber Security Centre (NCSC) based assessment products and services to gain accreditation to the requirements for cyber security in the UK. In assessing new use cases, the Interim DSI Coordinator will perform a risk analysis at initial assessment stage of the use case. This process will be developed and matured by the DSI as part of the assessment over a period of time and calling on the expertise of the NCSC and sector as appropriate. The DSI will also need to be 'Secure By Design' and aligned with existing security regulations. It will be advantageous and instil confidence of the industry in the use of the DSI if the Interim DSI Coordinator can display:
- Strong cyber security maturity.
 - A critical relationship with the UK Cyber lead, the NCSC.
 - A strong understanding of sectoral cyber security challenges.
- 4.8 **Below, we discuss how well the System Operator, Ofgem and an independent working group each fulfil these criteria.**

Interoperability and common standards

- 4.9 **System Operator:** The System Operator is obliged by Data Best Practice Guidance⁴ to ensure interoperability of Data Assets across the sector, for which they are Data Custodian. This is primary to its role in the energy sector. Its anticipated participation in international system operator forums and partnerships

with many global energy organisations³² such as Global Power System Transformation (Global PST) Consortium, the European Network of Transmission System Operators (ENTSO-E), the Powering Past Coal Alliance (PPCA), International Council on Large Electric Systems (CIGRE) and Coordination of Electricity System Operators (CORESO) indicates exposure to standards and proposals. The System Operator has experience in embedding common standards through its role in Industry Codes.

- 4.10 **Ofgem:** Provides encouragement and oversight of the energy sector in the drive toward data best practice and has supported the energy industry in its drive toward standards that encourage interoperability. Ofgem, however is not a standards authority and has not traditionally developed standards for the sector. This may limit the ability to fulfil the requirements of the Interim DSI Coordinator.
- 4.11 **Working group:** It will be necessary for the chosen lead of the interim DSI Governance to promote and encourage principles and standards appropriately. A working group lacks the necessary obligation to champion standards. Effectiveness in this area hinges on the expertise and inclination of its members. There would also be limited levers available to this group to ensure that key deliverables are maintained.

Operational capability

- 4.12 **System Operator:** As part of the 'ESO Roles Guidance 2023-25',³³ the System Operator will have a key part to play in the operational digitalisation of the energy industry and will be a digital leader in the sector. Once NESO is established and inherits the current System Operator's existing responsibilities and functions, then NESO, with responsibilities for operating the electricity system and strategic planning of Great Britain's electricity and gas networks, would be ideally placed to encourage data sharing across the sector.
- 4.13 The System Operator has a cross-sectoral view and experience in key resource allocation capabilities and knowledge of recruiting and deploying external specialist expertise appropriately. We consider the System Operator demonstrates a strong grasp of sector-specific use cases and requirements.
- 4.14 **Ofgem:** Ofgem possesses a foundation for assuming the role but fundamentally does not have the operational history, knowledge or capacity in this area. Whilst

³² [Our global network - ESO](#)

³³ See the [ESO roles guidance](#) for the current System Operator (NGESO). Note this role is also proposed for NESO in Ofgem's May 2024 consultation [ISOP Roles Guidance](#).

it might be possible to recruit in the specified skill, the potential for competently understanding the use cases and being able to act on them would be limited.

- 4.15 **Working Group:** The group's formation will demand substantial time and effort. The availability of skilled member expertise and cross-sectoral perspectives, or lack thereof, could inhibit the roll out of sector-specific use cases on the DSI. However, once established, this working group could have the strongest capabilities of the three options.

Independence

- 4.16 **System Operator:** The System Operator's role as the delivery body for the DSI MVP introduces the potential risk of conflict-of-interest if it takes on the governance role as well. This could lead to the skewing of use case and platform designs towards internal goals and preferences, undermining the impartiality of the DSI. However, once established, NESO will be an independent, impartial public body with goals and preferences aligned to benefit the wider energy sector. Therefore, once NESO is established and inherits the current System Operator's existing responsibilities and functions, impartiality should be high.
- 4.17 **Ofgem:** Positioned as an impartial regulator, Ofgem offers a level of independence conducive to aligning with both governmental and industry interests, ensuring a balanced approach to governance.
- 4.18 **Working Group:** This working group should be able to provide a wholly independent view of how the DSI should develop, including bringing cross-sectoral viewpoints. While theoretically advantageous, the group's effectiveness depends on attracting suitable participants, which may pose challenges.

Engagement

- 4.19 **System Operator:** Having a relationship on existing panels, industry groups and steering groups throughout the industry, the System Operator holds a critical position in engagement. Established industry players and platforms will facilitate a wide range of industry support and perspectives. The System Operator is seeking to use digitalisation technologies to streamline and improve services which cannot be achieved in isolation. The Virtual Energy System program, which the DSI MVP development sits within, has existing steering groups that could be utilised.
- 4.20 **Ofgem:** Ofgem possesses pre-existing engagement routes, mostly through network licensees. In leading licensed working groups and participation in sector-specific forums, Ofgem provides avenues for soliciting diverse viewpoints and fostering industry collaboration. Ofgem would, however, be required to set up

several bespoke working groups with a wider representation than only network licensees.

- 4.21 **Working Group:** Establishing engagement routes is paramount for an emerging working group, necessitating the formation of panels or additional working groups to cultivate relationships and gather industry insights over time. These would need to be developed from scratch. The working group has the potential to solicit more effective engagement than the System Operator or Ofgem given industry participants may view it as more independent.

Cyber security

- 4.22 **System Operator:** The System Operator already collaborates with the National Protective Security Authority (NPSA), the National Cyber Security Centre (NCSC) and liaises with government on Energy Security. The System Operator, in compliance of the Network and Information Systems Regulation as an Operator of Essential Service, is conversant with the NCSC Cyber Assessment Framework (CAF). The System Operator will be key in developing and upholding requisite security standards in its role of digitalising the energy sector. This means the System Operator can provide a clear view of sector-specific cybersecurity requirements.
- 4.23 **Ofgem:** Under Network and Information Systems Regulations, Ofgem performs as a competent authority and assesses the cyber security maturity of the designated operators of essential service. Ofgem possesses inherent awareness of sector-specific security requirements, enabling effective oversight and regulation of cybersecurity standards within the energy sector.
- 4.24 **Working Group:** Lacking regulatory oversight and competency, a working group may struggle to grasp key cyber security challenges and adequately address sector-specific security needs, potentially undermining the effectiveness of cyber security measures.

Overall conclusion

- 4.25 The System Operator has strong capabilities in many of our assessed criteria and so is our preferred option to take on the role of the Interim DSI Coordinator. It is obligated under Data Best Practice Guidance to ensure data assets are interoperable. The System Operator's participation in international system operator forums, panels and steering groups put it in a strong position to engage with stakeholders on standards adoption, understanding future use cases and ensuring continued good cyber security practice. As an established organisation in

- the energy sector, the System Operator has a high level of industry knowledge and resource that would be necessary for initial operational capabilities.
- 4.26 As the System Operator is currently contributing towards delivering the MVP of the DSI, it could be construed that there is a lack of independence. As Interim DSI Coordinator, the System Operator may design use cases that are suited towards its own operational needs and goals, which may not necessarily be those of the wider energy sector. We consider this risk will be mitigated with adequate oversight and appropriate controls from Ofgem and government regarding spend on the DSI MVP.
- 4.27 Additionally, once the current System Operator transitions to NESO and is designated as the new Independent System Operator and Planner (ISOP), it will become an independent, impartial public body with statutory objectives to deliver net zero, maintain security of supply and ensure an efficient, coordinated and economical system. In this case, the goals and preferences of NESO as the Interim DSI Coordinator should align with those of the wider energy sector.
- 4.28 Ofgem are obliged to be independent which would extend to the DSI. Ofgem would also ensure alignment with government, industry and consumer goals. Ofgem also have pre-existing engagement routes to encourage best practices and, where appropriate, standards. However, the 'regulator to regulated entity' relationship may limit the breadth of stakeholder participation. As a competent authority, Ofgem have a strong understanding of the cyber security requirements of the sector but may lack the System Operator's organisational insights in this space. Ofgem has limited available technical expertise in this area to effectively survey potential use cases and would have to increase resource significantly to fulfil the operational requirements of the Interim DSI Coordinator.
- 4.29 An independent working group that is suitably balanced and experienced would take significant time and resources to establish. There is a strong risk that the correct skills would not be present in an independent working group from the beginning, which would severely limit the group's operational capability, technical knowledge and understanding of use cases. A new entity such as a working group would not be able to leverage existing stakeholder engagement routes, and it would take time to build up stakeholder relationships. It is highly unlikely that an independent working group would initially be able to fulfil the responsibilities of the Interim DSI Coordinator.
- 4.30 The Ofgem minded-to position is that the Interim DSI Coordinator will be led by the System Operator, with the addition of stakeholder contributor resources as

required. These contributors will be assembled from licensees, stakeholders and Ofgem. After assessment, the System Operator stands out as the most suitable choice for governing the DSI. The System Operator's expertise, industry engagement, and regulatory framework involvement make it well-equipped for the role. Appointing the System Operator as the Interim DSI Coordinator ensures continuity and builds upon their proven track record of delivering quality work on the project.

Questions

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

5. Conclusion and next steps

Section summary

This section brings together our rationale for a DSI, why effective governance is needed in the short-term, and what our preferred options are for delivering this.

- 5.1 In this consultation, we have outlined the potential for a DSI to enable trusted data sharing for key use cases in the energy system.
- 5.2 Work is ongoing to build a DSI Pilot and MVP, and we are coming closer to the reality of a DSI in the energy sector. To maximise the value of a DSI to consumers, we need robust governance and an organisation that can provide technical direction and oversight to the process whilst navigating the many industry stakeholders that will need to be involved in developing the initial use cases.
- 5.3 We have put forward a proposal for the key role of the Interim DSI Coordinator. This is an interim oversight body that will be responsible for developing the architecture of the DSI and the technologies that sit behind it, ensuring the solution is cyber secure. A key part of this role is working with stakeholders to develop and build use cases.
- 5.4 The Interim DSI Coordinator will establish provisional rules, roles, and mechanisms to facilitate initial data sharing activities while the infrastructure is being developed and implemented. Key deliverables for the Interim DSI Coordinator will include annual reports on existing and proposed use cases of the platform, a report on the evolution of the platform based on its initial two years in operation, accumulation of key information and knowledge on the management and establishment of use cases on the DSI, and a forward-looking technology assessment to maintain a future proof platform.
- 5.5 Our preferred option is to appoint the System Operator as the Interim DSI Coordinator, as set out through our options assessment. The System Operator is already responsible for developing the DSI Pilot and MVP, and delivering successful use cases will necessitate a co-ordinator role that mandates engagement across the sector. We welcome general views and comments on our rationale and the methodology behind our assessment.

Next steps

- 5.6 This consultation will remain open for 8 weeks, closing on 20 September 2024. Following this, we will review and analyse consultation responses and carry out any follow-up with stakeholders, respondents or interested parties as required.
- 5.7 We intend to work with stakeholders and relevant organisations to refine the detailed design of the short-term governance model presented in this consultation. Ofgem will still have strategic oversight of the System Operator through the System Operator's price control.
- 5.8 Following our decision from this consultation, Ofgem intends to publish further information on an enduring governance structure in the near future. This future information will put forward Ofgem's proposal for an enduring governance structure for energy sector digitalisation projects.

Appendices

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Appendix 1 – List of all consultation questions

Section 2 Questions

- A1.1 Q1. Do you see potential uses for the DSI within your day-to-day operation in the energy sector?
- A1.2 Q2. Do you have any comments on the funding mentioned within this section?
- A1.3 Q3. Do you have any comments on the timeline shown?

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?
- A1.5 Q5. If not, state your reasons and propose an alternative governance model or improvements to our proposed solution.
- A1.6 Q6. Are there any additional governance roles that are not covered by the proposed governance model? If so, what are these?
- A1.7 Q7. Do you agree with the responsibilities of the interim DSI Coordinator? Are there any additional responsibilities that it should undertake?
- 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?

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

Appendix 2 – Related publications

- [Annex E - Electricity System Operator Licence Conditions](#) (Ofgem)
- [Automatic Asset Registration Programme](#) (DESNZ)
- [Call for Input: The Future of Distributed Flexibility](#) (Ofgem)
- [Data Best Practice Guidance](#) (Ofgem)
- [Decision on the initial findings of our Electricity Transmission Network Planning Review](#) (Ofgem)
- [Delivering a Digitalised Energy System](#) (Energy Systems Catapult)
- [Delivering a smart and secure electricity system: the interoperability and cyber security of energy smart appliances and remote load control](#) (DESNZ)
- [Digitalising our energy system for net zero: strategy and action plan](#) (DESNZ)
- [End-Scheme decision on the Electricity System Operator's performance 2021-2023](#) (Ofgem)
- [Energy Data Taskforce: A Modern Digitalised Energy System](#) (Energy Systems Catapult)
- [Energy Digitalisation Taskforce report: joint response by BEIS, Ofgem and Innovate UK](#) (DESNZ)
- [ESO roles guidance](#) (NGESO)
- [European Strategy for Data 2020](#) (European Commission)
- [Future Systems and Network Regulation: Framework Decision Overview](#) (Ofgem)
- [ISOP Roles Guidance](#) (Ofgem)
- [Our global network - ESO](#) (NGESO)
- [Our RIIO-2 Business Plan - ESO](#) (NGESO)
- [Our strategy and priorities](#) (Ofgem)
- [Project EDGE Final Report](#) (AEMO)
- [RIIO-3 Sector Specific Methodology Consultation - Overview Document](#) (Ofgem)
- [Security Controls Framework](#) (SEC)
- [Staff working document on data spaces](#) (European Commission)
- [The Green Book \(2022\)](#) (HM Treasury)

Appendix 3 – Glossary

Term	Definition
Application Programming Interface (API)	Software intermediaries that allow two applications to talk to each other. For example, to allow data to be extracted or shared within or between organisations.
Automatic Asset Registration Programme (AAR)	The Automatic Asset Registration (AAR) Programme provided an opportunity to develop innovative solutions for asset registration that will facilitate digitalisation of the energy system. Phase 2 of the AAR Programme, currently underway, will support a project to develop a solution for automatically registering small-scale energy assets and an accompanying Central Asset Register. The Phase 2 project was selected from the Phase 1 winning projects.
Centralised data repositories	A single owner’s dataset that they are willing to share, via a single point of access (geographical or virtual) on a limited basis, with a set of rigid access frameworks around this data. See also the definition for ‘decentralised data repositories’.
Centralised Strategic Network Plan (CSNP)	The coordinated strategic plan for long-term development of the electricity transmission and natural gas transmission systems, accounting for hydrogen and other energy vectors over a 25-year period that identifies the need for delivery of immediate and future infrastructure projects across Great Britain as well as identifying solutions for long and short-term system operability issues.
Common Data Spaces	A trustworthy and secure environment with common data infrastructures and governance frameworks, in which data is available for access and sharing.
Common Information Model (CIM)	An open standard used to manage and share energy data. It allows models of the network to be shared with users in a common and interoperable format.
Data Best Practice Guidance	Principles and expectations for licensees to follow when preparing Digitalisation Strategies and Action Plans. Part of Ofgem's standards for data and digitalisation.
Data Sharing Infrastructure (DSI)	The technologies and common data standards that facilitate seamless and secure data sharing between multiple entities.
Data standards	The rules and definitions by which a dataset is documented, structured and formatted. Common standards between datasets facilitate data aggregation, sharing and reuse.
Decentralised data repositories	Decentralised data sharing involves core participant data remaining within the participant’s governance, and other known participants having access to a standardised version of the data in an agreed format. This allows for the sharing of data across multiple organisations and multiple geographical

	locations with all participants and locations known to all participants. See also the definition for ‘centralised data repositories’.
DESNZ	The Department for Energy Security and Net Zero (DESNZ) is focused on the energy portfolio from the former Department for Business, Energy and Industrial Strategy (BEIS).
Digital spine	A thin layer of interaction and interoperability across all players which enables data to be ingested, standardised and shared in near real time. Now referred to as a DSI.
Digitalisation Strategy and Action Plan (DSAP)	As part of RII0-2 price controls and Ofgem’s standards for data and digitalisation, relevant licensees must prepare and update Digitalisation Strategy and Digitalisation Action Plans detailing the strategic approach taken by an organisation and the organisation’s plan to digitalise its Products and Services.
Distributed assets / Distributed Energy Resources (DER)	Small-scale power supply or demand resources that are connected to the grid. Examples include solar photovoltaic units, home batteries and small wind turbines.
Distribution Network Operator (DNO)	Licensed companies that own and operate the network of cables, transformers and towers that bring electricity from the national transmission network to businesses and homes.
Enduring governance	The governance framework that will oversee the ongoing operation of the DSI once it is fully established.
Energy Digitalisation Taskforce (EDIT)	A taskforce commissioned by department formerly known as Department for Business, Energy and Industrial Strategy (BEIS) (now DESNZ), Ofgem and Innovate UK to focus on modernising the energy system to unlock flexibility and drive clean growth towards net zero emissions by 2050. In 2022 it published a report containing six overarching recommendations and actions for DESNZ, Ofgem and industry to spur a digitalised energy system.
Energy system data	Data which describes the energy system and its operation (current, historic and forecast), including the presence and state of infrastructure, operation of the system, associated market operations, policy and regulation.
Flexibility Digital Infrastructure (FDI)	Flexibility Digital Infrastructure is an Ofgem workstream aiming to maximise the participation of distributed assets in flexibility markets by coordinating digital infrastructure to address market barriers.
Flexibility market, Flexibility service, Flexibility product	Flexibility market is the general term for a market, service, or product used to procure flexibility. This can include DSO local flexibility markets, ESO balancing and ancillary services including the Balancing Mechanism, the Wholesale Market, the Capacity Market, and peer-to-peer P2P services (i.e. PPAs), etc.

Future Systems and Networks Regulation (FSNR)	The framework for the next round of price controls. This was consulted on by Ofgem in March 2023 and a decision was published in October 2023.
Gateway device	A physical device that allows ingress and egress between two points or networks. Examples include firewalls, routers and servers.
Icebreaker One (IB1)	A neutral non-profit organisation that works on data sharing and sustainability. Convenes private organisations and governments to design and deliver solutions at market scale.
Independent System Operator and Planner (ISOP)	The Independent System Operator and Planner (ISOP) (as defined in Part 5 of the Energy Act 2023) is an expert, impartial body with responsibilities across both the electricity and gas systems, driving progress towards net zero while maintaining energy security and minimising costs for consumers.
Information Exchange Standard (IES)	A standard for information exchange developed within UK Government.
Interim DSI Coordinator	The body that will be responsible for overseeing initial DSI operations, setting policies, and resolving any issues during early stages.
Interim governance	The governance framework that will oversee the initial operation of the DSI as it is set up.
Metadata	Data that provides information about a dataset that makes tracking and working with multiple datasets easier.
Minimum Viable Product (MVP)	A new product that is released with enough features to demonstrate the value of the product, prior to developing a more fully featured product. This allows for faster product development and delivery.
National Cyber Security Centre (NCSC)	The NCSC acts as a bridge between industry and government, providing a unified source of advice, guidance and support on cyber security, including the management of cyber security incidents.
National Digital Twin Programme (NDTP)	The government-led programme committed to growing national capability in digital twinning technologies and processes throughout the country.
National Energy System Operator (NESO)	The company that, in future, is expected to be designated as the ISOP. NESO will be an independent, public corporation responsible for planning Britain's electricity and gas networks and operating the electricity system. See also the definition of 'System Operator'.
National Grid Electricity System Operator Limited (NGESO)	The current electricity system operator for Great Britain. See also the definition of 'System Operator'.

Net Zero Innovation Portfolio (NZIP)	The Net Zero Innovation Portfolio provides funding for low carbon technologies and systems, to help enable the UK to end its contribution to climate change.
Network Innovation Allowance (NIA)	The NIA is a set amount that each RIIO network licensee receives as part of their price control allowance. Network licensees make the decisions as to which innovation projects they take forward with their NIA.
Open-source software	Open-source software is released under a licence which grants users the rights to use, study, change, and distribute the software and its source code to anyone and for any purpose. This allows it to be further developed in a collaborative, public manner.
Project EDGE	Project EDGE (Energy Demand and Generation Exchange) aims to demonstrate an off-market, proof-of-concept Distributed Energy Resource (DER) Marketplace that efficiently operates DER in Australia to provide both wholesale and local network services within the constraints of the distribution network. It is a collaboration between AEMO, AusNet Services and Mondo, with financial support from the Australian Renewable Energy Agency (ARENA).
RIIO	Ofgem's model for price controls for the gas and electricity network companies of Great Britain. RIIO-2 is the second set of price controls implemented under our RIIO model, from 2021 - 2028. RIIO-3 price controls are currently under development.
Smart Secure Electricity Systems Programme (SSES)	The Smart Secure Electricity Systems (SSES) Programme is designed to create the technical and regulatory frameworks that will enable domestic-scale energy smart appliances to be used flexibly by consumers to contribute to demand management across the electricity grid. The purpose of the programme is to give consumers choice to use their appliances more flexibly and to enable them to shop around for deals that will reward them for doing so. The high-level principles and objectives for this consultation were set out in the government's July 2022 consultation on Delivering a Smart and Secure Electricity System .
Strategic Innovation Fund (SIF)	The Strategic Innovation Fund (SIF) is a funding mechanism within the RIIO-2 network price control for the Electricity System Operator, Electricity Transmission and Electricity Distribution, Gas Transmission and Gas Distribution sectors. In partnership with Innovate UK, Ofgem aims to find and fund ambitious, innovative projects with the potential to accelerate the transition to net zero. These projects should

	help shape the future of the gas and electricity networks and succeed commercially where possible.
System Operator	Within this document, references to System Operator either relate to activities or obligations of NGENSO, or to activities and roles which we expect NESO (once established and designated as the ISOP) to inherit from NGENSO or otherwise perform.
Transmission Owners (TOs)	Responsible for the reliable transmission of power from generation plants to regional or local electricity distribution operators (DSOs) by way of a high voltage electrical grid.
UK GDPR	General Data Protection Regulation (Regulation (EU) 2016/679) as retained in domestic law following the UK's withdrawal from the European Union.
Virtual Energy System	An ecosystem of interconnected digital twins of the entire energy landscape, working in parallel to the physical system. Currently under development by National Grid Electricity System Operator Ltd (NGESO).

Appendix 4 – Privacy notice on consultations

Personal data

The following explains your rights and gives you the information you are entitled to under the UK General Data Protection Regulation (UK GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

1. The identity of the controller and contact details of our Data Protection Officer

The Gas and Electricity Markets Authority is the controller, (for ease of reference, “Ofgem”). The Data Protection Officer can be contacted at dpo@Ofgem.gov.uk

2. Why we are collecting your personal data

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

3. Our legal basis for processing your personal data

As a public authority, the UK GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. i.e. a consultation.

4. With whom we will be sharing your personal data

We are not intending to share your personal data with other organisations unless legally obligated to do so.

5. For how long we will keep your personal data, or criteria used to determine the retention period.

We are not intending to collect, process or share your personal data. Any personal data will be held for 3 months after the project is closed.

6. Your rights

The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- Know how we use your personal data.
- Access your personal data.
- Have personal data corrected if it is inaccurate or incomplete.

- Ask us to delete personal data when we no longer need it.
- Ask us to restrict how we process your data.
- Get your data from us and re-use it across other services.
- Object to certain ways we use your data.
- Be safeguarded against risks where decisions based on your data are taken entirely automatically.
- Tell us if we can share your information with 3rd parties.
- Tell us your preferred frequency, content and format of our communications with you.
- To lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO at <https://ico.org.uk/>, or telephone 0303 123 1113.

7. Your personal data will not be sent overseas

8. Your personal data will not be used for any automated decision making.

9. Your personal data will be stored in a secure government IT system.

10. More information: For more information on how Ofgem processes your data, click on the link to our "[Ofgem privacy promise](#)".