

SP Energy Networks

# DNO:DSO Operating Framework March 2025



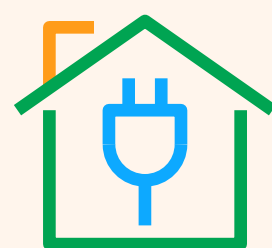
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Who we are

We are SP Energy Networks. We have Distribution System Operation (DSO) responsibilities to develop flexibility markets, share data, and support and audit the development and operation of our distribution network.

This network covers Central and Southern Scotland (SP Distribution) and North and Mid-Wales, Merseyside, Cheshire, and North Shropshire (SP Manweb). It’s through these two networks of underground cables, overhead lines, and substations that we provide our 3.5 million customers with a safe, reliable, and efficient supply of electricity.

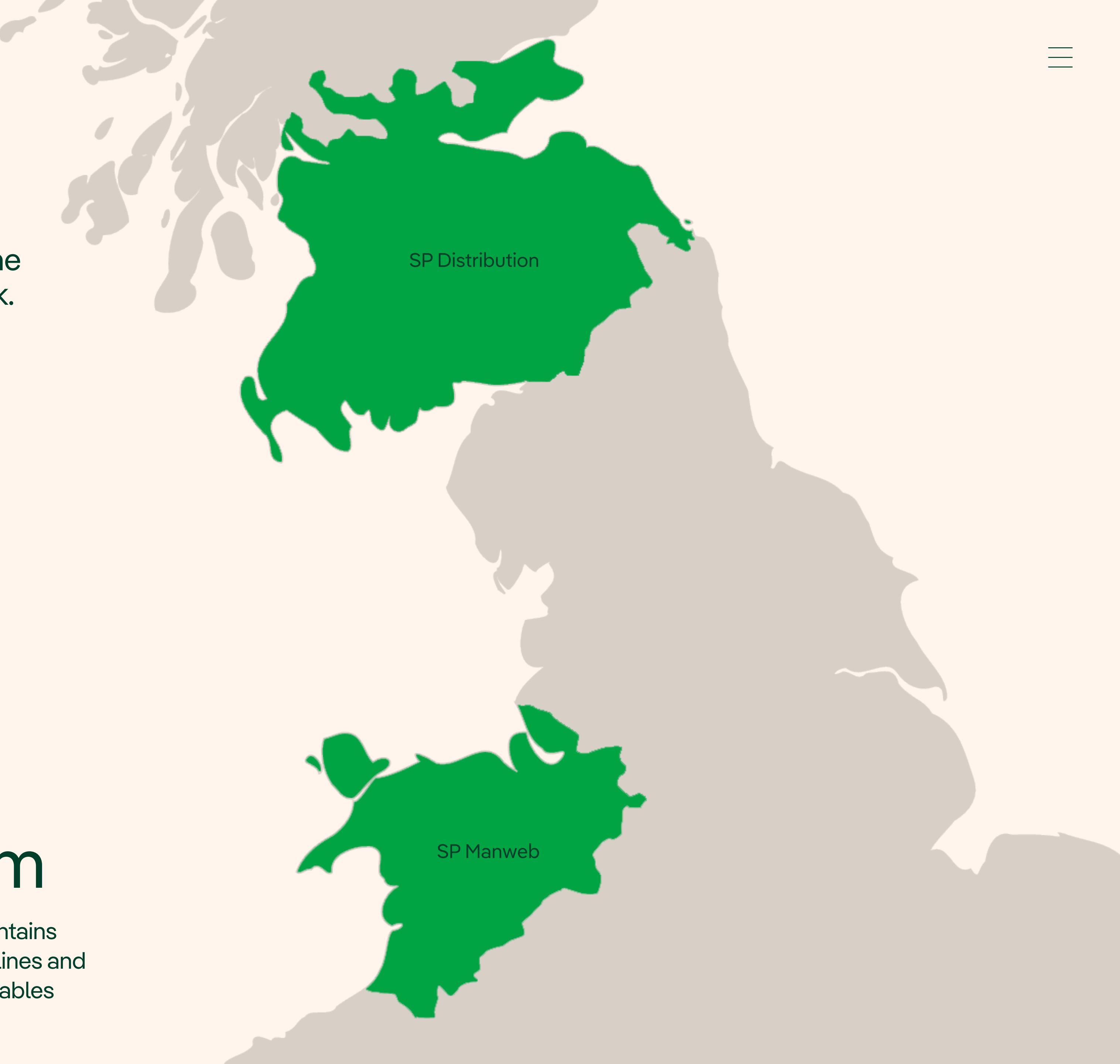


3.5 million

Our distribution network serves 3.5 million business and domestic customers

107,390km

Our distribution network contains 38,145 kilometres of overhead lines and 69,245km of underground cables





Our DSO Strategy

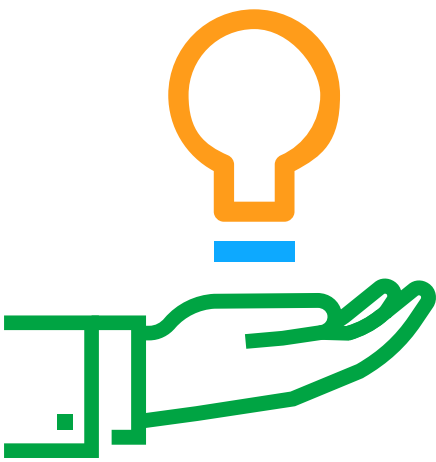
As part of our transition to a smarter, more flexible energy system, SP Energy Networks DSO is evolving to enhance network efficiency, enable greater customer participation, and support the UK’s Net Zero targets. By improving network visibility, optimising the use of distributed energy resources (DER), and fostering market-based flexibility, we are driving a more resilient, reliable, and decarbonised electricity system.



Our DSO Outcomes

We have updated our approach to DSO, building it around four key customer outcomes. These outcomes have been tested with, and are supported by, our stakeholders.

These outcomes ensure our network evolves to meet future energy demands while delivering value, enhancing reliability, and enabling the transition to Net Zero for our customers. They provide a clear framework for how we will operate, engage, and make decisions in a way that supports customers, stakeholders, and the wider energy system.



Enabling capacity for customer connections, growth and decarbonisation

#1

Helping customers to participate in a flexible energy system

#2

Providing easy access to accurate and timely data

#3

Operating a reliable and decarbonised network

#4



Background

In their RIIO-ED2 Business Plan Guidance<sup>1</sup>, Ofgem defined the three DSO roles that distribution network licensees<sup>2</sup> must deliver: planning and network development, network operation, and market development. They did not define the DSO organisational structure that distribution network licensees should use to do this, so we engaged with our stakeholders on three broad options shown opposite.

Our analysis (Appendix A) found that option 2 was the most beneficial for our customers, and this position was supported by our stakeholders. We therefore committed to delivering this in our RIIO-ED2 DSO Strategy. We note that all but one of the GB distribution network licensees have since adopted a variation of option 2.

1. Available at: [www.ofgem.gov.uk/consultation/framework-consultation-electricity-distribution-price-control-ed3](https://www.ofgem.gov.uk/consultation/framework-consultation-electricity-distribution-price-control-ed3)

2. We use the terms “distribution network licensee”, “SP Energy Networks”, and “we” to mean the whole licenced organisation covering both DNO and DSO responsibilities. Where we use the term “DSO”, it refers to DSO responsibilities.

A fully integrated DSO  
– ‘no change’.

In this option, DSO responsibilities are spread throughout the business. There are no defined DSO personnel or teams, and so less accountability for delivery. This option represents little change from where most DNOs were in RIIO-ED1.

1.

A discrete DSO business unit within  
the distribution network licensee  
– ‘the no regrets approach’.

In this option, there is a defined DSO business unit and DSO personnel responsible for delivering DSO responsibilities. This means there is accountability for delivering DSO, yet they can still work closely with DNO staff where required to coordinate interventions and share high cost infrastructure such as control rooms as there aren’t the barriers that legal separation creates. This offers some advantages over full separation and avoids the costs and downsides.

2.

A full legally separated DSO  
– ‘wholly separate’.

This would be a separate business, entirely and wholly separate from the distribution network licensee. There could be no sharing of staff, systems, or infrastructure. It may require its own licence and price control arrangements, and would be costly and time-consuming to implement.

3.





This document

Delivering DSO roles and activities benefits our customers and society. DSO provides the tools, coordination, and network visibility we need to efficiently enable customer demand and generation growth, use flexible solutions from our customers, and operate a reliable and decarbonised system.

To deliver these DSO roles and activities, DSO personnel must work with DNO parts of the business. This is especially true for the planning and network development and network operation DSO roles. Given the criticality of these roles, it’s important that we’re clear about where the responsibilities fall and DNO:DSO interactions. This clarity helps ensure DSO is delivered efficiently and on time, and the transparency helps stakeholders understand our processes and how decisions are made.

That is the purpose of this document: to set out the respective DNO and DSO responsibilities for delivering DSO roles – to clearly show how DNO and DSO personnel interact and where responsibility sits for the component tasks of each DSO role. In this sense, this Operating Framework provides the next level of detail for DSO organisational structure ‘option 2’ described on the previous page.

This structure of this document is:

- Pg 7: *explains the criteria and factors we considered when categorising DNO and DSO responsibilities.*
- Pg 8-12: *is the core of this document; it sets out the DNO and DSO responsibilities and interactions for the three DSO roles.*
- Pg 13: *explains the governance of this document.*

This document is one of the measures we’re taking to give customers and stakeholders confidence that we are using the most appropriate interventions, give flexibility market participants confidence that we are a neutral market facilitator, and bring transparency to our processes.

Why are we publishing this DNO:DSO Operating Framework now?

The last year has seen significant change in the political and regulatory environment, with the introduction of the government’s CP2030 target, the establishment of the National Energy System Operator (NESO), and a move to whole system planning through the Strategic Spatial Energy Plan (SSEP) and Regional Energy Strategic Plans (RESP).

We have also received clear feedback from our customers and stakeholders on providing greater clarity on the split of DSO responsibilities versus DNO responsibilities. This helps build confidence in our decision-making governance and our management of real, perceived, and potential conflicts of interest.

In light of this, we have reviewed our definitions of these roles and responsibilities, and this document sets out our framework for meeting our stakeholders’ needs and the Ofgem roles.

3. Our Independent Net Zero Advisory Council (INZAC) is a group of external experts who provide challenge and specialist knowledge to our DSO and other activities.

Incorporating your views

It’s important that this DNO:DSO Operating Framework meets the needs of our customers and stakeholders, so we sought stakeholder input by sharing this document for public consultation. We also received input from our INZAC<sup>3</sup>. We thank our stakeholders and INZAC for helping to shape this document.

Whilst the consultation has now closed, input and questions can be sent at anytime to: [DSO@spenergynetworks.co.uk](mailto:DSO@spenergynetworks.co.uk)

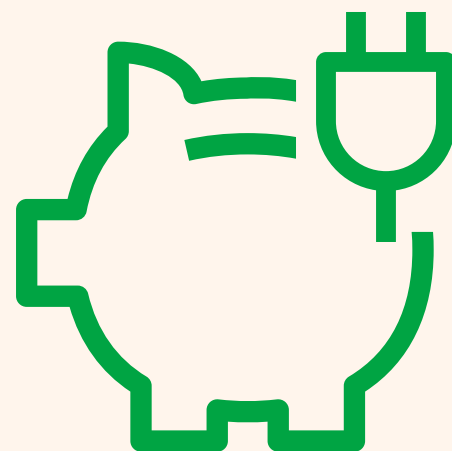
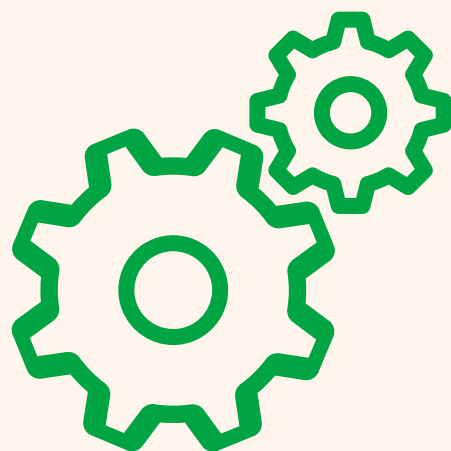


# Key principles

This section explains the criteria and factors we considered when assigning responsibilities for delivering DSO roles.

## Assessment criteria and considerations

- Ofgem’s definition of DSO roles, activities, and baseline expectations in their September 2021 RIIO-ED2 Business Plan Guidance (footnote 1).
- The need to address perceived and real conflicts of interest when it comes to delivering DSO outputs, so that stakeholders can have confidence in our processes and decisions. One main form of mitigation is clear separation of responsibilities between DNO and DSO personnel, including independent DSO review of DNO decisions.<sup>4</sup>
- The need to retain clear responsibility for key customer outcomes, especially when related to safety and reliability. For example, there can’t be any ambiguity as to who is responsible for planning outages or getting customers back on supply after a fault. Similarly, there is a need to retain clear responsibility for compliance with industry standards that help ensure a safe and reliable supply for customers, such as EREC P2 and ESQCR.
- Cost, personnel resource, and what adds value for customers and stakeholders. The approach in this document avoids adding extra personnel or steps into a process or activity unless they add benefit for customers and stakeholders. Similarly, it is important to avoid duplicating scarce resource and high-cost infrastructure (e.g. control rooms).
- Approaches taken by other distribution network licensees. Learning from existing good practice and delivering commonality are in customers’ interests.
- The approach taken at transmission between the NESO and Transmission Owners (TOs).
- The evolving roles of the RESP and NESO.



4. Other forms of mitigation are explained in our Conflict of Interest Management Plan.

# DNO:DSO responsibilities and interactions

This section sets out how DNO and DSO personnel interact and their respective responsibilities when delivering the three core DSO roles.

Planning and network development  
*Pg 8-9 →*



Network operation  
*Pg 10 →*



Market development  
*Pg 11 →*





# Planning and network development

This role is about ensuring that we develop our network to provide the capacity needed for customer connections, growth, and decarbonisation. To do this efficiently we must ensure we understand and incorporate customer and stakeholder plans, and fairly and impartially consider the full range of solutions to provide capacity.

This Operating Framework intentionally focuses on where responsibilities sit, rather than on the detail of each stage of the process. For detailed information on our network development process (e.g. how we do network assessments), please see our Decision Making Framework<sup>3</sup>.



3. Our Decision Making Framework is a separate document that explains the process we follow to decide when and where to use flexibility services. Available at: [www.spenergynetworks.co.uk/userfiles/file/SP\\_Energy\\_Networks\\_Decision\\_Making\\_Framework.pdf](http://www.spenergynetworks.co.uk/userfiles/file/SP_Energy_Networks_Decision_Making_Framework.pdf)

## Forecasting

To ensure there is enough network capacity to accommodate our customers’ requirements, we first need to understand what these requirements are.

We develop Distribution Future Energy Scenarios (DFES) with our stakeholders to do this. These are forecasts for a range of customer demand and generation metrics out to 2050.

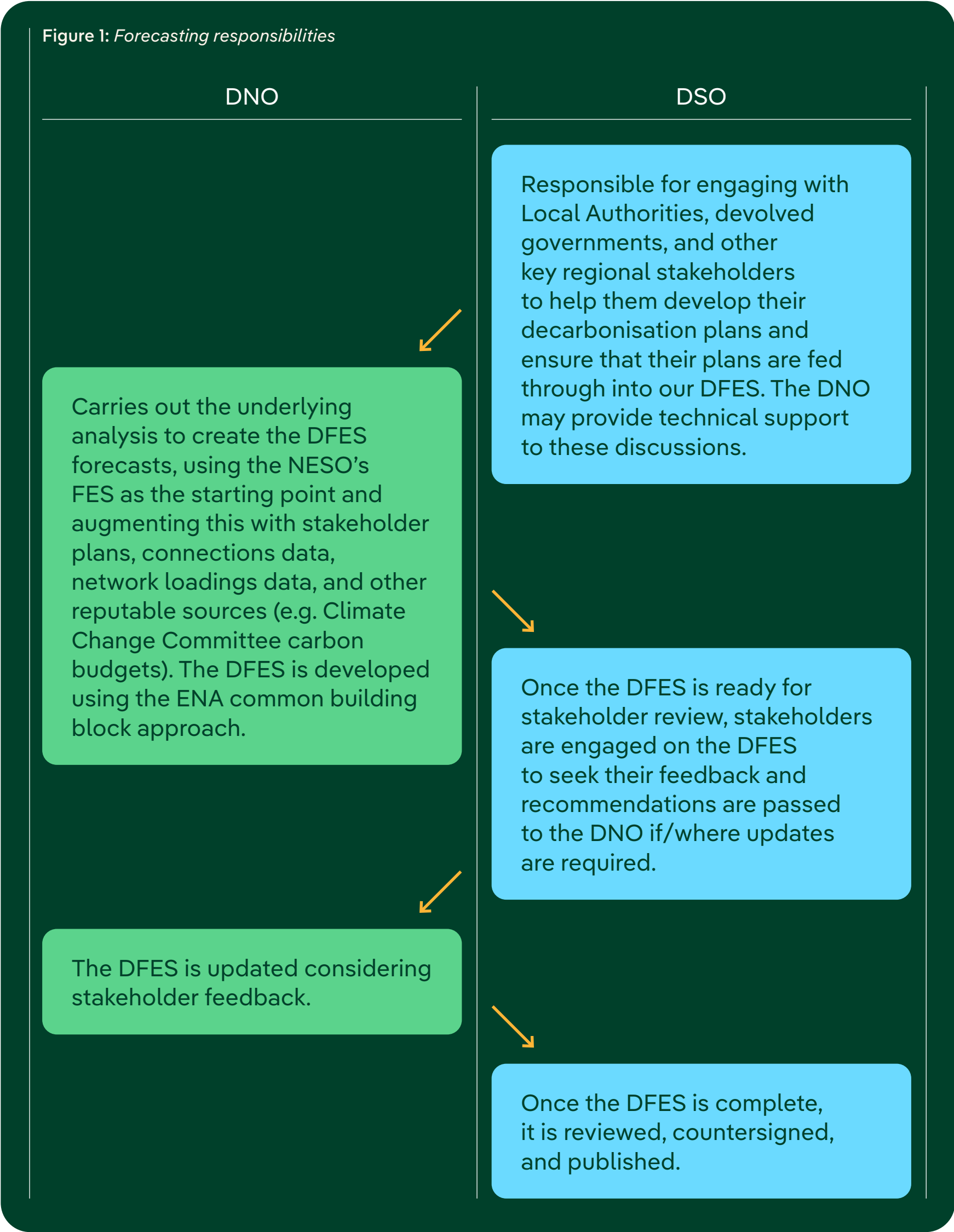
Figure 1 shows the DNO and DSO responsibilities for doing this. The DFES is published annually.

### This process and split of responsibilities:

- ensures that there is an independent check on the DFES creation. If the whole activity were done by either DNO or DSO then that opportunity to review/ challenge the outcome would be missing.
- ensures that personnel that do stakeholder engagement (steps 1 and 3) also carry out the DFES review (step 5). This is beneficial as a key aim of the review is to ensure that stakeholder input has been incorporated into the DFES.

The new RESP process is still under development. It is likely that both DNO and DSO will need to engage with the NESO on the RESPs.

Figure 1: Forecasting responsibilities



## Connections

Accommodating and delivering connections is a core DNO activity.

Therefore receiving connection applications, designing and issuing connection offers, discussing individual connections with customers, being the counter-signatory to connection agreements, and developing connection policy all remain DNO responsibilities. The DNO is also responsible for delivering connection management tools, such as active network management (ANM).

DSO responsibilities for connections include input into curtailable connections policy, maintaining the database of curtailable connections so the control room has visibility of them, and ensuring that any curtailment of customers by the control room is recorded and only done in accordance with the customer’s connection agreement and network access rights.

## Network assessments and solution identification

Having created forecasts of customer demand and generation growth, we then undertake network assessments to understand where, when, and how much additional network capacity is needed to accommodate these forecast customer requirements.

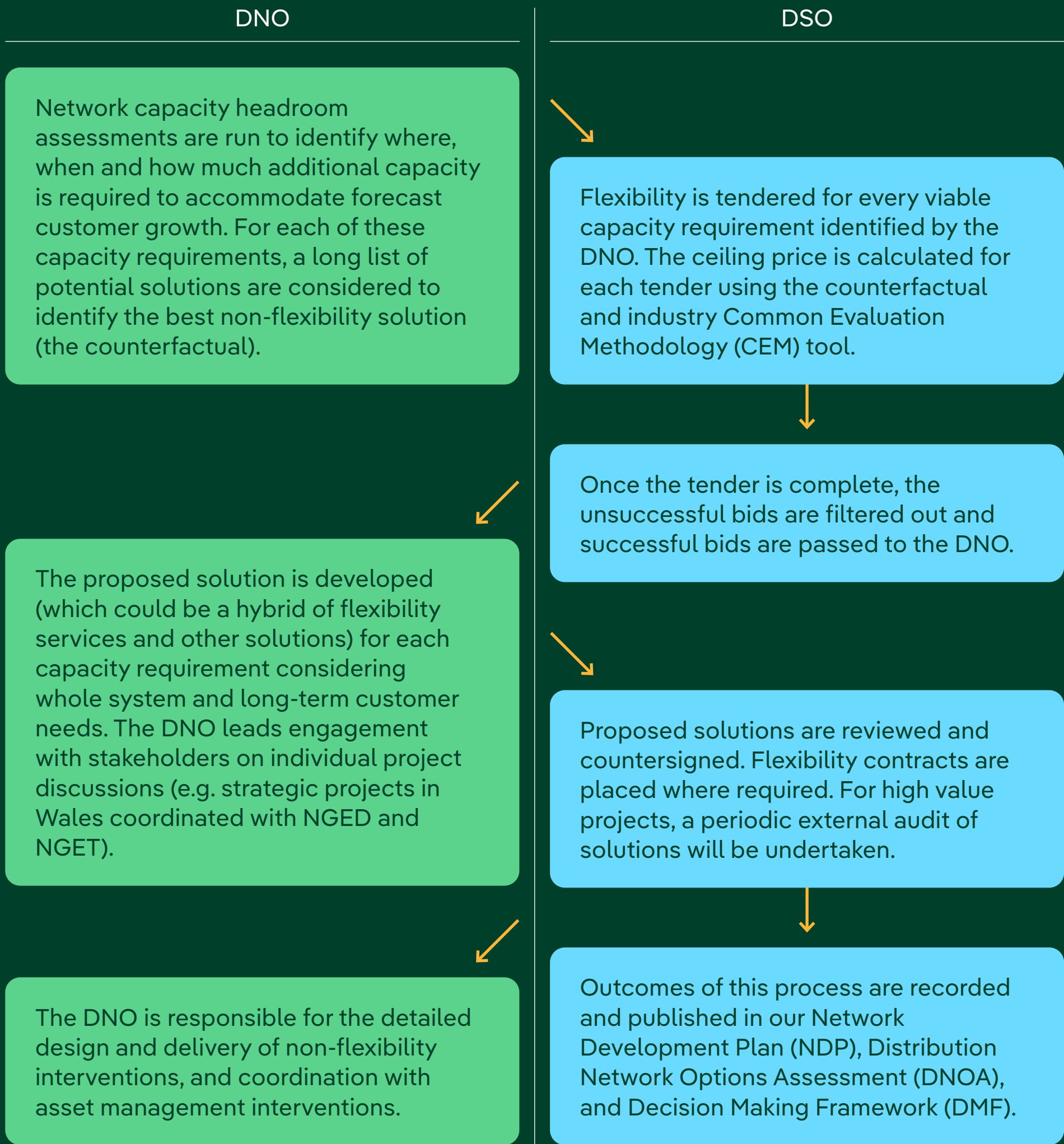
For each such capacity requirement, we must then work out the best intervention/solution to provide this capacity. Figure 2 shows the DNO and DSO responsibilities for these network assessments and solution optioneering.



### This process and split of responsibilities:

- ensures that all solutions are being impartially evaluated against each other and against the capacity requirement. This helps ensure that the best solutions are selected having considered common criteria such as cost, ability to provide capacity, timing, deliverability, and whole system needs. If the whole activity were done by either DNO or DSO then that independent check would be missing.
- helps address potential concerns around conflicts of interest or cultural bias against using flexibility services. Between this split of responsibilities and our policy of tendering for all viable capacity requirements, it's not possible for the DNO to unduly influence which capacity requirements are taken to tender and how those flexibility tenders are run.
- maintains a close working relationship between the network planning team and the connections team (both are DNO responsibilities). This relationship is important as new connections are a major driver for increasing network capacity – we must incorporate them within our network plans so we can provide the capacity that connections customers need.
- maintains a close working relationship between network planning team and asset management team (both are DNO responsibilities). This relationship is important as it enables the consideration of asset risk and replacement plans when optioneering, and it enables coordination of asset management and load related interventions. This coordination helps deliver capacity and reliability for customers more efficiently and with less disruption.
- avoids having to duplicate network planning teams, which would be costly and be challenging to implement due to an industry shortage of power system modellers.
- retains clear responsibility for ensuring that the network is designed to industry standards such as EREC P2/8 and ESQCR, which helps keep customer supplies safe and reliable.

Figure 2: Network assessment and optioneering responsibilities





# Network operation

Network operation is the management of our network in real time to ensure that network power flows don't exceed network limits, to keep our customers and staff safe, and to keep electricity flowing to our customers 24/7. However it is not just a real time activity – network operations can have responsibilities months in advance of real time (e.g. planning maintenance outages) to help ensure successful real time operation. There are also post-event activities, such as settling (paying for) flexibility services that were used.

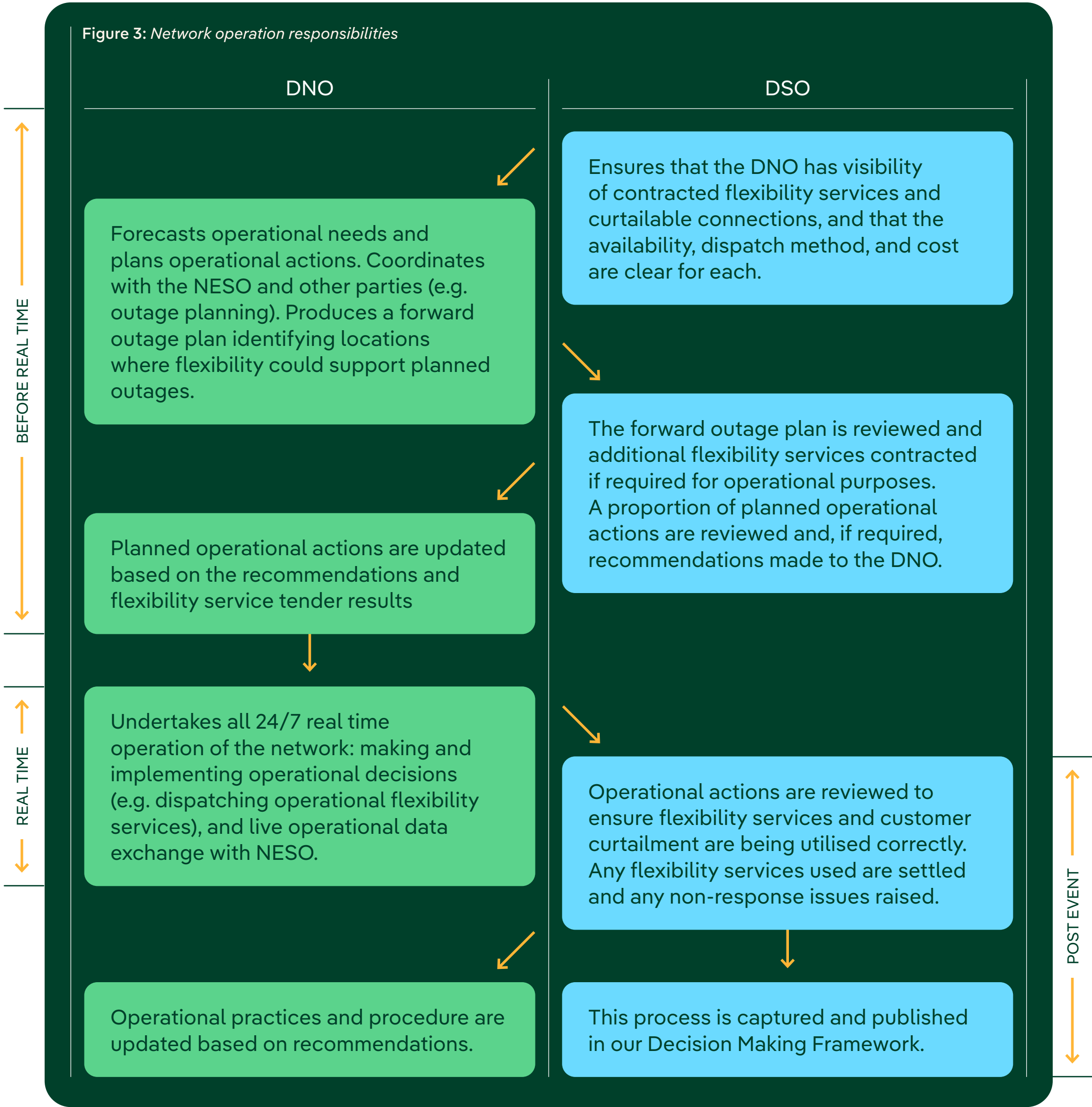


## Before real time, real time, and post event

Figure 3 shows the DNO and DSO responsibilities for network operations, split into before real time, real time, and post event.

This process and split of responsibilities ensures that:

- there is no ambiguity when it comes to who is responsible for keeping our customers and staff safe and keeping the lights on for our customers.
- we can respond more quickly to ‘live’ issues, such as faults and storms, as there are fewer parties to consult and no barriers to communicating across the business.
- we explore all options to manage network risk during planned and unplanned outages including the dispatch of flexibility services where it is technically and commercially viable to do so. There is independent review of DNO operational actions, including ensuring that flexibility services and curtailable connections are correctly utilised.
- there is no need to duplicate control rooms, which would be a significant cost to customers.





# Market development

This role is about developing efficient and competitive markets for flexibility services, ensuring there are no unintentional restrictions on providers participating in other markets, and ensuring that their use is coordinated with the NESO. Responsibilities for the identification of the need for flexibility services, and the subsequent dispatch of those flexibility services, are described earlier on pages 9 and 10. ←

Most elements of this role are DSO responsibilities but are supported to some extent by the DNO. This is shown in Table 1.

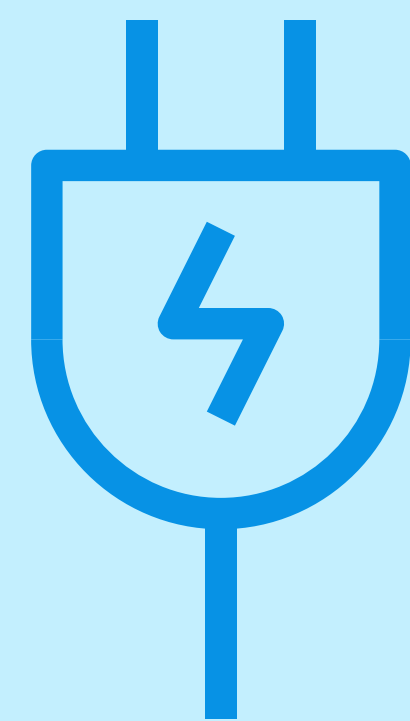


Table 1: Market Development responsibilities

DSO responsibility	DNO support
End-to-end flexibility tendering process, from pre-qualification through to placing contracts.	Support with procurement.
Settlement of flexibility services that have been delivered by flexibility providers.	Input from control room on what was dispatched.
Publishing tender results and other market data.	Support with publishing data on the Open Data Portal.
Support the Market Facilitator in their role to improve flexibility market participation through the range of activities outlined by Ofgem and Elexon.	Support on potential regulatory and legal issues. Implementation of industry change that affects DNO roles or responsibilities.
Promoting market participation through stakeholder engagement, provision of market information and bi lateral engagement with existing and potential providers of flexibility.	Provision of capacity requirement data to support market engagement and awareness of flexibility requirements.
Reducing barriers to entry through changes to processes or systems that are used as part of the end to end flexibility process. Seeking and implementing industry best practise and commonality where possible.	Support on potential regulatory and legal issues.
Developing and managing the end-to-end platform we use for contracting and dispatching flexibility.	Support assessing potential interactivity with connection management tools.
Secondary trading of flexibility service obligations.	Reviewing the trade from a technical perspective (ensuring that the trade will still deliver the network benefits that we are paying for).
Development and implementation of primacy rules, ensuring market coordination where possible.	The control room(s) will ensure that systems and processes for real time communication with the NESO promote coordination, data sharing, and primacy as and when standards are defined.
Development of new flexibility products and services.	Planning and operational teams from across the organisation will assess the suitability of new flexibility products and services to ensure that they meet the technical requirements of the network. These teams may also identify additional ways in which flexibility services could be beneficial.

# Governance of this DNO:DSO Operating Framework

This section explains how we will keep this document up-to-date and our escalation process.



## Frequency of updates for this DNO:DSO Operating Framework

There are two ways that updates to this DNO:DSO Operating Framework will be triggered:

- 1. **Internal:** *we will review this DNO:DSO Operating Framework at least every two years to identify whether updates are required.*
- 2. **External:** *stakeholder input, regulatory changes, or other third-party changes may trigger the need for updates.*

In either case, we will inform our INZAC of the updates required and discuss their materiality. If updates are agreed to be minor then we will republish the document with an explanation of what has changed. If updates are agreed to be major then we will consult on them.

Changes to this document must be signed off by the Head of DSO and Director of Network Planning and Regulation.

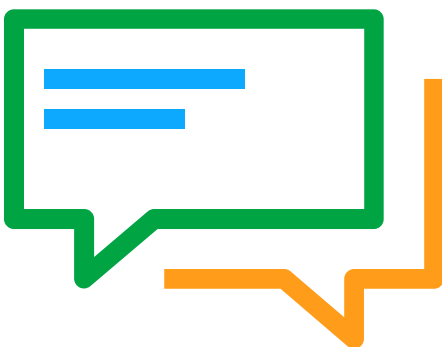


## Resolving disagreements between DNO and DSO and escalation process

The processes set out in this Operating Framework involve the DSO reviewing/auditing DNO outputs, and requires the DNO and DSO to agree on some outputs. It is possible that there may be instances in which there is a difference of opinion.

### Where this happens:

- 1. In the first instance we will try and resolve this at the working level.
- 2. Where step 1 does not resolve the issue, a meeting will be arranged between the relevant DSO Lead and relevant Head of department from the DNO.
- 3. Where step 2 does not resolve the issue, it will be escalated to the Head of DSO and the Director of Network Planning and Regulation for a decision.



## Conflict of Interest Management Plan

We have a Conflict of Interest Management Plan. The purpose of this is to identify, assess, and mitigate/manage perceived and real conflicts of interest between our DSO responsibilities and our other interests as a distribution network licensee.

Both DNO and DSO personnel have responsibilities under this Conflict of Interest Management Plan. Please see our Conflict of Interest Management Plan for more information.





# Appendix A



	ASSESSMENT CRITERIA	OPTION 1	OPTION 2	OPTION 3
		Fully integrated DNO/DSO	Discrete DSO within DNO	Full legally separate DSO
<p>This table and the accompanying footnotes show the analysis of DSO institutional arrangements that we conducted when preparing our RIIO-ED2 DSO Strategy. This analysis showed that option 2 was the most beneficial. This position was supported by our stakeholders, and so is the model we committed to delivering in our RIIO-ED2 DSO Strategy. We note that, since this original analysis, all but one distribution network licensee have adopted a variation of option 2.</p>	<b>Safeguarding safety – our first priority</b>	There is a single organisation responsibility for safety.	There is a single organisation responsibility for safety.	No clear single responsibility for safety of the network that goes into customers’ homes. <sup>7</sup> This is especially relevant as customer demand increases, meaning these assets could be overloaded.
	<b>Cost to implement institutional arrangement</b>	The major costs associated with separation (e.g. new control room, infrastructure, systems etc.) are avoided.	The major costs associated with separation (e.g. new control room, infrastructure, systems etc.) are avoided as they are shared.	Duplication of resource such as new control room, infrastructure, support staff. <sup>8 9</sup>
	<b>Accountability to deliver DSO</b>	No single clear accountability or responsibility for delivering DSO.	Dedicated DSO personnel, so clear accountability and responsibility for delivering DSO.	Dedicated DSO business so clear accountability and responsibility for delivering DSO.
	<b>Ability to deliver the volume of interventions required for Net Zero</b>	There are no barriers to the coordination needed between DSO planning/ operational staff and DNO field staff, yet there is no clear responsibility for the DSO outputs needed to enable delivery (e.g. enhanced forecasting tools, greater flexibility use etc.).	There is clear responsibility to deliver the DSO outputs needed to support Net Zero, and no barriers to the coordination needed between DSO planning/operational staff and DNO field staff.	The coordination between DSO staff and DNO field staff to deliver the volume of interventions needed for Net Zero is inhibited as there would be no shared systems or workspaces. Delivering full separation would divert a significant amount of focus and resource at a time when we need to deliver a substantial increase in interventions, tools, and processes to enable Net Zero. There are also recruitment issues for control room staff – these are highly specialised roles and already hard to fill without every network licensee creating an additional control room.
<p>7. A 2015 report from Amprion highlighted the European risks from the separation of System Operator (SO) and Asset Owner (AO) responsibilities where the “consistent and unique responsibility for the grid is disrupted” from conflict SO and AO action and a lack of clear accountability. Available at: <a href="https://iea.blob.core.windows.net/assets/imports/events/153/Lehmkoester.pdf">https://iea.blob.core.windows.net/assets/imports/events/153/Lehmkoester.pdf</a>. This also highlighted that previous separations of the AO and SO at transmission were subsequently reversed in Italy, Hungary, and Poland.</p>	<b>Transparency of decision making</b>	Decisions and supporting data can be shared, but this structure will likely lack a separate decision making governance and external assurance. No clear accountability to deliver the DSO data sharing outputs, which are key to promoting transparency.	This structure accommodates separate governance with clear delivery responsibility, and external assurance. There is clear accountability to deliver the DSO data sharing outputs, which are key to promoting transparency.	This structure accommodates separate governance with director responsibility, and external assurance. There is clear accountability to deliver the DSO data sharing outputs, which are key to promoting transparency.
<p>8. Legal and structural changes have historically been very expensive for customers. A 2001 study by the Institute of Fiscal Studies found the cost of the 1990s Liberalisation of Regional Electricity Companies (RECs) cost to be £1.1bn (1995 prices) nationally. After an RPI conversion this would be circa £2bn today. There is already enough upward pressure on bills; we shouldn’t be adding to them unnecessarily, especially with full legal separation when the benefits case has not yet been made.</p> <p>9. In 2018, Ofgem set funding for the ESO to separate from National Grid at £49.3m for one-off costs and an enduring £9.1m/year. This was when the ESO was already at an advanced stage of maturity with limited overlap in day to day roles / activities with the TO. DNOs/DSOs are far more integrated than the TO and ESO were at time of separation, and so would likely face significantly greater capital allowances.</p>	<b>Addressing perceived and real conflicts of interest</b>	There is no separation between DSO and DNO decisions.	This would likely address concerns for most stakeholders about perceived conflicts of interest. This can be upgraded to green through RIIO-ED2 with targeted measures, e.g. strong governance, a Conflict of Interest Management Plan, an independent expert stakeholder panel, DSO personnel signing off on intervention decisions, external assurance of load-related intervention decisions, and more data share to improve investment transparency.	This would likely address stakeholder concerns about perceived conflicts of interest.
	<b>Optionality</b>	It keeps all future options open until the evidence case for an enduring decision has been made.	It keeps all future options open until the evidence case for an enduring decision has been made.	It is possible to reverse this decision but it is unlikely as the costs of separation are not recoverable. <sup>10</sup> We therefore shouldn’t do this until the case for this option is unequivocally made.
<p>10. Previous separations of the asset owner and system operator at transmission were subsequently reversed in Italy, Hungary, and Poland. Available at: <a href="https://iea.blob.core.windows.net/assets/imports/events/153/Lehmkoester.pdf">https://iea.blob.core.windows.net/assets/imports/events/153/Lehmkoester.pdf</a></p>	<b>Summary</b>	Not preferred – there are too many risks to delivering DSO and not enough transparency and accountability.	Preferred – this delivers the great majority of the advantages of full separation whilst avoiding the downsides and the expense.	Not preferred – this option has strengths, but safety and Net Zero deliverability are major concerns. The most expensive without being the best.

