UK Power Networks
Delivering your electricity

DSO Conflicts of Interest

Review of changing roles and responsibilities

April 2026

Forward from UK Power Networks DSO

The roles within the sector are evolving, especially with NESO, the Market Facilitator (MF) and GB Energy (GBE). To understand the implications for our governance and potential new conflicts we commissioned a report from one of our expert Supervisory Board members, Dr. Jeff Hardy. The study reviewed institutional roles and responsibilities, governance structures and conflict mitigation arrangements. The main findings from the study were discussed with key stakeholders at our DNOA Roundtable event earlier in the year. The report has now been published to share insights more widely across the sector, facilitating dissemination and engagement with stakeholders, and to drive wider improvements and best practices.

The externally driven conflicts identified by the study are summarised in the following conflicts register. The descriptions have been shortened and customised to our specific circumstances. The core conflict column reflects the underlying governance tensions identified in Section 6 of the report. Any errors or misinterpretations in the translation are solely our responsibility and not of the report author.

The conflicts identified are wide-ranging, interact across multiple institutions, and are still evolving. They can only be comprehensively managed through ongoing collaboration and engagement with relevant parties. We have included in the register existing, but not exhaustive, conflict mitigations such as collaboration undertaken and transparency to shine a light on potential conflicts. Mitigation approaches included in the original version of the report has not been included in this published version to allow for further development with stakeholders.

We will continue to consider the report findings in detail to inform future activities, with input and challenge from our DSO Supervisory Board, to develop ongoing and coordinated mitigations to evolving industry roles and responsibilities. Figure A illustrates how we identify and manage conflicts.

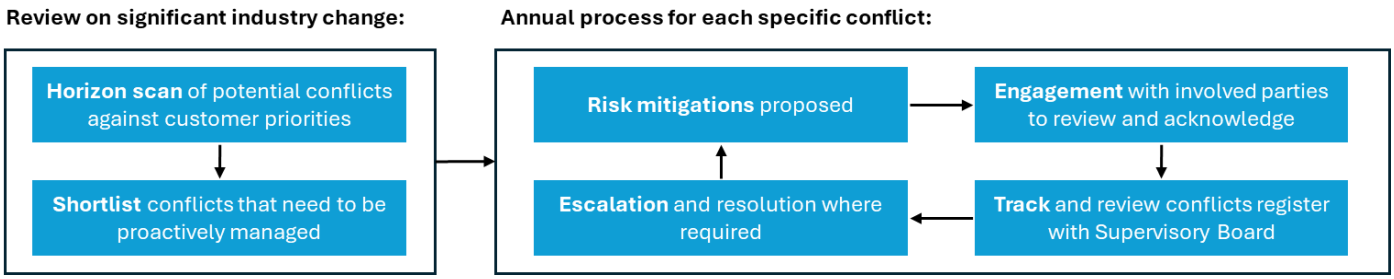

Figure A: DSO process for identifying and managing conflicts

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Customer outcome (4.3.2)	Conflict type (6.3)	Core conflict	External driver (6.3)	External parties	Conflict (6.3)	Current mitigations (non-exhaustive)
Efficient and affordable delivery	Risk and accountability	• Asymmetric accountability • Local risk absorption • Defensive decision-making	Centralised assumptions	NESO	DNO-DSO investment plans increasingly based on RESP planning assumptions and pathways. If overly optimistic and/or spatially and temporally misaligned, risks unnecessary local costs.	• Collaborated with NESO RESP to refine tRESP pathways, inputted into Ofgem's ED3 framework development, NESO RESP's Strategic Energy Needs framework, and NESO RESP and MF governance consultations. • More accurate forecasting with local intelligence via local authorities and housing data. • Transparency through System Needs Register to include forecast along with pathways. • Explained approach in updated DNOA methodology.
			Incentive misalignment	Ofgem	DNO-DSO accountable for efficient capital deployment but policy is encouraging anticipatory investments. Risk of inefficient costs due to inherent uncertainty of anticipatory needs.	
			Temporal compression	NESO, Ofgem	Risk of inefficient cost commitments by DNO-DSO due to timelines not aligning across planning cycle (RESP), price controls (RIIO), and connection reform.	
			Interface complexity	NESO, Ofgem, MF	Multiple institutions across national planning, market rules, and regulatory requirements, means no single party is end-to-end responsible for resolving tensions, which DNO-DSO must navigate.	
Fair access, transparency and effective competition	Neutrality and legitimacy	• Perceived bias • Politicisation of dispatch / procurement • Dispersed assurance responsibility	Centralised assumptions	NESO	Flexibility market needs increasingly defined by RESP planning assumptions and pathways, which could differ to actual network conditions, complicating procurement/dispatch and market perceptions.	• Robust DNO-DSO governance with legal separation, Operational Agreement, independent oversight from the DSO Supervisory Board, and transparent data and methodologies which is subject to regular review. • Transparency through System Needs Register to include forecast along with pathways to give view of future flex opportunities to market. • Developing new flexibility use cases, collaborating on CEM CBA working group and benefit reporting, working through MF governance, and engagement with flexibility providers including at flexibility forums events.
			Standardised rules	MF	DSO must operate within defined market rules which makes discretionary decisions more visible.	
			Policy prioritisation	DESNZ, GBE	Decarbonisation policy and state-backed actors increase sensitivity to perceived preferential treatment.	
			Interface complexity	NESO, Ofgem, MF	Overlapping governance and assurance between NESO, Ofgem and MF, but accountability for local outcomes remains with the DNO-DSO, increasing scrutiny of DNO-DSO decision-making.	

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Customer outcome (4.3.2)	Conflict type (6.3)	Core conflict	External driver (6.3)	External parties	Conflict (6.3)	Current mitigations (non-exhaustive)
Secure and resilient supply	Efficiency and operational security	• Silent transfer of security risk • Premature capital commitment • Reduced iterative optimisation	Centralised assumptions	NESO, Ofgem	National planning and whole-system optimisation shape capacity sequencing. Where they prioritise anticipatory build, it affects DNO-DSO ability to consider trade-offs.	• Input into Ofgem's ED3 framework development and NESO RESP's Strategic Energy Needs framework development. • Explained approach in updated DNOA methodology, including how we consider uncertainty. • MF governance allows for a degree of non-standard use of flexibility. • Developing new flexibility use cases and collaborating on CEM CBA working group to review method of evaluating flex-reinforcement trade-offs.
			Standardised rules	MF	Standardised flexibility products and market frameworks could limit the DSO's ability to tailor solutions to local conditions.	
			Policy prioritisation	DESNZ, NESO, Ofgem	Decarbonisation policy and strategic investments may prioritise capacity readiness over incremental efficiency, reducing option value even where uncertainty remains.	
			Temporal compression	NESO, Ofgem	Shorter lead times from planning to delivery reduce the opportunity to test flexibility solutions over time before committing to capital investment.	
Enabling net zero and timely connections	Strategic authority and local discretion	• Passive compliance • Spatial misalignment • Reduced adaptability to local constraints	Centralised assumptions	NESO	Local forecasting, flexibility volumes and reinforcement strategies increasingly based on national pathways.	• Collaborated with NESO RESP to refine tRESP pathways, input into Ofgem's ED3 framework development, NESO RESP's Strategic Energy Needs framework, and NESO RESP and MF governance consultations. • MF governance allows for a degree of non-standard use of flexibility. • Proactively supporting local actors with their LAEPs, including through digital tools, and helping them adapt and interface with RESP.
			Standardised rules	MF	Common product definitions, data standards, assumptions and coordination frameworks reduce the scope for locally differentiated planning approaches.	
			Policy prioritisation	DESNZ, NESO, Ofgem	Decarbonisation and accelerated infrastructure policy can sometimes leave local feasibility and community alignment unresolved.	
			Temporal compression	NESO, Ofgem	Planning and regulatory cycles require local actors to commit to strategies within national timelines, limiting room to adapt to evolving evidence.	
			Interface complexity	DESNZ, NESO, Ofgem, MF	Whole-system coordination spans multiple parties, yet no single institution bears full responsibility for reconciling trade-offs across these layers.	

Sustainable Energy Futures Ltd

Sustainable Energy Futures Ltd

Roles and responsibilities in a changing energy system

A report for UK Power Networks Distribution System Operator

Dr Jeff Hardy, Director Sustainable Energy Futures Ltd
13-Mar-26 (redacted version)

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1 Purpose

This report examines how recent changes to energy system governance affect the Distribution System Operator (DSO) and its relationship with the Distribution Network Operator (DNO).

The electricity system in Great Britain is undergoing structural change. The introduction of the National Energy System Operator (NESO), Market Facilitator, and Great British Energy has reshaped the allocation of strategic authority, operational discretion, and accountability across the system. This has knock-on effects on the DSO's role and its relationship with the DNO.

The purpose of this report is threefold.

First, it identifies and analyses reinforcing interactions, conflicts of interest, trade-offs and governance gaps arising from the interaction of institutional roles across electricity system functions. The emphasis is on how these interactions affect the DSO and its relationship with the DNO.

Second, it assesses how recent institutional reforms generate pressures on the DSO–DNO relationship. The DSO–DNO model is conceptualised as a set of internal balances between operational discretion, investment responsibility, neutrality and strategic alignment. The report evaluates the effects of emerging governance on these balances.

Third, the original report proposed measures the DSO could take to mitigate the impact of governance changes on the DSO, the DNO, and the wider energy system and how these affected customer outcomes. These detailed mitigation measures are not included in this version as they will be further developed with the UKPN DSO Supervisory Board and wider stakeholders.

2 Approach

2.1 Analytical focus and unit of analysis

This study examines how recent institutional reforms in Great Britain's electricity system affect the Distribution System Operator (DSO) and its relationship with the Distribution Network Operator (DNO).

The author is an expert in energy system governance and an independent member of the UK Power Networks DSO Supervisory Board and the DNOs Independent Stakeholder Group.

The unit of analysis is the DSO–DNO relationship, conceptualised as a set of balances spanning core electricity-system functions. The report assesses how decision rights, responsibilities, incentives and accountability interact across institutional boundaries, and how these interactions shape distribution-level outcomes. It does not evaluate organisational performance or the merit of policies.

2.2 Energy system functions as an analytical lens

The analysis uses energy system functions as a lens to explore the roles and responsibilities of institutions. These functions describe the activities required to plan, operate, secure and govern the energy system.

The analysis uses eight energy system functions identified by the author in a 2019 report and adds two new functions based on a rapid evidence review of energy governance changes. The two new functions reflect developments in digital governance and market assurance. These ten energy systems functions are the basis for mapping institutional roles and responsibilities and interactions

2.3 Institutional mapping and responsibility analysis

Responsibilities across key institutions are mapped against each function.

For each function, the report distinguishes between:

- Primary delivery responsibility;
- Shared delivery responsibility;
- Governance or rule-setting authority;
- Strategic influence; and
- Accountability for consequences.

Subsequent analysis focuses on functions in which the DSO holds primary operational responsibility and/or in which delivery is materially shaped by externally defined governance frameworks.

2.4 Function-level assessment

For priority functions, the report assesses institutional interaction across four dimensions:

- Reinforcing interactions, where roles and incentives reinforce one another;
- Conflicts or misalignments, where authority and accountability diverge;
- Trade-offs, where legitimate objectives compete; and
- Gaps, where responsibility, funding or arbitration is unclear.

This indicates where structural tensions arise from institutional reform.

2.5 Governance pressures and impact on the DSO-DNO balance

Potential conflicts or misalignments identified at the function level were assessed and found to collapse into six recurring governance pressures. These pressures are a function of multiple institutions and operate across multiple energy system functions. They affect the distribution of influence, discretion, and risk within the DSO–DNO relationship.

These six governance pressures were assessed against four internal balances within the DSO–DNO relationship:

1. Risk allocation and accountability;
2. Neutrality and legitimacy at the market–network boundary;
3. Economic efficiency and operational security; and
4. Strategic planning authority and local operational discretion.

These balances describe how responsibilities and risk exposure are balanced across system functions. They serve as a framework for analysing how external institutional changes affect the internal DSO–DNO balance and potential mitigations.

2.6 Use of generative AI

In developing this report, the author used generative AI (ChatGPT and Claude) as a support tool to accelerate desk-based analysis, sense-check institutional interactions, and assist with structuring draft material. Outputs were reviewed, refined and supplemented through professional judgement and domain expertise. Responsibility for all interpretations, classifications and recommendations rests with the author.

3 Essential energy system functions

3.1 Energy system functions identified in 2019

In a 2019 report, "Towards Distribution System Operator Paradigm" for Northern Powergrid[1] Imperial College London undertook a meta-analysis of energy system functions, led by the author of this report. These energy system functions are required to plan, operate and restore energy systems, with a focus on electricity networks.

The 2019 meta-analysis identified eight energy system functions, which are summarised in *Table 1*:

Table 1: Summary of the eight energy systems functions identified in the 2019 report

Function name and description	Core activities
Function 1: Connection and Access Rights **Design, allocation and management of physical and contractual access to the distribution network.**	• Connection offers, access rights, products and curtailment terms • Queue management and allocation of capacity • Access rules for different user types • Implementation of national access frameworks and codes
Function 2: Charging **Design and application of charges for use of the distribution system and related services, consistent with national charging frameworks.**	• Network charges (DUoS, connection charges) and local signals • Implementation of national charging reforms • Provision of cost and tariff information
Function 3: System and Asset Visibility **Maintaining an accurate, timely view of the distribution network and connected resources.**	• Network model, topology and ratings • Registration and visibility of assets such as DER, CER, flexible demand and storage • Monitoring strategies and data acquisition • Provision of visibility to NESO, MF and providers
Function 4: Forecasting and Information	• Demand, generation and flexibility

[1] Part of the Customer-led Distribution System Network Innovation Allowance project - https://smarter.energynetworks.org/projects/nia_npg_019/.

Producing and sharing forecasts and information needed for planning, operation and markets.	availability forecasts (short- to long-term) • Network capacity, constraints, curtailment and outage forecasts • Publication of forward-looking signals (e.g. heatmaps) • Provision of data/forecasts into NESO and MF processes
Function 5: Services and Market Facilitation **Specifying, procuring and operating local flexibility and related services to meet system needs.**	• Defining local flexibility needs and service products • Running procurements, dispatch and settlement processes • Coordinating services with NESO • Ensuring open access to opportunities for all eligible providers
Function 6: Smart Network Operation **Real-time and near-real-time operation of the distribution system using advanced tools and control.**	• Operational planning, congestion management and constraint actions • Active network management, dynamic line ratings, voltage and power-quality control • Real-time coordination with NESO and flexibility providers • Implementation of operational security standards at the distribution level
Function 7: System Defence and Restoration **Preparation for and execution of actions to prevent, contain and restore from system disturbances affecting the distribution network.**	• Emergency planning and defence schemes • Distribution-level resilience and restoration plans • Coordination of restoration with NESO and critical customers • Exercising and testing of defence and restoration arrangements
Function 8: Whole System Coordination & Optimisation **Planning and operation of the distribution system as part of an integrated whole-energy and whole-system environment.**	• Co-ordinated transmission–distribution planning and interface management • Cross-vector coordination (heat, transport, gas, storage, hydrogen) • Joint investment planning, least-whole-system cost options assessments • Participating in regional, national and strategic planning processes

Figure 1 shows how these eight functions map against the DSO functions identified by Ofgem in their 2019 position paper on Distribution System Operation[2].

One apparent omission is a function relating to charging (Function 2 in the meta-analysis, coloured red in Figure 1). An explanation is that Ofgem's analysis pertains only to DSO functions, whereas the meta-analysis covers all energy system functions. Thus, a charging regime can be considered exogenous to the DSO functions.

[2] https://www.ofgem.gov.uk/publications/ofgem-position-paper-distribution-system-operation-our-approach-and-regulatory-priorities

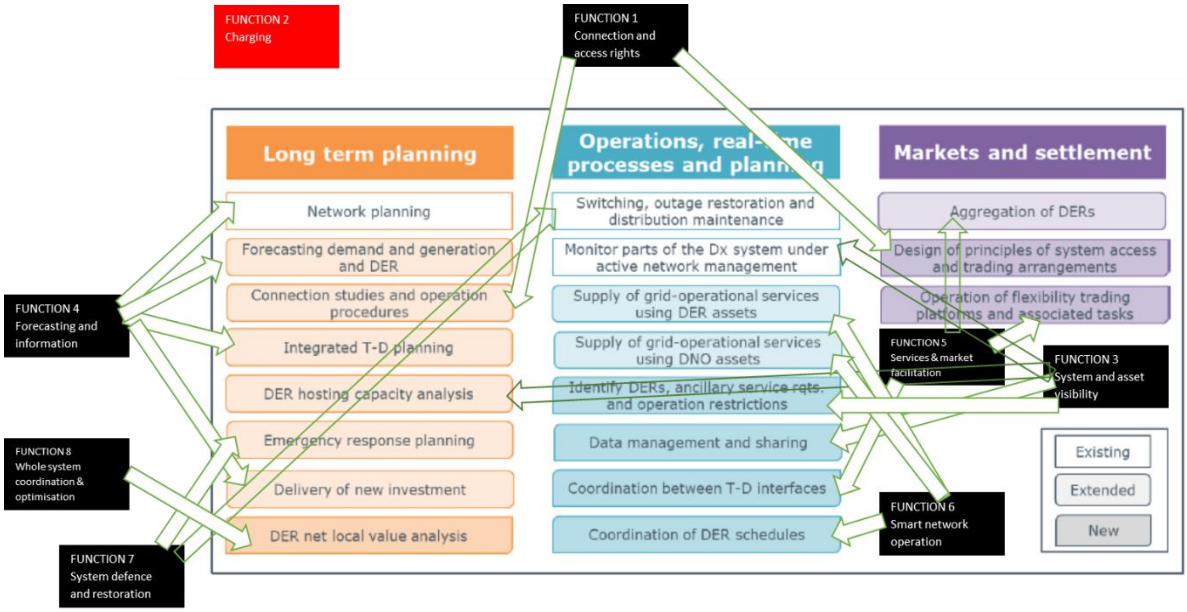

Figure 1: Mapping the eight energy systems functions against the functions identified in Ofgem's DSO position paper

3.2 Two new functions

The energy systems functions analysis was updated to reflect changes to energy governance and institutions (outlined in the next section). The following evidence was reviewed:

- Strategic Policy Statement 2024[3]
- Framework document between the Department for Energy Security and Net Zero and National Energy System Operator[4]
- Decision on the enduring regulatory framework for NESO[5]
- Market facilitator policy framework decision[6]
- Coordinating flexibility: the market facilitator blueprint[7]
- ED3 Sector Specific Methodology Consultation[8]

The analysis concluded that the eight functions remain relevant, and that two new ones have emerged.

New Function 9: Data Governance, Digital Infrastructure & Interoperability

[3] https://assets.publishing.service.gov.uk/media/6631ff75ed8a41eeaf58c0eb/strategy-and-policy-statement-for-energy-policy-in-great-britain.pdf
[4] https://www.neso.energy/document/350706/download
[5] https://www.ofgem.gov.uk/sites/default/files/2025-08/Decision-on-the-enduring-regulatory-framework-for-NESO.pdf
[6] https://www.ofgem.gov.uk/sites/default/files/2025-06/Market-facilitator-policy-framework-decision.pdf
[7] https://www.ofgem.gov.uk/consultation/coordinating-flexibility-market-facilitator-blueprint
[8] https://www.ofgem.gov.uk/sites/default/files/2025-10/ED3-sector-specific-methodology-consultation-core-document_clean.pdf

Since 2019, Ofgem has formalised digitalisation obligations, data-sharing requirements, metadata standards, and expectations for asset visibility under RIIO-ED2. In addition, the Energy Digitalisation Strategy[9] treats data interoperability, common data models, asset registries, and digital architecture as standalone system functions. Consequently, the operation, planning, and market coordination of the electricity system now depend on complex data flows across institutional boundaries, including operational telemetry, asset and connection data, forecasts, flexibility availability, baselines, and settlement information.

The existing functions (1–8) cover the production and use of information (e.g., visibility and forecasting data) but not the governance of the data itself. Decisions about data standards, interoperability, access rights, assurance, digital platforms and interfaces increasingly shape system outcomes, market behaviour and perceptions of neutrality.

Function 9 is therefore introduced to capture the system function governing how data and digital infrastructure are specified, shared, and assured across institutions. This reflects that data architecture and interoperability act as de facto governance mechanisms, influencing coordination, accountability and trust across the system.

New Function 10: Market Governance, Assurance & Neutrality

Recent reforms have introduced a formal separation between the delivery of market-facing activities and governance and assurance of their execution. Flexibility services and local markets remain essential operational tools, but now require assurance that decisions affecting markets, providers, and network investment are made in a neutral, transparent, and accountable manner.

This function is distinct from market facilitation itself - operating markets and assuring their neutrality are distinct activities. It focuses on strengthened rules, oversight arrangements, audit requirements, and performance monitoring to maintain trust that market operators remain neutral.

Function 10 encompasses the frameworks, controls, and assurance mechanisms that span multiple delivery functions. This function is new because, as institutional roles have multiplied and interfaces have become more complex, explicit governance and assurance have become essential to system legitimacy rather than supplementary controls.

Functions 9 and 10 are summarised in *Table 2*.

Table 2: Description and core activities of energy system functions 9 and 10

Function name and description	Core activities
Function 9: Data Governance, Digital Infrastructure & Interoperability **Design, coordination and oversight of data governance arrangements and digital infrastructure required to support planning, operation and markets across the distribution system.**	• Definition and implementation of data standards, formats and interoperability requirements • Governance of data access, sharing rights, permissions and assurance across system actors • Oversight of digital platforms, interfaces and information architectures supporting system and market functions

[9] https://www.gov.uk/government/publications/digitalising-our-energy-system-for-net-zero-strategy-and-action-plan

	• Management of data quality, traceability, security and accountability across institutional boundaries
Function 10: Market Governance, Assurance & Neutrality **The frameworks, controls, and assurance mechanisms that span multiple delivery functions.**	• Identifying and managing interactions and trade-offs between system functions and institutions • Aligning incentives, objectives and delivery approaches across planning, operation and markets • Providing strategic oversight of system evolution, governance arrangements and role boundaries • Supporting resolution of cross-cutting issues that fall outside individual functional remits

4 Institutional roles and responsibilities

4.1 Introduction

The institutional landscape of the electricity system has recently undergone significant change, with the creation of new institutions, including the National Energy System Operator, Great British Energy, and the Market Facilitator.

This section outlines the roles and responsibilities of key institutions in the electricity system, including these new institutions, viewed through the lens of the ten system functions, described in Section 3. It does so from the perspective of the Distribution System Operator (DSO), recognising that governance issues arise from the interactions among responsibilities, incentives, and decision rights across functions.

4.2 DSO-DNO roles and responsibilities

Together, the Distribution System Operator (DSO) and Distribution Network Operator (DNO) deliver a set of distribution-level energy system functions. While the roles sit within the same licensed entity, they are functionally distinct and governed through internal separation, regulatory obligations and external assurance.

The relationship between the DSO and DNO is treated as the core unit of analysis in this report. This DSO–DNO relationship can be visualised as the way operational discretion, investment responsibility, and neutrality are balanced through a set of internal checks and balances. These are embedded in the allocation of decision rights among system operation, market activity, and asset ownership. The report explores how changes to institutional arrangements and to roles and responsibilities could perturb this DSO-DNO balance.

4.2.1 Distribution System Operator (DSO)

The DSO is responsible for the operational delivery and market-facing execution of distribution system functions, serving as the neutral system operator at the distribution level.

The DSO holds primary responsibility for the following functions:

- **System and asset visibility (Function 3)**
  The DSO is responsible for maintaining operational visibility of the distribution system, including network states, constraints and the registration and availability of DER and flexible demand.

- **Services and market facilitation (Function 5)**
  The DSO is responsible for identifying local system needs, procuring flexibility services and dispatching them, operating within the national market framework, and complying with neutrality and assurance obligations.

- **Smart network operation (Function 6)**
  The DSO is responsible for real-time and near-real-time system operation, including congestion management, active network management and coordination with flexibility providers.

- **Data Governance, Digital Infrastructure and Interoperability (Function 9)**
  The DSO is responsible for operational data stewardship and a central delivery role, while operating within externally set standards and governance arrangements.

The DSO holds shared responsibility in the following areas, recognising that the DSO and DNO ae part of the wider distribution and national energy system:

- **Forecasting and information (Function 4)**
  The DSO produces local forecasts and system information within a framework shaped by national scenarios, regulatory requirements and planning processes.

- **System defence and restoration (Function 7)**
  The DSO has a role in local coordination and execution within nationally defined defence and restoration frameworks.

- **Whole-system coordination and optimisation (Function 8)**
  The DSO contributes operational insights and local feasibility to whole-system coordination led at the national and regional levels.

4.2.2 Distribution Network Operator (DNO)

The DNO retains responsibility for long-term asset investment and the associated financial and performance risks, while the DSO influences how those assets are used.

In line with the responsibility mapping, the DNO holds primary responsibility for:

- **Connection and access rights (Function 1)**
  The DNO is responsible for distribution-level connections, access capacity, and long-term access arrangements, informed by operational constraints and signals from the DSO.

- **System defence and restoration (Function 7)**
  The DNO is primarily responsible for restoring distribution assets and infrastructure following system disturbances, within national defence and restoration frameworks.

- **Data Governance, Digital Infrastructure and Interoperability (Function 9)**
  The DNO is responsible for asset and connection data relating to the physical network, complementing the DSO's stewardship of operational and market-facing data.

The DNO has an influence or shared responsibility in:

- **Forecasting and information (Function 4)**
  The DNO relies on DSO forecasts to inform asset strategies but does not control forecast production.
- **Whole-system coordination and optimisation (Function 8)**
  The DNO contributes investment options and delivery constraints into system-wide planning led by NESO and others.

In addition, the DNO provides the corporate governance, funding, and assurance framework within which the DSO operates, including the maintenance of functional separation, neutrality arrangements, and regulatory compliance.

4.3 The DSO-DNO balance

The relationship between the DSO and DNO can be understood as maintaining four institutional balances. These balances between DSO and DNO are managed through the allocation of responsibilities, decision rights, and governance arrangements across functions.

These balances provide a framework for understanding how changes to institutional roles, incentives, or governance arrangements may affect the DSO–DNO relationship. This report uses this DSO-DNO balance as the unit of analysis to assess the impact of changes to energy system governance on the DSO.

4.3.1 The Four DSO-DNO balances

Each of the four balances spans multiple system functions and reflects the balance of responsibilities and decision rights across them. These balances and related functions are summarised in *Table 3*.

Table 3: Summary of the four balances that underpin the DSO–DNO relationship, relevant system functions and associated governance tensions.

DSO-DNO Balance	What is being balanced?	Relevant system functions	What is the tension?
1. Risk accountability and allocation	Operational decision influence ↔ exposure to financial and performance risk	Functions **1** (Connection & Access Rights), **3** (System & Asset Visibility), **4** (Forecasting & Information), **5** (Services & Market Facilitation), **7** (System Defence & Restoration)	The DSO exercises operational discretion through forecasts, flexibility procurement and system operation, while the DNO bears long-term asset, financial and performance risk. Tension arises where influence over outcomes is not matched by accountability for their consequences, creating the potential for misaligned incentives between operational decisions and long-term risk exposure.
2. Neutrality and legitimacy at the market–network	Operational discretion ↔ demonstrable	Functions **3** (System & Asset Visibility), **4** (Forecasting &	The DSO exercises operational control, produces forecasts and holds privileged system

boundary	neutrality and market legitimacy	Information), **5** (Services & Market Facilitation), **9** (Data Governance, Digital Infrastructure & Interoperability)	visibility that materially affects market outcomes. As flexibility volumes grow and governance becomes more distributed, the requirement to demonstrate neutrality increases. Legitimacy depends not only on impartial behaviour, but on visible governance, transparency and assurance proportionate to the DSO's market influence.
3. Economic efficiency and operational security	Short-term operational optimisation ↔ long-term infrastructure resilience	Functions **4** (Forecasting & Information), **5** (Services & Market Facilitation), **6** (Smart Network Operation), **8** (Whole-System Coordination & Optimisation)	The DSO exercises operational judgement to manage constraints and procure flexibility in real time, while the DNO determines long-term network reinforcement and asset investment. Tension arises in how short-term operational optimisation and flexibility use interact with long-term infrastructure resilience and investment certainty.
4. Strategic planning authority and local discretion	Central strategic coordination ↔ locally informed operational decision-making	Functions **8** (Whole-System Coordination & Optimisation), interacting with **3–5**	Strategic coordination increasingly shapes local operational pathways. The DSO is required to translate system-level signals into operational decisions, while the DNO must commit capital and bear delivery and investment risk. Tension arises where coordination influences local commitments without a clear reallocation of accountability or funding between the DSO and DNO.

These balances provide a framework for understanding how the roles and responsibilities of new institutions described in the next section interact with, and in some cases perturb, the DSO-DNO balance. The report now turns to the question of how changes to governance affect these balances in Section 5.

4.3.2 The four balances and customer outcomes

Ofgem has a principal statutory duty to protect the interests of existing and future consumers, including in relation to security of supply and the achievement of net zero. Price controls operationalise this duty as measurable outputs, incentives and requirements. The DSO–DNO relationship and the allocation and balance of responsibilities are mechanisms that deliver and protect customer outcomes amid increasing system complexity.

Drawing on the framework established under Ofgem's RIIO-ED2[10] and the direction of travel in RIIO-ED3[11] customer outcomes for electricity distribution can be condensed into five categories:

Secure and resilient supply

Networks must maintain reliability and restore service under increasingly complex operating conditions. As decentralisation and electrification accelerate, operational coordination and system defence become more material to consumer protection.

Efficient and affordable delivery

Consumers should pay no more than necessary for network services. This includes efficient capital investment, appropriate use of flexibility as a substitute for reinforcement where economic, and management of anticipatory investment under uncertainty.

Enabling net zero and timely connections

Distribution networks must enable decarbonisation pathways through timely connections, capacity readiness, and support for distributed energy resources, while avoiding unnecessary or premature expenditure.

Fair access, transparency and effective competition

Operational decisions, forecasting, flexibility, procurement, and dispatch must be neutral, transparent, and non-discriminatory.

Whole-system coordination and digital enablement

Distribution networks must operate coherently within national and regional planning frameworks, supported by interoperable data, digitalisation and cross-vector coordination. Fragmentation or misalignment that increases system cost harms consumers.

The customer outcomes are mapped against the DSO-DNO balances in *Table 4*.

Table 4: Mapping the customer outcomes to the four DSO-DNO balances

Customer outcome	Primary relevant DSO–DNO balance	Rationale
Secure and resilient supply	**#3 Economic efficiency and operational security**	The balance determines how flexibility use, real-time operation and capital reinforcement interact to maintain

[10] https://www.ofgem.gov.uk/decision/riio-ed2-sector-specific-methodology-decision
[11] https://www.ofgem.gov.uk/sites/default/files/2025-10/ED3-sector-specific-methodology-consultation-core-document_clean.pdf

		reliability without over-investment. Excessive deferral or premature build both risk customer harm.
Efficient and affordable delivery	**#1 Risk accountability and allocation**	Where decision authority and financial exposure diverge, customers may bear costs of misaligned assumptions or premature commitments. Alignment of influence and accountability protects affordability.
Enabling net zero and timely connections	**#4 Strategic planning authority and local discretion**	The DSO translates local decarbonisation ambition into forecasts, and the DNO commits capital to enable delivery. The balance determines whether local net-zero delivery is supported in a timely, proportionate and cost-effective manner.
Fair access, transparency and effective competition	**#2 Neutrality and legitimacy at the market–network boundary**	Confidence that forecasting, procurement and dispatch are impartial underpins competitive participation and efficient market development. Perceived bias undermines consumer trust.
Whole-system coordination and digital enablement	**#4 Strategic planning authority and local discretion** (primary) and #2 **Neutrality and legitimacy at the market–network boundary** (secondary)	Interoperability, shared assumptions and coordinated optimisation depend on clear authority boundaries and trusted data interfaces. Fragmentation or opaque interfaces increase system cost and assurance burden.

4.4 Changes to the energy system landscape: New institutions

Recent reforms to the UK energy system have introduced new institutions that provide additional sources of strategic direction, market governance, coordination, and delivery capacity. These institutions shape the context within which energy system functions are exercised and governed. The key new institutions are the National Energy System Operator, Great British Energy and the Market Facilitator.

This section describes the roles and responsibilities of the principal new institutions, viewed through the lens of the ten energy system functions. Its aim is to clarify how institutional mandates intersect with these functions and how they influence the DSO–DNO balance.

4.4.1 National Energy System Operator: Role & Responsibilities

Role and mandate

Established in October 2024, the National Energy System Operator[12] (NESO) is the independent whole-system operator and strategic planner for Great Britain's energy system. It is responsible

[12] https://www.neso.energy/

for the operation of the national electricity system and for developing integrated, long-term plans across electricity, gas, and emerging energy vectors, in line with government policy objectives on decarbonisation, security of supply, and affordability.

NESO does not own or operate distribution assets, nor does it procure or dispatch local flexibility services directly. Its influence stems from its role in system-wide assumptions, planning frameworks, and coordination mechanisms that shape how other institutions, including DSOs and DNOs, exercise their functions.

Energy system functions

NESO exercises its planning and coordination role primarily through the Strategic Spatial Energy Plan (SSEP) and the Centralised Strategic Network Plan (CSNP). These translate national policy objectives and system scenarios into spatially and temporally specific expectations for network development and system operation. These plans serve as the reference point for developing regional planning, distribution forecasting, and investment strategies, shaping the assumptions and constraints within which DSOs and DNOs operate.

The NESO is responsible for or influential in several functions that are consequential for distribution-level decision-making:

- **Function 4 – Forecasting and Information**
  NESO is responsible for developing national scenarios, system forecasts, and planning assumptions that inform Regional Energy Strategic Plans (RESPs) and other downstream planning and forecasting activities undertaken by DSOs and DNOs.
- **Function 8 – Whole-System Coordination and Optimisation**
  NESO holds primary responsibility for whole-system coordination, including integrating transmission, distribution, and cross-vector considerations, and for identifying future pathways with the lowest whole-system cost.
- **Function 7 – System Defence and Restoration**
  NESO is responsible for national system security, resilience standards and restoration frameworks, within which distribution-level defence and restoration activities are coordinated.

NESO also has material interfaces with:

- **Function 1 – Connection and Access Rights**
  NESO leads transmission-level connection processes, including queue management and infrastructure readiness. Assumptions about the timing and availability of transmission capacity influence how DSOs and DNOs make distribution-level connection offers and investment decisions.
- **Function 5 – Services and Market Facilitation**, through coordination of national balancing and system services with local DSO-led flexibility actions; and
- **Function 9 – Data Governance, Digital Infrastructure and Interoperability**, through its expectations for data quality, modelling consistency and interoperability across national and regional planning and operational processes.

Relevance to DSO-DNO balance

The NESO is institutionally significant because it sets the strategic, analytical and planning context within which distribution-level functions are exercised. NESO shapes the assumptions about future demand, generation, flexibility, access and infrastructure readiness that DSOs and DNOs must work within. DSOs remain responsible for translating these system-level signals into operational actions and market activity, and DNOs remain accountable for long-term asset decisions and performance risk. NESO's role, therefore, influences outcomes across multiple system functions, without transferring responsibility for delivery or local accountability.

4.4.2 Great British Energy

Role and mandate

Great British Energy[13] (GBE) is a publicly owned energy company established to invest in, develop and own clean energy infrastructure in support of national objectives on decarbonisation, security of supply and affordability.

GBE does not set market rules, operate system services, or hold planning or coordination authority. Its influence is from its participation in the energy system as a state-backed asset owner and service provider operating within existing regulatory and market frameworks.

Energy system functions

GBE interacts with a limited number of functions that are consequential for the DSO-DNO balances:

- **Function 5 – Services and Market Facilitation**
  GBE-owned assets may participate in flexibility and system services markets as providers, responding to DSO-led procurements and dispatch under Market Facilitator rules. In this role, GBE is treated as a market participant, subject to the same qualification, procurement and settlement arrangements as other providers.
- **Function 8 – Whole-System Coordination and Optimisation (indirect)**
  GBE investments may be informed by national and regional planning outputs and whole-system optimisation objectives. These investments can shape the local system context within which DSOs and DNOs plan, operate and procure services.
- **Function 1 – Connection and Access Rights (as a customer)**
  GBE connects assets to transmission or distribution networks in line with existing connection and access arrangements, potentially at scale or in locations of strategic importance.

Relevance to DSO-DNO balance

GBE combines public policy objectives with participation in competitive and operational functions. Its state-backed status may heighten perceptions of neutrality risk when DSO decisions on procurement, dispatch, or curtailment materially affect market outcomes. Thus, GBE's introduction underscores the importance of clear governance, transparency, and visible assurance in flexibility services and system optimisation decisions.

4.4.3 Market Facilitator

Role and mandate

[13] https://www.gbe.gov.uk/

The Market Facilitator[14] (MF) is the central body responsible for designing, governing and assuring Great Britain's flexibility markets. It will establish the common market framework within which flexibility services are specified, procured, coordinated and settled across transmission and distribution.

The MFs' influence arises from its authority to define market rules, products, data standards, interoperability requirements and assurance arrangements that apply to both national and local system operators.

Energy system functions

The Market Facilitator is responsible for or influential in several functions that are consequential for distribution-level decision-making:

- **Function 5 – Services and Market Facilitation**
  The Market Facilitator holds primary responsibility for the design and governance of flexibility markets, including standard product definitions, qualification criteria, baseline methodologies, dispatch principles, settlement rules and compliance requirements. DSOs procure and dispatch flexibility services within this framework.
- **Function 10 – Market Governance, Assurance and Neutrality**
  The Market Facilitator is responsible for establishing the rules, oversight mechanisms and assurance processes that support neutrality, transparency and confidence in flexibility markets. This includes monitoring market behaviour, defining dispute and compliance processes, and setting expectations for non-discriminatory access.

The Market Facilitator also has material interfaces with:

- **Function 9 – Data Governance, Digital Infrastructure and Interoperability**, through its definition of data models, APIs and interoperability standards required for market participation, dispatch and settlement; and
- **Function 8 – Whole-System Coordination and Optimisation**, by enabling coordination between national and local flexibility actions within a single market framework.

Relevance to the DSO–DNO balance

The Market Facilitator separates the governance of flexibility markets from their operational delivery. It defines the rules, products and assurance arrangements within which DSOs remain responsible for identifying local system needs, procuring services and dispatching assets. Thus, the DSO retains operational responsibility and remains accountable for local outcomes, while key aspects of market design and governance sit externally.

4.5 Existing institutions and actors

This section summarises the roles and responsibilities of other existing institutions and actors. These include the regulator and policymakers who set the policy and regulatory environment (e.g. Clean Power 2030 and RIIO-ED3), Transmission Owners (who invest in and operate the transmission network), and actors such as market participants, network customers, and local authorities. The focus is on how these institutions influence, constrain or shape distribution-level system functions, rather than on detailed delivery responsibilities.

[14] https://www.elexon.co.uk/flexibility-markets/

Table 5: Summary of role, influence and considerations for the DSO-DNO balance of other institutions and energy system actors.

Institution/actor	System role	How influence is exercised	Why it matters for the DSO–DNO balance
Ofgem	Economic regulator and licensing authority	Sets licence obligations, incentives, performance frameworks and enforcement mechanisms for DNO and DSO activities	Shapes the allocation of risk, accountability and neutrality obligations across functions; constrains how discretion can be exercised by the DSO and how investment decisions are justified by the DNO
Department for Energy Security and Net Zero (DESNZ)	Policy authority and system architect	Establishes strategic policy objectives, legislation, and system architecture (e.g. digitalisation, market reform)	Drives strategic delivery and policy alignment, potentially ahead of regulatory or delivery frameworks, creating tension between ambition and accountability
Transmission Owners (TOs)	Transmission asset owners and long-term risk holders	Own, maintain and invest in transmission infrastructure in line with NESO plans and Ofgem price controls	Transmission investment decisions and outage planning shape boundary constraints, connection availability
Market participants*	Service providers, investors and asset owners	Participate in connections, flexibility markets and operational processes; respond to forecasts, access rules and price signals	Expose neutrality and information asymmetry risks where DSO decisions materially affect revenues, access or dispatch; shape the credibility of markets and investment signals
Customers (domestic, commercial and industrial)	Beneficiaries and, increasingly, active participants	Consume network services; may provide flexibility or host DER; engage through consultations and service choices	Anchor the legitimacy of system outcomes, particularly affordability, fairness and reliability; provide the reference point against which trade-offs are judged
Local authorities and planners	Local policy, planning and place-based coordination	Influence spatial development, local energy priorities and planning consent	Affect the deliverability of system plans and the feasibility of local optimisation, interacting with national planning and DSO/DNO decision-making

* Market participants include energy suppliers, aggregators, DER/CER owners, storage, EV operators, community energy, including state-backed participants.

4.6 Summary of institutional responsibilities and influence across the energy system

Table 6 summarises institutional responsibilities across the electricity system, distinguishing between delivery, governance, strategic influence and accountability. It provides a high-level view of how roles are distributed across institutions, and indicates where authority, influence and responsibility do not align.

Table 6: Summary of the institutional responsibilities and influence in the energy system

Institution	Primary delivery responsibility	Governance / rule-setting	Strategic influence	Accountability for outcomes
DSO	Local system operation, operational and near-term planning, flexibility procurement and dispatch	Operates within MF rules; internal neutrality governance	Interprets local system needs and constraints; shapes operational pathways	Operational performance, neutrality, local system impacts
DNO	Long-term network investment planning, asset ownership and delivery	Corporate governance of DSO; asset standards	Influences build vs buy decisions through capital allocation	Financial, asset and performance risk
NESO	National system operation and strategic whole-system planning	Sets planning assumptions, scenarios and coordination frameworks	Strong influence across transmission, distribution and vectors	National system outcomes, not local delivery
Market Facilitator	–	Flexibility market rules, products and assurance	Shapes how flexibility can be used locally	Market integrity, not system outcomes
Transmission Owners	Transmission asset delivery and outage planning	–	Constrain local options via boundary conditions	Transmission performance
Ofgem	–	Licences, price controls, incentives and enforcement	Shapes behaviour across all actors	Regulatory compliance and consumer protection
DESNZ	–	Policy, legislation and system architecture	Sets strategic direction and delivery priorities	Policy outcomes, not delivery
Market participants / GBE	Asset development and service provision	–	Investment, siting and participation choices	Commercial performance
Customers / local authorities	–	–	Demand, consent and local participation	Local acceptability

5 Institutional interactions and accountability tensions across system functions

5.1 Approach

The preceding sections described the roles, responsibilities and mandates of key institutions and actors across the ten energy system functions. This section explores where governance issues arise when responsibilities, influence and decision rights interact across functions and institutional boundaries. It does so from the perspective of the Distribution System Operator (DSO) to identify reinforcing interactions, conflicts of interest, trade-offs, and gaps arising from recent changes to the institutional landscape. It provides the analytical basis for assessing how governance changes translate into pressures affecting the DSO-DNO balance (see Section 6).

This analysis focuses on institutions and the interfaces between them. It examines how policy, regulation and institutional design translate into accountabilities that shape how the DSO operates and how its relationship with the DNO is affected. It does not assess the merits of national policy objectives.

The ten electricity system functions provide the analytical lens for this assessment. *Table 7* maps responsibility for each function across key institutions, distinguishing between:

- **Primary responsibility** (clear lead accountability),
- **Shared responsibility** (delivery dependent on coordination),
- **Influence** (rule-setting, incentives or strategic direction), and
- **Receipt** (beneficiaries or users of outcomes).

This mapping indicates where outcomes depend on coordination across institutional boundaries and where governance issues are more likely to arise. The analysis focuses on system functions in which responsibility is shared among multiple institutions and/or in which delivery responsibility is separated from governance. Note that in some instances, multiple institutions are shown as ‘primary’; this reflects primacy within different governance domains of the same function (e.g., national vs. local), rather than exclusive authority.

Adopting a DSO perspective narrows the analysis to a subset of functions where these issues are most consequential:

- Network visibility,
- Forecasting and information,
- Services and market facilitation,
- Whole-system coordination and optimisation,
- Data governance, digital infrastructure and interoperability.

Function 6 (Smart Network Operation) is not examined in detail in this report. Although operationally critical, it remains primarily a delivery function performed by the DSO. Recent institutional reforms have not materially reallocated governance authority for real-time network operations in the same way as for planning, markets, coordination, or data governance. The analysis, therefore, focuses on functions in which delivery responsibility is institutionally

separated from rule-setting or strategic influence, and where accountability asymmetries are more pronounced.

Recent institutional reforms have, in several instances, separated operational delivery from governance to ensure neutrality, transparency, and whole-system coordination. This separation can create friction, even if the rationale is sensible. This analysis, therefore, distinguishes delivery and governance:

- **Delivery**: who identifies needs, makes operational decisions, and acts in real time or through procurement and dispatch.
- **Governance**: who sets the rules, standards, incentives, oversight mechanisms and enforcement arrangements within which delivery takes place.

Exploring these functions through this lens enables a structured analysis of four dimensions:

- **Reinforcing interactions**, where institutional roles and incentives reinforce one another;
- **Potential conflicts or misalignments**, where authority, incentives or decision rights diverge;
- **Trade-offs**, where achieving one desirable outcome constrains another; and
- **Unclear accountability**, where responsibility or funding is fragmented or absent.

Some issues may evolve over time from trade-offs or gaps into conflicts, depending on how governance arrangements mature and how decision rights are exercised in practice.

5.2 Institutions and functions

Table 7 presents a DSO-centred view of institutional responsibilities across the ten electricity system functions. It distinguishes between primary delivery responsibility, shared responsibility, institutional influence, and recipients. The purpose is to illustrate situations in which institutions exercise influence without bearing delivery risk, or in which delivery bodies operate within frameworks they do not control.

Shared responsibilities denote functions in which delivery depends on coordination between institutions rather than on equal authority or accountability. In several cases, shared responsibility reflects interdependence rather than joint ownership of outcomes, potentially indicating governance complexity.

This responsibility mapping underpins the function-level analysis that follows and is the basis for the subsequent assessment of system-wide governance pressures and their impact on the DSO–DNO balance.

Table 7: Responsibilities for system functions

#	System function	DSO (system operator)	DNO (asset owner)	TO (transmission asset owner)	NESO	Market Facilitator	Ofgem	DESNZ	Market actors (participants, customers & GBE)
1	Connection & access rights	Shared (operational access & constraints)	**Primary** (distribution connections & capacity)	**Primary** (transmission connections & capacity)	Influences	Influences	Influences	Influences	Receives
2	Charging (network & use-of-system)	Influences (signals, design input)	**Primary** (DUoS recovery)	**Primary** (TNUoS recovery)	Influences	–	**Primary**	Influences	Receives
3	Network visibility	**Primary** (operational visibility)	**Primary** (distribution asset & telemetry data)	**Primary** (transmission asset & telemetry data)	Shared	Influences	Influences	–	Receives
4	Forecasting & information	Shared (local/system forecasts)	Influences (asset & reinforcement plans)	Influences (asset & outage plans)	**Primary**	Influences	Influences	**Influences** (policy scenarios)	Receives
5	Services & market facilitation	**Primary** (procurement & dispatch)	–	–	Shared	**Primary** (rules, standards & assurance)	Influences	–	**Primary** (service provision & participation)
6	Smart network operation	**Primary**	–	–	Shared	–	Influences	–	Receives
7	System defence & restoration	Shared (local coordination)	**Primary** (distribution restoration)	**Primary** (transmission restoration)	**Primary** (system-wide)	–	Influences	–	Receives
8	Whole-system coordination	Shared	Influences	Influences	**Primary**	Shared	Influences	Influences	Receives
9	Data governance & interoperability	**Primary** (operational & market data)	**Primary** (asset & connection data)	**Primary** (transmission asset data)	Shared	**Primary** (standards & interoperability)	**Primary** (regulatory governance)	Influences	Receives
10	Market governance, assurance & neutrality	Influences (operational neutrality)	–	–	Influences	**Primary**	**Primary** (regulatory backstop)	Influences	Receives

Building on *Table 7*,subsequent analysis focuses on a subset of functions that are most consequential for the DSO. These are functions where the DSO holds primary operational responsibility and/or where delivery depends on coordination with institutions that set rules, standards or strategic direction.

For each of these functions, the analysis examines how institutional roles interact in practice, identifying emerging reinforcing interactions, potential conflicts or misalignments, unavoidable trade-offs, and areas of unclear accountability. The purpose is to understand how governance arrangements shape the conditions under which the DSO exercises operational discretion and how this, in turn, affects its relationship with the DNO.

Taken together, these function-level analyses provide the evidence base for the subsequent synthesis of system-wide governance pressures that act on the DSO–DNO relationship.

5.3 Function 3: System and asset visibility

System and asset visibility refers to the ability to maintain an accurate, timely and operationally meaningful view of the distribution network, connected assets and system conditions. This includes network topology, asset ratings, outages, real-time states, and the location, capability, and availability of distributed energy resources (DER), controllable energy resources (CER), storage, and flexible demand.

This function is important because the DSO holds primary responsibility for delivery while exercising discretion that materially affects other functions and market outcomes. System visibility is foundational for the DSO. It underpins safe operation, forecasting, flexibility procurement, constraint management, coordination with the national system, and assurance of market neutrality. Weaknesses or asymmetries in visibility directly affect the quality of decisions made under several other system functions. Because visibility directly informs market participation and dispatch decisions, this function is also a critical input into market governance and neutrality.

5.3.1 Institutional interfaces in scope

This function requires coordination between the following institutions and actors:

- **Distribution System Operator (DSO)** – Maintains operational visibility of the distribution network and connected resources; determines what data is required for safe operation, forecasting, and market participation.
- **Distribution Network Owner (DNO)** – Owns physical assets and provides telemetry, asset data, ratings and outage information that underpin system visibility.
- **National Energy System Operator (NESO)** – Requires distribution-level visibility to support whole-system situational awareness, balancing, system defence and planning.
- **Market Facilitator (MF)** – Sets data requirements for asset registration, pre-qualification, dispatch feasibility and settlement in flexibility markets.
- **Ofgem** – Influences visibility through digitalisation, data-sharing and assurance obligations.
- **Market actors (including aggregators, DER/CER owners and state-backed participants such as Great British Energy)** – Provide asset data and operational signals

that contribute to system visibility and rely on DSO-held visibility for market access and dispatch.

5.3.2 Reinforcing interactions

- Standardised (including increasingly automated) asset registration and data requirements, driven by flexible market rules and digitalisation programmes, improve the timeliness and consistency of how DER and flexible assets are represented across DSO, NESO and Market Facilitator processes. This strengthens system and asset visibility for planning, forecasting, market participation and real-time operation.
- Investment in monitoring, telemetry and digital network models improves the DSO's ability to move from static planning assumptions toward more dynamic and evidence-based decision-making. This strengthens the credibility of flexibility procurement, constraint management and investment deferral decisions.
- Greater transparency of network states and constraints reduces information asymmetry for market participants, improving confidence in DSO-led markets and reducing perceived neutrality risks where visibility is shared appropriately.

5.3.3 Potential conflicts and misalignments

- The DSO holds privileged operational data on network conditions, asset constraints and real-time states that are not fully accessible to market participants. Because this data directly informs flexibility needs, dispatch feasibility, and curtailment decisions, there is an inherent structural neutrality risk, even in the absence of discriminatory intent. In addition to holding privileged operational data, the DSO interprets local system conditions to determine the likelihood, severity and timing of constraints. This shapes flexibility requirements and dispatch decisions, thereby reinforcing the structural neutrality risk even when the underlying data are shared.
- The increasing reliance on third-party and market-provided data (e.g. asset availability, telemetry from aggregators) introduces dependency risks. Where data quality, timeliness or accuracy is uneven, the DSO bears the operational consequences but does not control all inputs.
- The entry of state-backed or policy-driven asset owners into flexibility and system services markets heightens structural neutrality risks. Because the DSO has superior visibility into network constraints, timing, and locational value, market outcomes may appear to favour certain classes of participants, even where procurement and dispatch strictly follow formal rules. This creates a misalignment between the DSO's neutrality obligations and its unavoidable information advantage.

5.3.4 Trade-offs

- Different institutions impose overlapping and sometimes misaligned visibility requirements. NESO requirements for operational security, Market Facilitator requirements for market participation and settlement, and Ofgem requirements for transparency and assurance do not always align cleanly. The DSO must balance these legitimate but competing objectives while remaining accountable for operational safety and efficiency, creating an ongoing trade-off rather than a resolved governance position.
- There is a trade-off between providing granular, near-real-time visibility to support efficient markets and protecting system security, cyber resilience and commercially sensitive information. Greater openness improves market efficiency but could also increase exposure to misuse, misinterpretation, or security risks.

- Improving visibility through enhanced monitoring and digitalisation increases costs and complexity. The DSO must balance the benefits of richer data against affordability, proportionality and the risk of over-engineering solutions ahead of demonstrable need.
- Relying on inferred or modelled visibility (particularly at low-voltage levels) enables progress where direct monitoring is unavailable but introduces uncertainties that must be managed.

5.3.5 Gaps and unresolved issues

- Distribution-level visibility of DER, flexible demand and storage is incomplete, particularly at low voltage levels. Asset registration processes are improving, but do not currently provide reliable coverage across all asset classes.
- There is no single, agreed framework for prioritising or reconciling visibility requirements imposed by NESO, the Market Facilitator and regulatory digitalisation programmes. This increases the risk of duplication, inconsistent data models and inefficient investment.
- There is no consistently defined boundary between the visibility the DSO requires for safe system operation and the visibility that market participants require for fair and informed participation. This ambiguity places discretion with the DSO, increases perceived neutrality risk, and makes assurance more difficult where operational judgements materially affect market outcomes.
- Assurance arrangements focus primarily on process compliance rather than on whether visibility is sufficient, proportionate and fit for purpose across operational, planning and market functions.
- Responsibility for funding enhanced visibility, particularly where benefits accrue across multiple institutions or markets, is not always clearly allocated.

5.4 Function 4: Forecasting and information

Forecasting and information cover how operational and planning data are translated into forward-looking signals about demand, generation, flexibility availability and network constraints. This function shapes expectations of future system needs across planning, investment and market activity, rather than describing current system conditions.

It is an important function to analyse because the DSO produces forecasts that materially affect market opportunities, access decisions and investment signals, while operating within national planning and policy frameworks it does not control. The DSO must reconcile local operational evidence with national scenarios and policy-led assumptions and remain accountable for the local consequences of forecast-driven decisions.

5.4.1 Institutional interfaces in scope

This function requires coordination between the following institutions and actors:

- **Distribution System Operator (DSO) –** Produces and publishes local forecasts of demand, generation, flexibility availability and network constraints across different time horizons; translates operational data into forward-looking signals for markets, planners and stakeholders, and bears accountability for the local consequences of forecast-driven decisions.
- **Distribution Network Owner (DNO) –** Uses DSO forecasts to inform asset management strategies, reinforcement options and investment timing.

- **National Energy System Operator (NESO) –** Develops national scenarios, system-wide forecasts and regional planning outputs (e.g. FES, SSEP, RESP) that shape the assumptions and boundaries within which local forecasts are produced.
- **Ofgem –** Influences forecasting practices through regulatory expectations, incentives, data publication requirements and assurance frameworks.
- **Market actors (including flexibility providers and state-backed participants such as Great British Energy) –** Respond to DSO and NESO forecasts when making investment, participation and connection decisions.
- **Local and national planning bodies –** Provide policy, spatial and decarbonisation inputs that shape forecast assumptions, particularly for demand growth and generation siting.

5.4.2 Reinforcing interactions

Several reinforcing interactions arise in which national scenario-setting and local forecasting processes reinforce one another, thereby improving coherence across planning, markets, and system operations.

- DSO-led forecasting provides NESO with bottom-up evidence that improves the calibration of assumptions used within the Regional Energy Strategic Planning (RESP) process. This strengthens the operational credibility of national planning outputs when applied at the regional and distribution level, while preserving the DSO's responsibility to apply local judgement where evidence diverges. This could reduce duplication and improve the coherence of forward-looking signals provided to network operators, market participants, and policymakers.
- Shared forecasting architectures across FES, RESP, DFES and related processes create a common analytical framework that supports coordination between system operators, planners and investors.
- Regulatory expectations around the publication of forward-looking constraint and capacity information reduce information asymmetry by enabling market participants to anticipate where and when flexibility is likely to be needed, rather than relying on the DSO's internal judgement alone. This improves market confidence and reduces perceived neutrality risk.

5.4.3 Potential conflicts and misalignments

Despite these reinforcing interactions, this function contains inherent institutional tensions:

- The DSO holds privileged operational and network data and determines how this data is interpreted and translated into forecasts. Because these forecasts influence flexibility volumes, curtailment expectations and investment signals, there is a structural neutrality risk even where no discriminatory intent exists. This risk persists even when methodologies are robust, and data are shared because the interpretation and translation of forecasts into actionable signals cannot be fully standardised or externalised.
- National scenarios produced by NESO could prioritise policy ambition or whole-system optimisation in ways that diverge from local delivery realities. While national scenarios shape the assumptions within which local forecasts are produced, accountability for delivery and customer impacts remains at the distribution level.
- Forecasts produced to demonstrate regulatory compliance or alignment with policy objectives (for example, net-zero trajectories) may diverge from probabilistic or

evidence-based expectations of actual uptake. This creates a distinct tension within the DSO forecasting function itself, between credibility, deliverability and assurance.

- Market participants are affected by DSO forecasts but have limited ability to challenge methodologies, assumptions or interpretation, creating perceived asymmetry in how information is produced and used.

5.4.4 Trade-offs

This function involves several unavoidable trade-offs:

- There is a trade-off between optimism and conservatism in forecasting. Optimistic forecasts can support strategic readiness and policy alignment but risk over-signalling need, while conservative forecasts reduce the risk of over-build but may delay market development or system preparedness.
- Increasing forecast sophistication improves analytical robustness but reduces transparency and stakeholder understanding, making it harder for market participants to assess how signals are derived.
- Publishing granular forward-looking information improves market efficiency but increases exposure to forecast error, misinterpretation and potential gaming.

5.4.5 Gaps and unresolved issues

Several governance gaps remain material:

- There is no clearly defined framework for reconciling differences between national (NESO-led) and local (DSO-led) forecasts where assumptions diverge or where local evidence contradicts national pathways.
- The boundary between forecasting as an analytical activity and forecasting as a market or investment signal is not always explicit, increasing perceived neutrality risks.
- Existing assurance arrangements focus on process compliance rather than on the systemic consequences of forecast-driven decisions.
- There is limited standardisation in how uncertainty, confidence ranges and optionality are communicated alongside forecasts, reducing comparability.
- Forecasts can materially affect access rights, flexibility volumes and investment signals; however, market participants have limited formal routes to challenge assumptions, methodologies or interpretations. This creates a governance gap in which forecasts serve as de facto market signals without corresponding appeal or escalation mechanisms.

5.5 Function 5: Services and market facilitation

Services and market facilitation cover how flexibility and related system services are specified, procured, coordinated and dispatched to manage distribution network constraints and support efficient system operation. The function translates network needs into market-facing requirements and operational actions, enabling distributed resources to contribute to system security and optimisation within a nationally defined market framework. This function is examined in detail because it sits at the intersection of operational discretion, market outcomes and neutrality obligations, making it one of the primary points at which governance arrangements directly affect system legitimacy and trust.

For the DSO, this function is central and consequential. The DSO determines when and where services are required, what volumes are procured, and how assets are dispatched, while also holding privileged operational data. Although market rules and standardisation are set centrally

by the Market Facilitator, the DSO remains accountable for local outcomes, neutrality, governance and assurance.

5.5.1 Institutional interfaces in scope

This function requires coordination between the following institutions and actors:

- **Distribution System Operator (DSO)** - Identifies current and future network constraints and capacity needs, determines the appropriate use of flexibility through the DNOA, specifies flexibility requirements, procures services and dispatches them while remaining accountable for local system security, efficiency and neutrality outcomes.
- **Market Facilitator (MF)** - Sets the standard products, market rules, sequencing, interoperability requirements and assurance framework within which DSO procurement and dispatch take place.
- **National Energy System Operator (NESO)** - Operates national balancing and system services markets and provides national system context. National (NESO) and local (DSO) system services visibility and coordination are recognised as important, but related processes are still evolving.
- **Ofgem** - Provides regulatory oversight and enforcement, including neutrality obligations, assurance mechanisms and performance incentives affecting DSO market activity.
- **Market actors (including flexibility providers and state-backed participants such as Great British Energy)** - Participate in DSO-led procurements and deliver services in accordance with MF rules and DSO operational instructions.
- **Flexibility platforms** - Act as accredited commercial intermediaries through which DSOs and providers interact, implementing Market Facilitator-defined products and standards, but without decision-making authority over system needs or outcomes.

5.5.2 Reinforcing interactions

Several reinforcing interactionsarise where centrally defined market rules support consistent, scalable delivery of local flexibility services.

- Standardised products and rules set by the MF could reduce transaction costs and improve market access for providers.
- A common market framework supports coordination between DSO and NESO services, enabling stacking and reducing the risk of conflicting dispatch.
- Centralised market rules, monitoring and assurance reduce the need for DSOs to define and defend good practice independently. This lowers the assurance burden on DSOs and provides providers and investors with greater confidence that local flexibility markets are operated consistently and fairly.

5.5.3 Potential conflicts and misalignments

- The DSO determines when flexibility is required, the volumes procured and how services are dispatched, while also holding privileged operational data. This creates a structural neutrality risk, even in the absence of discriminatory intent. This risk arises from role design rather than behaviour and therefore persists regardless of the integrity of individual procurement processes or compliance with formal rules.
- MF rule-setting choices may constrain the DSO's ability to tailor services to local conditions, while the DSO remains accountable for local system security and efficiency. This creates a specific accountability risk: the DSO remains responsible for local system security but does not control the full set of tools needed to address it. If Market

Facilitator rules preclude a locally effective product or approach, the DSO bears the operational consequences without authority to resolve the constraint.

- The participation of state-backed providers in DSO-led markets creates a potential perceived conflict of interest, increasing the importance of demonstrable neutrality even where formal rules are followed.

5.5.4 Trade-offs

- The DSO faces a trade-off between procuring flexibility to manage or defer constraints and investing in network reinforcement to provide long-term capacity certainty. Flexibility can enable faster, lower-cost responses in uncertain environments, while network investment provides durable solutions but entails higher upfront costs and the risk of asset stranding. Decisions in this space shape long-term system costs, market development and investor confidence.
- Coordination between local DSO-led services and national NESO-operated markets involves a trade-off between local efficiency and national system optimisation. As volumes increase, unresolved sequencing and escalation arrangements could evolve into conflicts over prioritisation and accountability.
- Managing constraints often requires rapid procurement and dispatch of flexibility, creating a trade-off between speed of action and the time required to meet transparency, audit and assurance requirements. Robust governance is essential to demonstrate neutrality and compliance, but can slow operational responses under pressure. The DSO must reconcile the need for timely action with maintaining trust in market processes.
- Optimising flexibility procurement for local network efficiency can conflict with national system objectives managed by NESO, and vice versa. Actions that minimise local costs or constraints may not align with national balancing or congestion priorities, while prioritising national needs can increase local costs or reduce effectiveness. As flexibility volumes grow, unresolved sequencing and coordination arrangements make this trade-off increasingly material.
- There is a trade-off between keeping flexibility markets simple and accessible for providers and accurately reflecting the technical complexity of network constraints. Simpler products reduce barriers to entry and transaction costs, but may fail to capture locational or technical nuances, leading to sub-optimal outcomes. The DSO must judge how much complexity to expose to the market to achieve reliable system performance without undermining participation.

These trade-offs reflect deliberate policy and governance choices about how flexibility markets balance efficiency, scalability, assurance and system optimisation, rather than failures of institutional design.

5.5.5 Gaps and unresolved issues

The gaps reflect areas where governance arrangements are incomplete or still evolving, increasing reliance on informal coordination rather than clearly defined accountability.

- There is no settled framework for valuing flexibility consistently across local DSO-led markets and national NESO-operated services. This creates uncertainty around procurement signals, revenue stacking, and investment decisions, and limits the DSO's ability to assess whether flexibility offers the best value relative to network investment.

- Clear rules for sequencing and prioritising actions where local DSO-led services and national NESO-operated markets interact are still evolving. The absence of fully defined arrangements increases the risk of inefficient dispatch, conflicting instructions or sub-optimal system outcomes.
- The boundary between centrally defined market governance (MF rules and Ofgem oversight) and the DSO's operational discretion in defining needs, volumes and timing is not fully specified. This ambiguity increases reliance on judgement and informal norms, heightening perceived neutrality risks even where formal compliance is maintained.
- There is no clearly defined escalation or dispute-resolution mechanism where the DSO and the Market Facilitator disagree on the application, interpretation or suitability of market rules for local conditions. In the absence of formal pathways, resolution relies on informal engagement, which may be insufficient as flexibility volumes and system criticality increase.

5.6 Function 8: Whole System Coordination & Optimisation

Whole-system coordination and optimisation concern how decisions across transmission, distribution, markets and policy are aligned to deliver security, affordability and decarbonisation at least whole-system cost. This function is examined in detail because strategic coordination decisions increasingly shape local operational pathways and investment commitments, while accountability for delivery, feasibility and customer impacts remains distributed across the DSO–DNO boundary.

For the DSO, this function is consequential because national strategies and optimisation choices translate directly into local operational, investment and neutrality consequences, even where the DSO has limited influence over the underlying assumptions.

5.6.1 Institutional interfaces in scope

This function requires coordination between the following institutions and actors:

- **Distribution System Operator (DSO)** – Responsible for translating whole-system signals into locally deliverable network planning and operation, flexibility procurement and investment decisions while remaining accountable for local operability, customer impacts and the practical feasibility of nationally coordinated pathways.
- **National Energy System Operator (NESO)** – Holds primary responsibility for whole-system planning and optimisation at national and regional level through SSEP, CSNP and RESP without holding responsibility for local delivery risks or distribution-level performance.
- **Distribution Network Owner (DNO)** – Invests in and delivers physical network capacity informed by DSO analysis and whole-system plans.
- **Ofgem** – Sets incentives, allowed funding and regulatory expectations shaping optimisation choices.
- **Department for Energy Security and Net Zero (DESNZ)** – Sets policy objectives and delivery priorities that influence optimisation criteria.
- **Great British Energy (GBE)** – Introduces state-backed asset delivery into planning and operational spaces the DSO must accommodate.
- **Local authorities, planners and market participants** – Shape local feasibility, acceptability and delivery pathways.

5.6.2 Reinforcing interactions

Several reinforcing interactions arise where clearer strategic leadership improves coherence across national, regional and local planning processes.

- A clearer delineation of NESO's role as whole-system planner and coordinator improves transparency over where strategic optimisation decisions are taken, enabling DSOs to focus on local deliverability within a defined national framework.
- The introduction of Regional Energy Strategic Planning provides a formal mechanism for aligning national whole-system objectives with regional and local evidence. In principle, this reduces duplication between national and distribution-level planning and strengthens the consistency of signals used by DSOs, DNOs and investors.
- Shared scenario architectures and planning assumptions across national and regional processes improve coherence between transmission and distribution planning, supporting more integrated investment and flexibility strategies.
- Greater whole-system visibility of interdependencies (e.g. transmission constraints, cross-boundary flows, emerging demand clusters) supports more informed DSO decision-making and reduces the risk of locally efficient but system-suboptimal outcomes.

5.6.3 Potential conflicts and misalignments

- The NESO may prioritise system-wide outcomes or policy delivery targets that do not fully reflect local network constraints, planning realities or delivery risks. DSOs remain accountable for local system operation and customer impacts, despite having limited influence over national optimisation criteria. This creates a structural misalignment in which strategic authority is centralised while delivery risk and accountability remain distributed.
- The separation between strategic planning authority (held centrally by NESO) and operational accountability (held locally by the DSO/DNO) creates a structural misalignment. DSOs may be required to deliver against national plans while facing operational, financial, and reputational consequences arising from assumptions that do not fully reflect local conditions.
- National delivery of state-backed assets could conflict with locally least-cost or least-regret pathways. It could increase perceived pressure on DSOs to accommodate delivery-led solutions even where they are not locally optimal, intensifying tensions between national objectives and local optimisation.
- Misalignment between planning cycles (RESP development, RIIO price controls and local planning processes) could force DSOs to commit to investment strategies prematurely to remain compliant with one framework while uncertainty persists in others. For example, RIIO submission deadlines may require DSOs to commit to investment strategies based on early RESP signals before local planning, connection, or market developments resolve key uncertainties.

5.6.4 Trade-offs

- There is a trade-off between strategic, ahead-of-need investment to support national system optimisation and the DSO/DNO obligation to demonstrate cost efficiency and avoid unnecessary network build. Choices that optimise long-term system value can sit in tension with short-term affordability objectives and regulatory incentive frameworks. If incentives and expectations across institutions diverge, this trade-off may evolve into

a conflict between national optimisation objectives and regulated cost-efficiency duties.
- Decisions that are optimal at the whole-system level may impose higher costs, disruption or operational complexity locally. DSOs could be required to manage these distributional impacts without having set the optimisation objective.
- Standardisation of whole-system approaches improves consistency, comparability and investor confidence by providing common planning assumptions, products and decision frameworks across Great Britain. However, this necessarily constrains the DSO's ability to tailor solutions to highly local network conditions, spatial constraints or community considerations.
- Accelerated delivery of nationally significant infrastructure improves system readiness but reduces the time available for local engagement, option assessment and challenge, increasing tension between speed and governance robustness.

5.6.5 Gaps and unresolved issues

- There is no single institution accountable for ensuring that whole-system optimisation delivers good outcomes at the local level across electricity, heat, transport and other vectors. Responsibility is fragmented across planners, operators and policymakers.
- Expectations for cross-vector coordination at the distribution level are not yet clearly specified, despite being implicit in whole-system narratives and national planning outputs.
- The criteria and weightings used in whole-system optimisation (e.g. cost, speed, resilience, policy ambition) are not explicit, making it difficult for DSOs to evidence alignment between local decisions and national objectives.
- There is no defined escalation or dispute-resolution framework where DSOs and NESO disagree on the interpretation or local application of whole-system plans. Resolution currently relies on informal engagement.
- Governance arrangements do not yet clearly articulate how state-led or policy-driven asset deployment should be integrated alongside market-led solutions in local optimisation decisions.

5.7 Function 9: Data Governance, Digital Infrastructure & Interoperability

Data governance, digital infrastructure and interoperability define how system and market data are specified, shared, assured and exchanged across institutions. The function focuses on the governance of data interfaces and digital architecture that enable coordination between DSOs, NESO, the Market Facilitator and market participants. This function is examined in detail because control over data standards, interfaces and disclosure increasingly acts as a form of governance, shaping what decisions are possible, how quickly they can be taken, and how neutrality and accountability are perceived.

For the DSO, this function is important because it is the boundary between operational data and market action. The DSO is both a data steward and a user of that data in planning, procurement and dispatch. As NESO, the Market Facilitator and Ofgem impose overlapping data requirements, the DSO must reconcile competing objectives while remaining accountable for neutrality, system security and regulatory assurance.

5.7.1 Institutional interfaces in scope

This function requires coordination between the following institutions and actors:

- **UKPN Distribution System Operator (DSO)** – Primary custodian of distribution-level operational, planning and flexibility data. Responsible for producing, assuring and disclosing data to support safe operation, market participation and regulatory transparency, and for managing data exchange across NESO, the Market Facilitator and market participants while maintaining neutrality, while also relying on that same data to make operational and market-facing decisions for which it is held accountable.
- **Distribution Network Owner (DNO)** – Uses DSO-provided data and forecasts to inform asset investment, reinforcement timing and risk management. Dependent on the integrity and assurance of data interfaces between operational insight (DSO) and capital delivery, while remaining accountable for physical network performance.
- **National Energy System Operator (NESO)** – Specifies and consumes distribution data required for national system operation, system defence and whole-system planning (e.g. constraints, asset availability, flexibility capability). Relies on consistent DSO data interfaces to inform SSEP, CSNP and RESP, but does not own local data quality or feasibility risks.
- **Market Facilitator (MF)** – Defines data requirements that directly affect market access, dispatch feasibility and settlement outcomes. Depends on DSO-provided operational and constraint data at the interface between system operation and market activity, creating a critical dependency on clarity over data scope, timing and assurance.
- **Ofgem** – Sets regulatory expectations for data transparency, quality, assurance and reporting across all interfaces. Oversees compliance but does not directly arbitrate conflicts between operational, market and planning data requirements, shaping incentives rather than interface design.
- **Department for Energy Security and Net Zero (DESNZ)** – Influences data priorities indirectly through policy objectives (e.g. net zero delivery, market competition, consumer protection), shaping what information institutions are expected to make visible and how assurance is interpreted.
- **Great British Energy (GBE)** – Introduces state-backed asset development and ownership into data-sharing environments traditionally structured around private market participation, increasing the importance of clearly governed data interfaces to manage perceived neutrality and information asymmetry.
- **Market participants, local authorities and planners** – Consume DSO data to inform investment decisions, planning consent and participation strategies. Dependent on the clarity, consistency and credibility of institutional data interfaces, but with limited ability to influence how requirements are specified or conflicts resolved.

5.7.2 Reinforcing interactions

Where they are well specified and consistently applied, clear data interfaces can reduce coordination costs and improve trust across institutional boundaries.

- Clear institutional interfaces for data exchange could result in better whole-system coordination. Where NESO and DSOs have agreed handoffs (e.g. common definitions of constraints, common event taxonomies, standard reporting windows, and a shared view of what constitutes “operationally actionable” information), national operational decisions can be made with higher confidence and fewer contradictory assumptions.

The same applies where the Market Facilitator and DSOs align on service definitions and baseline methodologies: consistent interfaces reduce friction for participants and make flexibility more investable.

- There is also a benefit in consolidating assurance at the interface level. If data quality obligations and assurance processes are designed around the "boundary" (rather than around each institution's internal needs), DSOs can demonstrate compliance in a form that is replicable to NESO, the MF and Ofgem. This reduces duplicated assurance, improves auditability, and supports a more credible "single version of the truth" across national and local decision-making.

5.7.3 Potential conflicts and misalignments

- Data governance under this function is inherently polycentric, with multiple institutions exercising legitimate but overlapping authority over standards, disclosure and assurance. Institutional boundaries (e.g., NESO to DSO) impose their own data requirements for content, timing, and assurance. While individually rational, these requirements can be incompatible in aggregate (e.g., real-time operational integrity, market transparency, and evidential assurance). The DSO is left to reconcile these tensions in practice, while remaining accountable for the consequences.
- The DSO sits at the junction between operational data and market action. Where the Market Facilitator relies on DSO-provided signals, baselines or constraint data, any ambiguity over what is shared, when and with what caveats can directly affect market outcomes. Even where formal neutrality rules are followed, the combination of privileged operational data and market-facing decision-making creates a persistent perception risk that cannot be fully eliminated through transparency alone.

5.7.4 Trade-offs

- Highly integrated interfaces can reduce friction and improve coordination, but introduce dependency risk - issues propagate quickly across institutions. Looser interfaces (periodic reporting, greater tolerance for local interpretation) reduce systemic coupling risk but can lower timeliness and reduce whole-system coordination and optimisation.
- Uniform national interface requirements support interoperability and reduce barriers for multi-region participants. However, they could require DSOs to adopt "one-size-fits-all" disclosures that don't reflect local sensitivities. Tailoring interfaces to local conditions could improve relevance at the expense of higher costs for national coordination and market entry.

5.7.5 Gaps and unresolved issues

Several governance gaps remain:

- Where NESO, the Market Facilitator and Ofgem impose overlapping or conflicting data requirements, no institution is clearly mandated to arbitrate trade-offs between operational integrity, market efficiency and regulatory assurance. In practice, the DSO resolves these tensions informally while remaining accountable for outcomes, creating a persistent governance gap.
- The distinction between data required for safe system operation and data required for market participation is not consistently defined at institutional interfaces. This ambiguity complicates neutrality assurance, blurs proportionality of disclosure, and creates uncertainty for participants where operational judgements materially influence market outcomes.

6 The impact of governance changes on the DSO-DNO balance

6.1 Introduction and framing

This section examines how recent changes in energy system governance affect the institutional balance between the DSO and DNO. Using the four DSO–DNO balances defined in Section 4.3.1 as an analytical lens, it identifies governance pressures arising from institutional reform and assesses their impact.

As a reminder, the four DSO-DNO balances are:

1. **Risk accountability and allocation**
2. **Neutrality and legitimacy at the market–network boundary**
3. **Economic efficiency and operational security**
4. **Strategic planning authority and local discretion**

As discussed in Section 4, the establishment of new institutions, such as the NESO, has reshaped energy system governance. While these reforms have improved aspects of governance and clarified roles and responsibilities, they have also introduced pressures on the DSO–DNO balance.

These pressures affect specific energy system functions, including planning, market facilitation, connection and access, charging, asset visibility, and operational coordination. They could perturb the DSO-DNO balance, shifting the dynamic of decision-making authority, financial risk, neutrality obligations and accountability mechanisms.

The central question is whether the institutional design of the DSO–DNO relationship is robust to these external pressures without eroding efficiency, legitimacy or operational resilience. In this context, robustness is the ability of the DSO–DNO relationship to absorb external governance shifts without generating unmanaged or opaque asymmetry, degraded incentives or erosion of trust.

This section is structured as follows. First, it identifies six pressures arising from recent institutional reforms and links them to specific actors and system functions. Second, it analyses how these pressures perturb the four DSO–DNO balance. Finally, it considers the capacity of different governance models to respond to and mitigate these impacts.

6.2 Emerging governance-induced pressures

The institutional and functional analysis presented in Section 5 identifies several recurring structural tensions arising from recent governance reforms. These tensions constitute system-wide pressures that act across multiple functions simultaneously and alter the distribution of authority, incentives and accountability within the DSO–DNO relationship.

Six governance-induced pressures emerge from the analysis. Each originates in institutional reform and perturbs one or more of the DSO–DNO balances. The pressures described below are described and summarised by the primary institutions responsible and the energy system functions affected.

6.2.1 Pressure 1: Centralised assumptions

Recent reforms have strengthened central strategic planning authority, particularly through NESO's planning role (enshrined in its licence by Ofgem) and DESNZ's Clean Power 2030 policy. National scenarios, optimisation frameworks and delivery pathways increasingly shape local planning, forecasting and market activity. However, accountability for delivery, operability and customer impacts remains with the DSO and DNO.

Primary institutions:
NESO, DESNZ, Ofgem

Functions affected:
Function 4 (Forecasting & Information)
Function 8 (Whole-System Coordination & Optimisation)
Function 5 (Services & Market Facilitation)

This pressure creates an asymmetry: influence over assumptions sits centrally, while financial and operational risk remains local. It therefore directly affects the Risk–Accountability and Strategic Planning–Operational Discretion balance.

Asymmetry between influence and accountability is not inherently problematic and may be necessary for effective system governance. The challenge arises where such asymmetry becomes unmanaged or opaque, leaving local actors exposed to risks they cannot meaningfully influence.

6.2.2 Pressure 2: Standardised rules

The creation of the Market Facilitator and strengthened national coordination (NESO), regulated by Ofgem, has increased the use of standardised products, processes and data requirements. While standardisation improves consistency and scalability, it could constrain the DSO's ability to tailor solutions to local network conditions.

Primary institutions:
Market Facilitator, NESO, Ofgem

Functions affected:
Function 5 (Services & Market Facilitation)
Function 8 (Whole-System Coordination)
Function 9 (Data Governance & Interoperability)
Function 4 (Forecasting)

This pressure affects the Economic Efficiency–Operational Security balance by narrowing the DSO's optimisation space while leaving it accountable for local outcomes.

This is not to say standardisation is bad - it can also improve participation, reduce transaction costs and support competitive markets. Issues will arise if rigid standardisation cannot accommodate highly localised network conditions or emerging operational needs.

6.2.3 Pressure 3: Policy prioritisation

A shift toward delivery-led decarbonisation, capacity prescription and state-backed investment introduces pressure to prioritise nationally significant assets or accelerated pathways. The entry of institutions such as Great British Energy intensifies concerns about neutrality when public policy objectives intersect with competitive markets.

Primary institutions:
DESNZ, NESO, GBE

Functions affected:
Function 5 (Services & Market Facilitation)
Function 8 (Whole-System Coordination)
Function 1 (Connection & Access Rights)

This pressure heightens tension within the Neutrality–Legitimacy balance and may also distort investment timing decisions within the Economic Efficiency–Operational Security balance.

6.2.4 Pressure 4: Incentive misalignment

Regulatory incentives, price-control frameworks, and performance metrics do not always align with the expanded planning and coordination roles emerging across institutions. DSOs may be encouraged to support anticipatory build or whole-system optimisation while remaining subject to cost-efficiency tests designed for incremental investment environments.

Primary institutions:
Ofgem, DESNZ, NESO

Functions affected:
Function 4 (Forecasting & Information)
Function 8 (Whole-System Coordination)
Function 5 (Flexibility vs Reinforcement decisions)

This pressure directly perturbs the Risk–Accountability and Economic Efficiency–Operational Security balance.

6.2.5 Pressure 5: Temporal compression

National strategic planning (e.g., SSEP, RESP), regulatory price controls (RIIO), and local investment and market cycles operate on different timelines. Further compression of delivery horizons intensifies this misalignment.

Primary institutions:
NESO, Ofgem, DESNZ

Functions affected:
Function 4 (Forecasting)
Function 8 (Whole-System Coordination)
Function 1 (Connection & Access sequencing)

This pressure could lead to premature commitments and the likelihood that assumptions harden into investment before uncertainties are resolved. It affects both Strategic Planning–Operational Discretion and Risk–Accountability balance.

6.2.6 Pressure 6: Interface complexity

The proliferation of institutions with partial authority across planning, markets, and data has increased the complexity of coordination. NESO, the Market Facilitator and Ofgem each impose legitimate but overlapping requirements. No single institution appears to hold the full arbitration authority where requirements conflict.

Primary institutions:
NESO, Market Facilitator, Ofgem

Functions affected:
Function 3 (Visibility)
Function 4 (Forecasting)
Function 5 (Markets)
Function 9 (Data Governance)

This pressure increases transaction costs, blurs decision rights, and heightens risks of neutrality and accountability. It most directly affects the Neutrality–Legitimacy and Risk–Accountability balance.

6.2.7 Summary of governance pressures

Table 8 summarises the six pressures. These pressures do not operate independently. They interact and reinforce one another. For example, centralised planning authority combined with misaligned incentives and compressed timelines can significantly amplify risk-accountability asymmetries. Similarly, standardised market rules interacting with state-backed delivery intensify neutrality and legitimacy concerns.

The following section analyses how these pressures, individually and cumulatively, perturb each of the four DSO–DNO balances.

Table 8: Summary of the six governance pressures.

Governance Pressure	Principal Institutional Drivers	Most Affected Functions	Primary balance affected
#1 Centralised assumptions	NESO, DESNZ, Ofgem	4, 8, 5	Strategic Planning ↔ Operational Discretion; Risk ↔ Accountability
#2 Standardised rules	MF, NESO, Ofgem	5, 8, 9, 4	Economic Efficiency ↔ Operational Security
#3 Policy prioritisation	DESNZ, NESO, GBE	5, 8, 1	Neutrality ↔ Legitimacy; Economic Efficiency ↔ Operational Security
#4 Incentive misalignment	Ofgem, DESNZ	4, 8, 5	Risk ↔ Accountability; Economic Efficiency ↔ Operational Security
#5 Temporal compression	NESO, Ofgem, DESNZ	4, 8, 1	Strategic Planning ↔ Operational Discretion; Risk ↔ Accountability
#6 Interface complexity	NESO, MF, Ofgem	3, 4, 5, 9	Neutrality ↔ Legitimacy; Risk ↔ Accountability

6.3 Impact on DSO-DNO balance

In this section, the report considers how the six pressures combine to impact the DSO-DNO balance and the nature of the perturbation.

6.3.1 Balance 1: Risk and accountability allocation

As described in Table 3, the DSO-DNO balances decision-making authority with exposure to operational, financial and reputational consequences. Under the current settlement, the DSO exercises operational discretion based on forecasts, market signals, and real-time actions, while the DNO bears long-term asset, financial, and performance risk.

Recent governance reforms have introduced roles and responsibilities that place pressure on the DSO-DNO balance. These are summarised below.

Pressure 1: Centralised assumptions.
National planning frameworks now define the parameters within which local forecasting, market procurement and investment decisions are taken. If central assumptions prove overly optimistic or spatially/temporally misaligned, the feasibility and cost risks will be realised locally.

Pressure 4: Incentive misalignment.
Regulatory frameworks hold the DNO accountable for efficient capital deployment, while policy and whole-system optimisation frameworks encourage anticipatory build and accelerated readiness. Thus, capital investment risk remains with the DNO while external expectations shape sequencing.

Pressure 5: Temporal compression.
Planning cycles (RESP), price controls (RIIO), and connection growth timelines do not align. Distribution businesses must commit to positions before uncertainties are resolved. The risk of stranded assets, underutilisation, or delayed uptake of flexibility remains local.

Pressure 6: Interface complexity.
Where tensions arise between national planning, market rules and regulatory requirements, no single institution has end-to-end responsibility for reconciling them. The DSO must operationalise resolution in real time, yet does not control all contributing frameworks.

Impact

The cumulative impact of these pressures relocates strategic influence over assumptions, market parameters and delivery expectations outside the DSO–DNO relationship, while financial and operational exposure remains within it.

The Risk–Accountability balance, therefore, shifts toward a buffer role between national governance and local delivery risk.

6.3.2 Balance 2: Neutrality and legitimacy at the market–network boundary

Table 3 show that the DSO exercises operational control, produces forecasts, and holds privileged information on system visibility, all of which can affect market outcomes. The DNO retains capital incentives and long-term financial exposure.

While operational influence and neutrality are not opposing forces, as the DSO's influence over market outcomes increases through forecasting, procurement and dispatch decisions, the governance arrangements required to demonstrate neutrality must strengthen proportionately. Legitimacy depends on impartial behaviour and transparent processes, assurance mechanisms and clearly defined decision boundaries.

Pressure 1: Centralised assumptions.
National planning frameworks now more directly shape local flexibility volumes, constraint forecasts or sequencing expectations. Consequently, the DSO's market-facing actions reflect assumptions it does not fully control, complicating perceptions of impartiality.

Pressure 2: Standardised rules.
The establishment of the Market Facilitator formalises product definitions, procurement standards and dispatch frameworks. This improves consistency and scalability but introduces a boundary between rule-setting and rule-application. The DSO remains the operational buyer and dispatcher of services within these frameworks, making its discretion more visibly consequential.

Pressure 3: Policy prioritisation.
Delivery-led decarbonisation policy and the entry of state-backed actors increase sensitivity to perceived preferential treatment. Consequently, the neutrality of decisions regarding procurement and dispatch is more likely to be scrutinised.

Pressure 6: Interface complexity.
Overlapping governance roles between the Market Facilitator, NESO, and Ofgem mean that neutrality assurance is distributed institutionally, while accountability for local outcomes remains with the DSO. This increases the scrutiny of DSO decision-making at the market boundary.

Impact

Together, these pressures shift the balance from one in which neutrality was largely embedded through internal separation and regulatory oversight to one in which neutrality must be continuously demonstrated in a more complex and political governance landscape. In essence, the balance shifts toward the DSO as the focal point of scrutiny and assurance at the market–network boundary. Legitimacy increasingly depends on both outcomes and demonstrable independence, transparency and institutional robustness.

6.3.3 Balance 3: Economic efficiency and operational security

As shown in *Table 3*, the DSO exercises operational discretion through constraint management, flexibility procurement and forecasting, while the DNO determines capital investment and asset reinforcement. Stability depends on maintaining an appropriate balance between short-term operational optimisation and long-term infrastructure resilience and investment certainty.

Recent governance reforms introduce pressures that affect this balance.

Pressure 1: Centralised assumptions.
National planning frameworks and whole-system optimisation criteria increasingly shape expectations around capacity, sequencing and system readiness. Where these assumptions prioritise accelerated delivery or anticipatory build, the flexibility–reinforcement trade-off is influenced.

Pressure 2: Standardised rules.
Standardised flexibility products and market frameworks by the Market Facilitator improve consistency but could limit the DSO's ability to tailor solutions to local conditions.

Pressure 3: Policy prioritisation.
Delivery-led decarbonisation and strategic asset deployment may prioritise capacity readiness

over incremental efficiency. This could compress the time available for using flexibility as a deferral mechanism, shifting the emphasis toward reinforcement even where uncertainty remains.

Pressure 5: Temporal compression.
Shorter lead times from planning to delivery reduce the opportunity to test flexibility solutions over time before committing to capital investment, tightening the sequencing between operational and investment decisions.

Impact

These pressures reduce the degree of local optimisation discretion within the DSO–DNO relationship. The balance shifts toward one in which strategic direction, standardisation and compressed timelines constrain choices.

The balance moves toward tighter coupling between operational and investment decisions, reducing the scope for iterative learning through flexibility deployment before committing to durable infrastructure solutions.

6.3.4 Balance 4: Strategic planning authority and local discretion

As per *Table 3*, the DSO translates strategic signals into operational actions and market pathways, while the DNO commits capital and bears delivery risk. Stability depends on maintaining sufficient local discretion to adapt national plans to spatial, technical and community realities.

Recent governance reforms introduce pressures that affect this balance.

Pressure 1: Centralised assumptions.
Through SSEP, RESP and national scenario-setting, NESO now holds primary authority over whole-system planning and optimisation criteria. Local forecasting, flexibility volumes and reinforcement strategies are increasingly derived from nationally defined pathways.

Pressure 2: Standardised rules.
Common product definitions, data standards, assumptions and coordination frameworks create greater national consistency but reduce the scope for locally differentiated planning approaches.

Pressure 3: Policy prioritisation.
Delivery-led decarbonisation and accelerated infrastructure ambitions shift emphasis toward speed and capacity readiness, sometimes ahead of fully resolved local feasibility or community alignment.

Pressure 5: Temporal compression.
Planning and regulatory cycles require local actors to commit to strategies within nationally defined timelines, limiting room for manoeuvre as evidence evolves.

Pressure 6: Interface complexity.
Whole-system coordination spans NESO, the Market Facilitator, Ofgem, DESNZ, and local actors, yet no single institution bears full responsibility for reconciling trade-offs across these layers.

Impact

These pressures reduce the DSO-DNO scope for local reinterpretation of central plans, e.g., the DSO–DNO potentially functions as the implementation arm of national pathways rather than as a design partner. Local discretion remains necessary for operational purposes, but the latitude to shape strategic direction is reduced. Consequently, the balance may shift away from subsidiarity - where national objectives were translated and adapted locally - toward a stronger hierarchical alignment, in which local planning must demonstrate compliance with centrally defined assumptions and sequencing.

This shift potentially reduces adaptability to local circumstances, as national frameworks may not fully reflect local network conditions or priorities. As local discretion narrows, effective coordination, consultation and feedback mechanisms become more critical to maintaining coherence across planning layers. The Strategic Planning–Operational Discretion balance is therefore not eliminated, but it becomes more centralised and less elastic. The resilience of the DSO–DNO model under this configuration depends on whether local operational insight continues to shape strategic planning meaningfully or becomes primarily reactive to central plans.

6.3.5 Summary

The impact of the six pressures on the DSO-DNO balance is summarised in *Table 9*.

Table 9: How governance pressures shift the internal DSO–DNO balances

DSO-DNO balance	Key Pressures	Direction of Shift	System-Level Impact
#1 Risk and accountability allocation	1,4,5,6	Strategic influence is centralised while delivery risk remains local	Increased asymmetry between influence and exposure; greater risk absorption at the distribution level.
#2 Neutrality and legitimacy at the market–network boundary	1,2,3,6	DSO becomes the focal point for neutrality assurance and scrutiny	Heightened sensitivity to perceived impartiality; increased assurance burden
#3 Economic efficiency and operational security	1–5	Reduced scope for local optimisation before investment commitment	Earlier capital commitment; tighter coupling between operations and investment
#4 Strategic planning authority and local discretion	1,2,3,5,6	Strategic authority is increasingly centralised relative to local discretion	Reduced subsidiarity; stronger alignment with national planning