

Distribution Network Options Assessment

January 2024

Foreword

It is with great pleasure that I present our **Distribution Network Options Assessments (DNOA)** publication, which encapsulates the vision, principles, and strategies that underpin our approach to the operation and growth of the electricity distribution network.

Distribution System Operation serves as the cornerstone of our endeavour to develop a smart and flexible distribution network capable of accommodating the ever-changing behaviours and demands of our customers. It is the embodiment of our commitment to delivering efficient network capacity to our customers, ensuring that the infrastructure is optimised for their benefit.

As we look ahead, our expectations for network investment and flexibility grow more pronounced. We are firm in prioritising flexibility services as a cost-effective approach to managing network congestion, while concurrently advocating for energy efficiency measures.

This document serves as a comprehensive guide, describing the methodologies and approaches that inform our evaluation of network upgrade options. It underscores our commitment to transparency, ensuring that our investments are both economical and efficient, thereby yielding tangible benefits for our customers.

Crucially, at Electricity North West, we remain steadfast in our commitment to delivering for our customers and

contributing to the realisation of net zero targets in our region. Our decision-making framework firmly upholds the principles of Integrated Capability Model (ICM), affirming the separation of responsibilities as a cornerstone of our operational ethos.

In our pursuit of continuous improvement and transparency, we extend an open invitation for feedback on the presentation of our framework and the data therein. Your engagement is invaluable, and we encourage you to connect with us at development.plans@enwl.co.uk.

Ultimately, this publication is a testament to our unwavering dedication to enhancing engagement, fostering transparency, and driving sustainable development within the electricity distribution landscape. We trust that you will find this document to be a valuable resource, and we eagerly anticipate the insights and collaborative efforts that will unfold as a result of its dissemination.

Warm regards,

Ben Grunfeld
Strategy and Growth Director
Electricity North West



Executive Summary

Our goal is to provide our customers with reliable and affordable access to network capacity whenever and wherever they need it. We achieve this through a strategic approach that focuses on:

- **Enabling Net Zero:** We are committed to ensuring that our network does not hinder the transition to Net Zero. We will invest in network upgrades and flexibility solutions that support the growth of renewable energy sources and distributed energy resources.
- **Efficient Network Development:** We will make informed investment decisions that optimise network capacity and minimise costs to customers for the provision of this capacity. We will utilise data analytics and forecasting tools to accurately assess network needs and develop cost-effective solutions.
- **Transparent Uncertainty Management:** We recognise the inherent uncertainties in network planning. We will engage with stakeholders to gather insights and develop plans that can adapt to changing conditions.

We believe that collaboration, whole-system thinking, and stakeholder engagement are essential for achieving our goals. By working together with our partners and communities, we can develop innovative solutions that address complex challenges. We take a whole-system approach to our work, considering the interconnectedness of different systems and the impact of our decisions. We also value the input of our stakeholders, including our customers, employees, and the communities we serve. By working together, we can create a more sustainable and equitable future for all.

To achieve our objectives, we have developed a comprehensive action plan that focuses on distribution system operation (DSO) activities, flexibility services, and energy efficiency markets. Our action plan consists of four key steps:

- **Enhanced Network Understanding:** We will utilise big data analytics to gain a deeper understanding of our network's capabilities and limitations.
- **Accurate Network Capacity Forecasting:** We will refine our forecasting models to accurately predict future network capacity needs under various forecasting scenarios, including Net Zero pathways.
- **Flexibility First Approach:** We will prioritise flexibility services as a cost-effective means of managing network congestion. We will also promote energy efficiency measures to reduce overall demand.
- **Strategic Network Interventions:** We will invest in network upgrades strategically to avoid stranded or unutilised network assets and facilitate Net Zero.

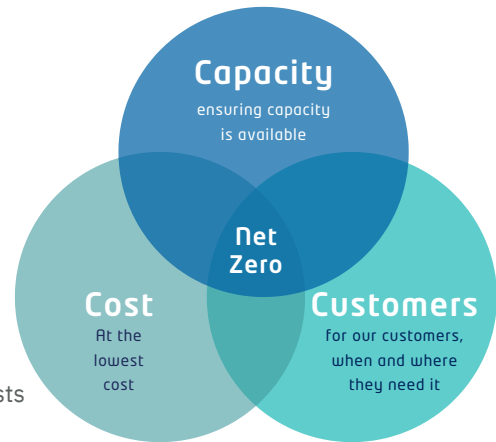
Our commitment to ensuring sufficient network capacity for our customers is unwavering. We will continue to invest in innovative solutions and collaborate with stakeholders to deliver reliable, affordable, and sustainable network infrastructure.

At the heart of the DNOA process is our commitment to transparency and accountability. This methodology document serves as a guide, detailing the journey from the generation of forecasts through the Distribution Future Electricity Scenarios (DFES) process to the assessment of options

aimed at alleviating current and future network constraints. We provide a comprehensive overview of our evaluation methodologies and the governance process that underpins the confirmation and communication of the final recommendations. For confirmed schemes, detailed documentation is provided within the Long Term Development Statement.

Central to our process is the principle of Open Data and engagement, ensuring that our stakeholders are informed and involved at every step of the decision-making journey. As part of our recommendation, a total of 102 schemes were assessed, categorised as follows:

Feedback is a crucial component of our commitment to transparency and engagement, and we welcome your valuable input as we continue to enhance our decision-making processes. Together, we strive to create a network infrastructure that meets the evolving needs of our communities and ensures the efficient and reliable delivery of electricity. If you have any feedback, please get in touch with us at development.plans@enwl.co.uk as we look to continuously improve this document.



DNOA recommendation	No. Schemes
Flexibility	6
Reinforce	45
Signposting	51
Total schemes assessed	102

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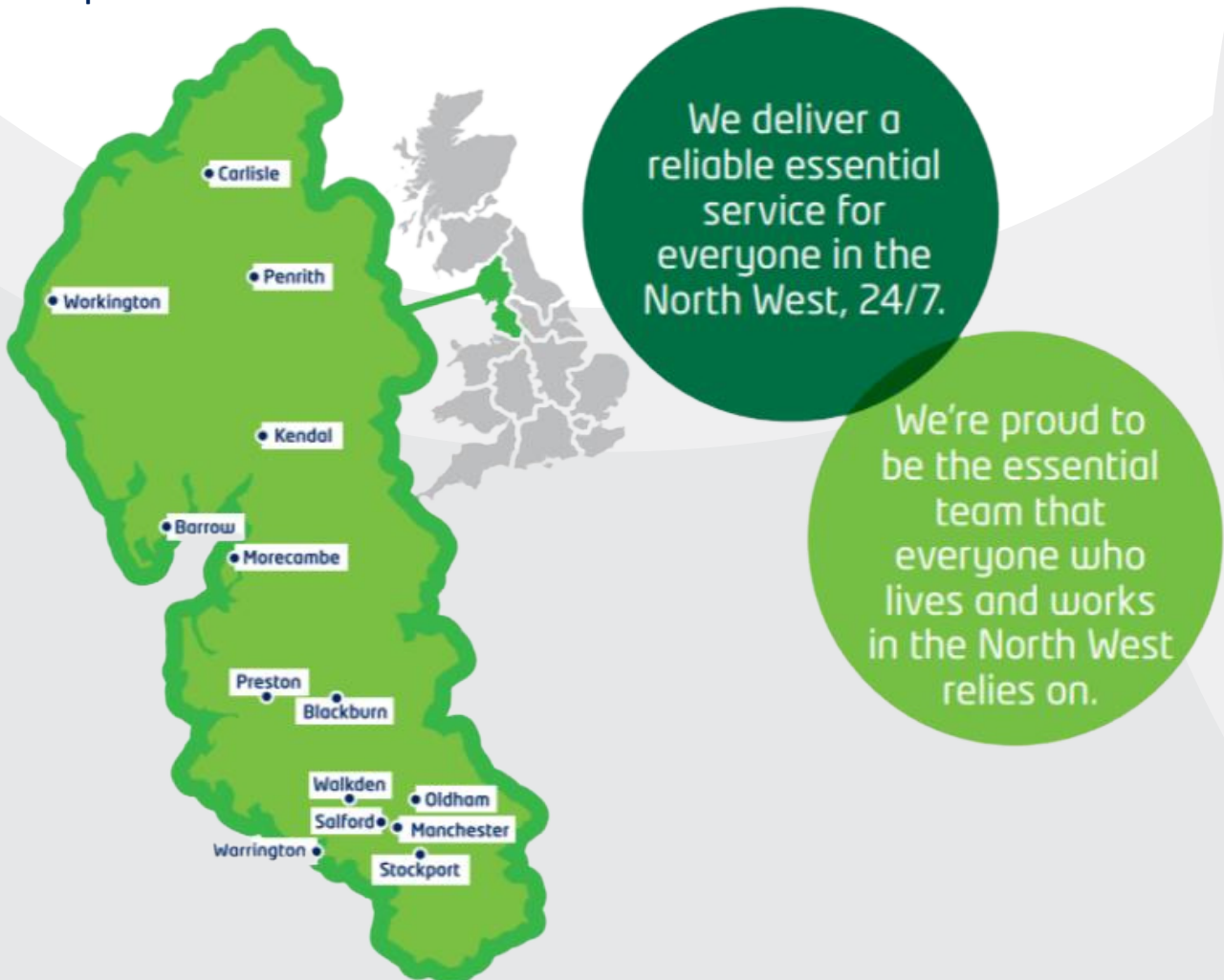
Introduction

Electricity North West Limited serves as the power network for the North West region and operates as one of Great Britain's 14 electricity Distribution Network Operators (DNOs). Responsible for the upkeep and enhancement of over 57,000km of electricity network and numerous substations spanning from Macclesfield to Carlisle, we cater to the diverse communities in our area. Our extensive network of overhead lines, underground cables, and substations supplies power to 5 million individuals in 2.4 million households and businesses.

Focusing on key aspects such as safety, reliability, customer service, and facilitating the transition to net zero, we invest significantly in the region. Our commitment to the region includes embarking on a significant investment of over £2 billion in the North West's power network over the next five years. Specifically, our RIIO-ED2 business plan outlines a £162 million load-related investment from 2023 to 2028.

As part of our plan, we have pledged to disclose our forecasting methodologies, maintain a 'flexibility first' approach, and subject all decisions to scrutiny by our independent DSO stakeholder panel. This document marks the debut of our DNOA methodology, set to be updated annually throughout RIIO-ED2. Updates will reflect adjustments to our approach, responses to stakeholder input, and updates on newly evaluated schemes.

Our operational area



2 The DNOA process

2.1 Timeline

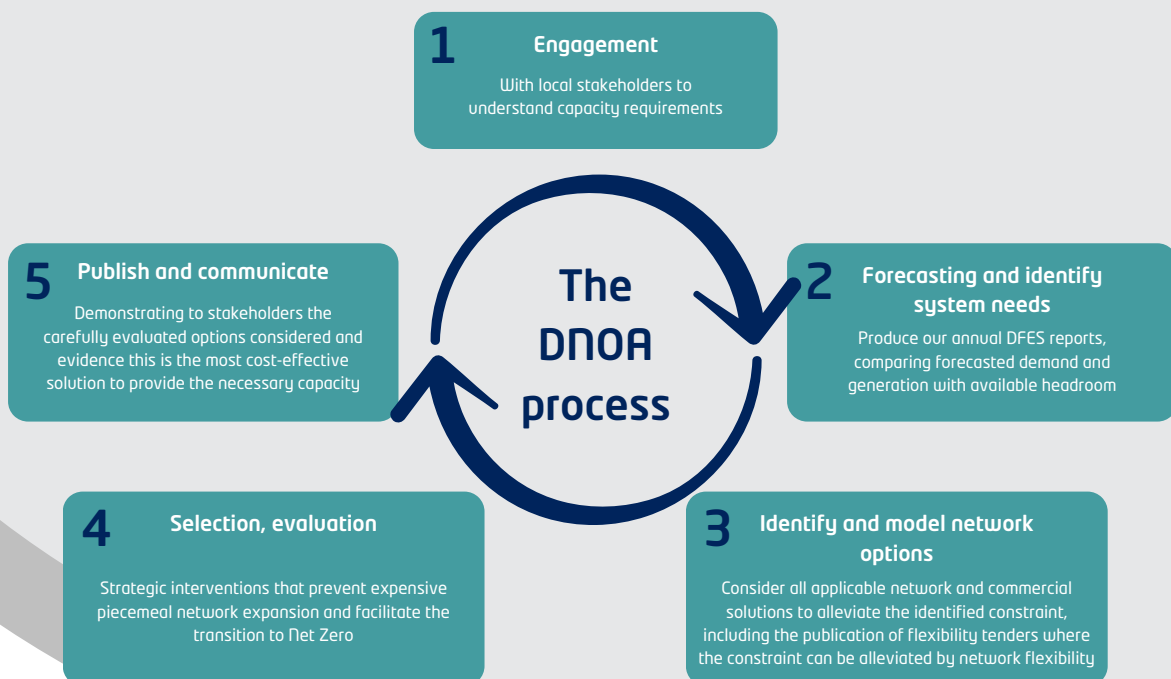
We will issue the DNOA in quarter 2 each year

Following the publication of our refreshed Network Development Plan in May each year, and once the bids received for our Spring flexibility tender have been evaluated.

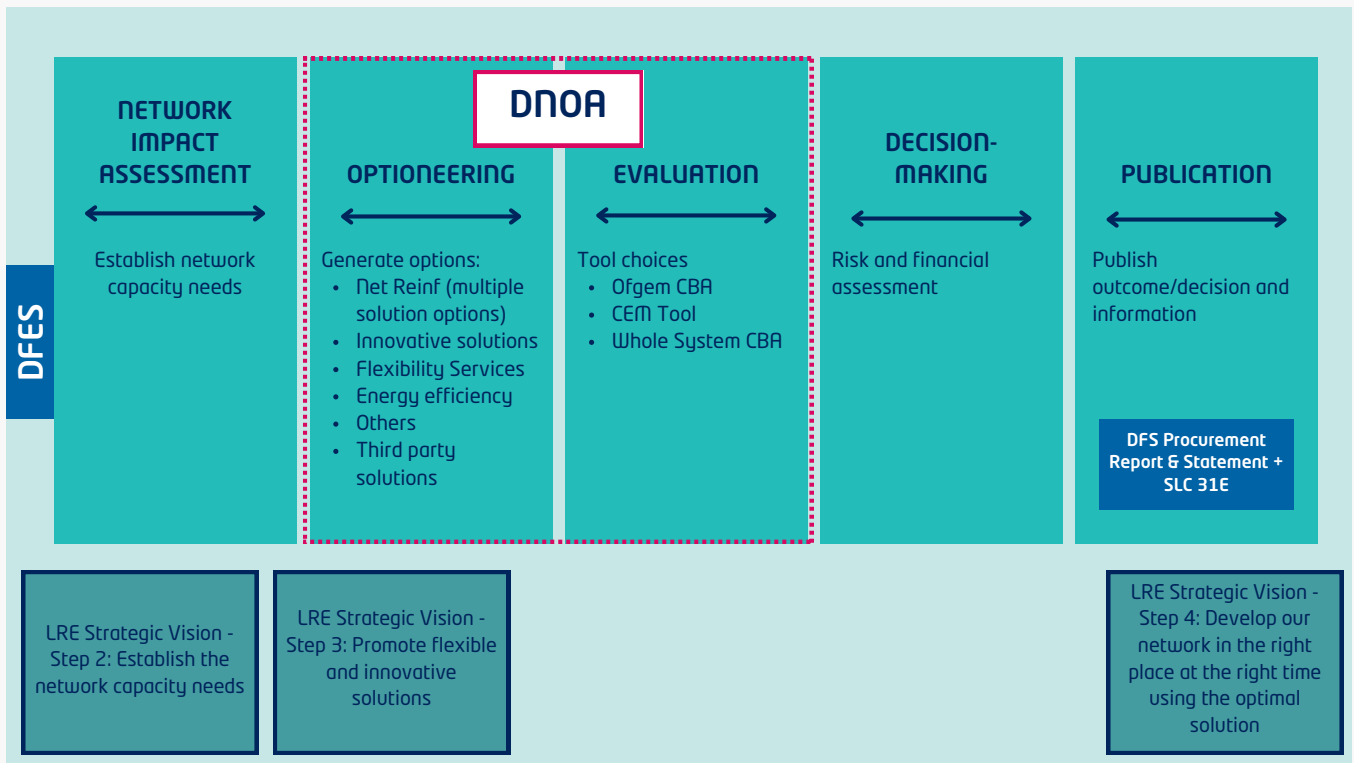
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Forecasting activities	Recalibrate ATLAS forecasting modules for DFES					Load Index Regulatory Reporting	Forecasts provided for LTDS		DFES published, Whole system FES building blocks submitted to ESO			Recalibrate forecasts for NDP and Spring flexibility tender
Flexibility activities	Spring flex tender issued			Bids evaluated for Spring flex tender	Decisions made on Spring flex tender		Autumn flex tender issued			Bids evaluate for Autumn tender	Decisions made on Autumn flex tender	
Reporting	Distribution Flexibility Services Procurement Report	NDP published LTDS partial update				DNOA published		LTDS full update				Distribution Flexibility Services Procurement Statement
Engagement	Ongoing stakeholder engagement, monthly refresh of connections activity published via the Embedded Capacity Register and Local Authority engagement											

2.2 Process

The DNOA process is a cycle of engagement, analysis, optioneering and evaluation, and communication. The process starts and ends with engagement with our key stakeholders to ensure that their needs are reflected and that our investments remain fit for the customers that they serve and demonstrate efficient and economic decisions.



2.1 The timeline continued

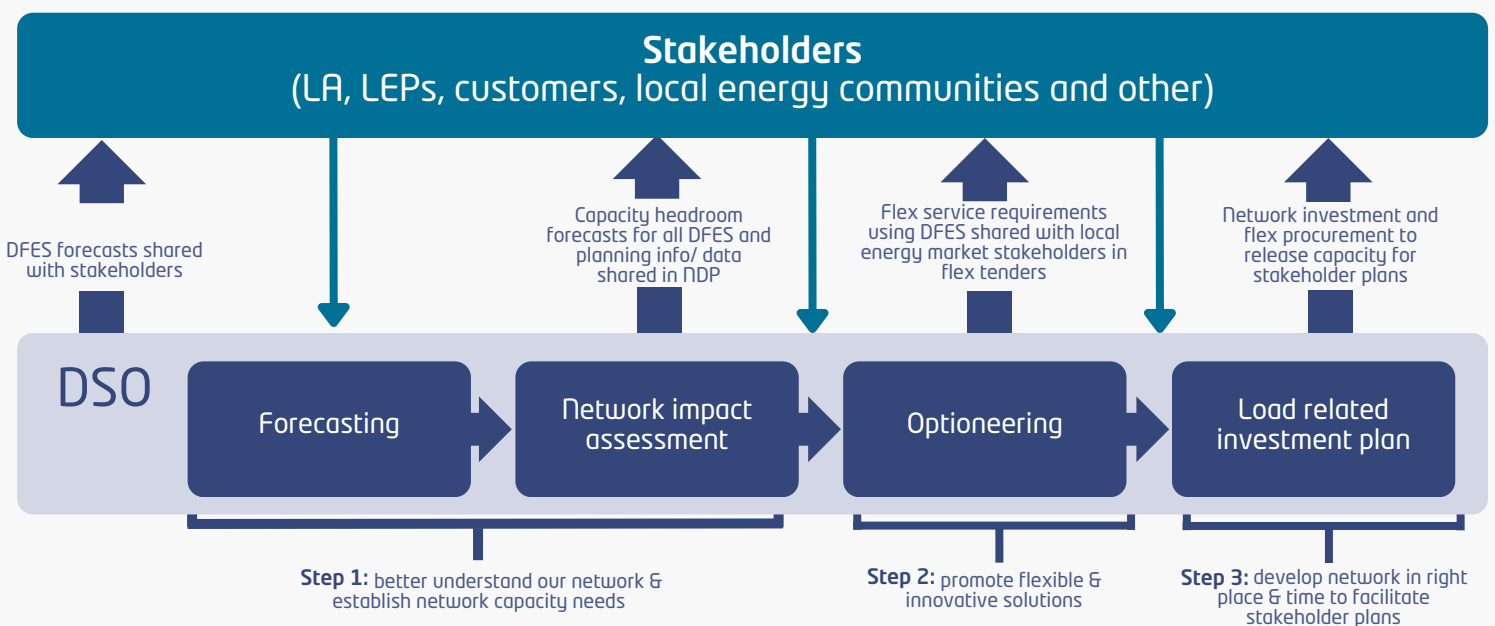


2.3 Engagement

Decarbonisation and the road to net zero is a whole system challenge. Working with other energy vectors, academic and research institutions, technology providers and local authorities will be a key part of understanding the pathways to Net Zero and formalising the whole system changes to planning processes.

We will continue to use our position to develop strategic partnerships to provide a common language for regional and national stakeholders to speak about their energy and decarbonisation needs, particularly those associated with regional planning process. We have already begun working with other energy vectors, such as the local gas distribution network operators and local development agencies in both the heat and transport areas. Through this combined work we help all actors in our region to develop plans for low-carbon transportation and housing development as part of supporting local authorities to develop Local Area Energy Plans.

Stakeholder engagement as part of Electricity North West’s DSO annual load-related investment cycle



2.3.1 Case Study: Successful Stakeholder Engagement for Cumbria Network Development Plan

Electricity North West's Cumbria Development Plan aimed to address capacity requirements driven by various factors, including significant developments, the rise in renewable energy generation, and the shift towards low-carbon technologies. This plan was crucial to supporting major projects like St Cuthbert's Garden Village, distributed generation connections, hydrogen hub development, electrical vehicle infrastructure, and more.

Our proactive stakeholder engagement strategy has ensured effective collaboration and alignment with local plans and decarbonisation initiatives. The key aspects of their strategy included:

- **Early engagement:** Recognising the lead time required for network interventions, Electricity North West urged stakeholders to share their plans well in advance. Regular meetings were facilitated by the DSO team, specifically focusing on supporting Local Area Energy Plans (LAEP) and other developments.
- **Holistic approach:** By understanding stakeholders' needs, including Local Authorities, decarbonisation plans, and developers, Electricity North West tailored their development plan to accommodate these requirements efficiently.
- **Transparent communication:** Electricity North West proactively shared their forecasts, intervention plans, and engineering justifications with stakeholders. This open communication helped stakeholders comprehend the rationale behind the proposed interventions.

The comprehensive strategy addressed the capacity requirements for various developments across the Cumbria area:

- **Flexibility first:** With an emphasis on the "flexibility first" approach, exploring cost-efficient flexible services before resorting to network reinforcement. This approach aimed to optimise resources and minimise unnecessary interventions.
- **Infrastructure enhancement:** Detailed plans were devised to increase firm capacity at crucial substations like Harker GSP and Cumbria Ring. This involves upgrading transformers and reconducting sub-transmission lines to support increased renewable generation and accommodate electric vehicle charging points.
- **Local development support:** Specific interventions were tailored to support developments like St Cuthbert's Garden Village, Tebay and Southwaite service areas, and Windermere/Bowness lakeside areas. These included increasing circuit capacities and installing new substations to meet potential demand.

The results and impact of Electricity North West's commitment to stakeholder engagement, transparent communication, and tailored interventions have set a new standard for collaboration between a utility provider and its diverse stakeholders. By aligning network development plans with local requirements, Electricity North West has demonstrated a genuine commitment to sustainable growth and supporting the region's transition to Net Zero while ensuring a reliable electricity supply for future demands.

The strategic approach to network reinforcements ensured a seamless release of necessary capacity, meeting demand precisely when required. The proactive forecasting of potential capacity constraints empowered stakeholders to engage in proactive risk mitigation strategies and future planning.

Furthermore, the comprehensive Engineering Justification Papers (EJPs) provided to Ofgem and the transparent publication of RIIO-ED2 business plans underscore the company's commitment to stringent cost-benefit analysis and regulatory compliance, further strengthening credibility and transparency within the industry.

3 Governance

3.1 DSO structure

As part of the requirement for submitting a compliant business plan, Ofgem sought justification for any proposed measures for managing conflicts of interest, including legal separation of DSO activities. In our submission of the RIIO-ED2 Final Business Plan, we advocated against an immediate full legal separation of DSO functions from the distribution network licensee. We deemed such a move premature, costly, and potentially disruptive to progress. Instead, our strategy for the ED2 period involves a phased approach. With collaborative efforts between the DSO and DNO teams over the five year period will facilitate a comprehensive understanding and seamless implementation of the DSO transition. Placing the core DSO team under the Strategy Directorate's leadership, led by the Head of DSO, enhances our commitment to this evolution. To ensure transparency and robust governance, we propose a set of comprehensive measures to manage any real or perceived conflicts of interest.

Phased Approach to DSO Transition:

Instead of an immediate separation, we envision a phased approach. This strategy aims to leverage the five-year ED2 period to organically develop DSO capabilities. We aim to cultivate expertise and refine our distribution system operation activities through practical application, integrating these lessons learned into our standard practices.

Measures for governance and transparency:

To ensure robust governance and transparency, ENWL proposes a comprehensive set of measures:

- **DSO steering group:** A dedicated group overseeing DSO activities, reporting directly to the Chief Executive and the Board. Clear delineation of organisational responsibilities, as defined by Electricity North West's Table of Accountabilities approach, ensures effective execution.
- **Publication of data and methodologies:** Full transparency in decision-making processes. Publicising data, methodologies, and rules guiding DSO teams' decisions will enhance trust and understanding among stakeholders.
- **DSO Compliance Officer:** Appointment of a Compliance Officer dedicated to monitoring and reporting on compliance matters. This role ensures adherence to regulatory standards and internal policies.
- **Independent DSO Stakeholder Panel:** Introduction of an independent panel responsible for overseeing decisions and methodologies. This panel will guide, support, and evaluate the progress of the DSO transition. Its independence assures stakeholders of impartial oversight.

Assurance of neutrality and efficiency:

These collective measures form a robust governance and reporting framework. They assure customers and stakeholders that Electricity North West functions as a neutral market facilitator. The emphasis on embracing energy efficiency and flexibility prioritisation ensures the efficient delivery of network capacity at an optimal price point.

In addition to the comprehensive governance framework outlined earlier, Electricity North West Limited emphasises cost evaluation to complement its governance strategy. Utilising Ofgem's Cost Benefit Analysis tool, the Load Related Expenditure (LRE) manager will evaluate costs. This evaluation aims to ensure that proposed initiatives align with cost-effectiveness benchmarks and deliver optimal value for stakeholders.

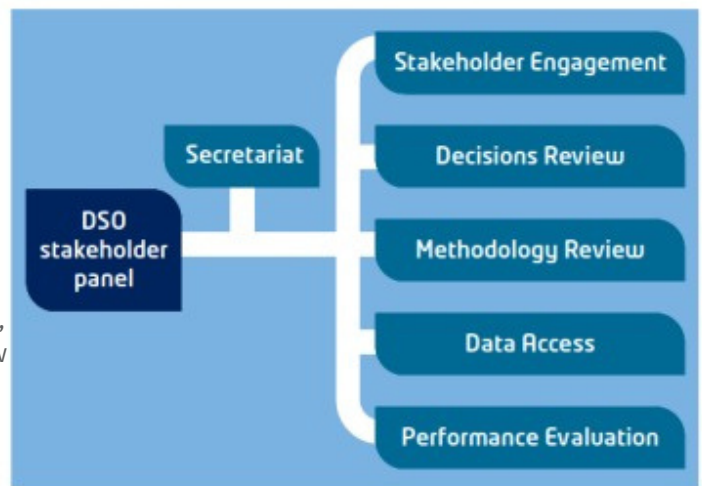
Moreover, the Flexibility team within Electricity North West is responsible for completing the Common Evaluation Methodology. This methodology serves as a robust assessment framework, enabling the team to evaluate diverse flexibility solutions. By utilizing this methodology, ENWL aims to identify and implement the most efficient and cost-effective flexibility services, aligning with their "flexibility first" approach.

These initiatives reflect ENWL's commitment not only to governance and transparency but also to prudent cost management. By integrating these evaluations into their broader governance strategy, Electricity North West strives to ensure that all DSO initiatives are not just effective and transparent but also cost-efficient, maximising value for customers and stakeholders alike.

3.2 DSO Stakeholder Panel

A key aspect of our DSO engagement and governance framework for RIIO-ED2 is the creation of our new DSO Stakeholder Panel. The Panel will oversee our engagement with network users and the wider stakeholder community, ensuring that they have a say in the speed and scope of our DSO transition plan. But more fundamentally, this independent panel will act as the body that evaluates and reports on our performance. With their clear focus on listening to our stakeholder community, they will be empowered with the ability to review challenged decisions and methodologies and make recommendations to overturn a decision or a change in methodology.

Figure 4.2: DSO Stakeholder Panel's responsibilities



The objectives of this new panel are:

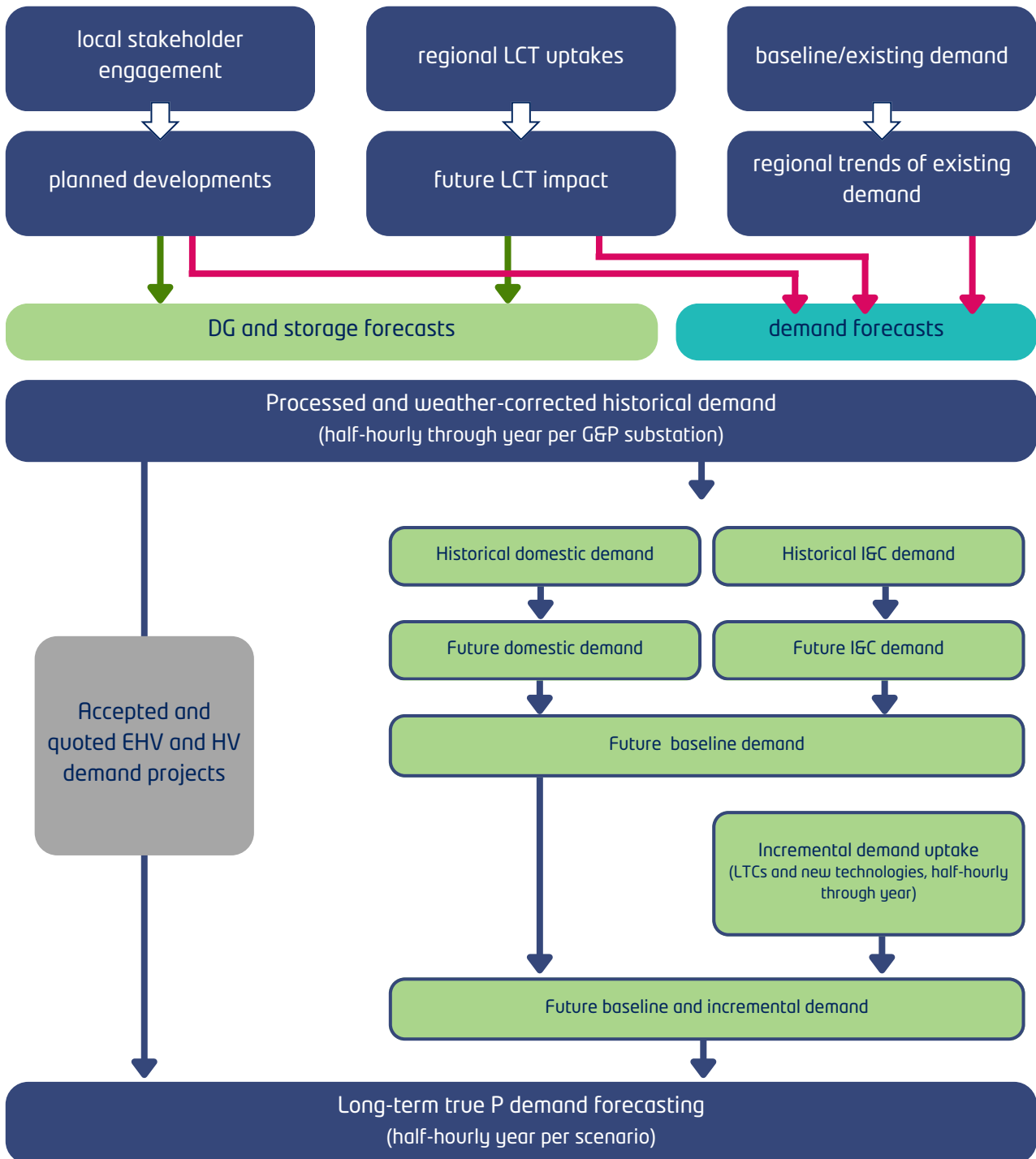
- To guide our engagement with the DSO community, ensuring all customer and stakeholder groupings are appropriately engaged, including specialist stakeholders like flexibility providers.
- To shape our approach to data sharing, ensuring we are delivering against any industry recommendations, and providing the scope and granularity of information required by stakeholders in ways that meet their required levels of accessibility.
- To provide confidence to stakeholders and customers that we have published robust decision-making processes and that we are following them
- To review any decisions that are challenged by an affected party and make a recommendation on whether the proposed decision should be overturned if the process has not been followed correctly, or relevant facts not considered, and if a decision-making process is found to be flawed, the Panel is empowered to review the methodology and make recommendations to modify it. A 10-day standstill period after publication of decisions and prior to entering into a contract with successful flexibility providers has also been implemented, to allow a period for scrutiny and challenge of our proposed decision.

As the panel will be intrinsically involved in the delivery of DSO activities, we believe that they are best placed to monitor and evaluate the ongoing performance of the DSO transition using evidence gathered from the DSO community in accordance with Ofgem's performance frameworks and guidance.

Summary: These transparent processes coupled with oversight by the DSO Stakeholder panel provide the opportunity for any party to scrutinise our decisions. This is particularly important for licensees involved with DSO functionality where they are evaluating and choosing between a range of potential solutions from multiple parties.

4 Defining the need

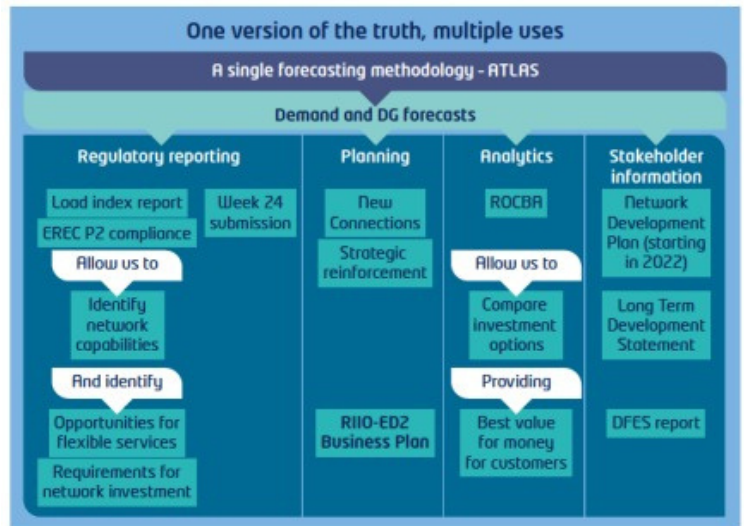
We generate forecasting information using the ATLAS methodology and this has multiple uses ensuring consistency. These forecasts are used for all planning activities, and in the production of our Distribution Future Electricity Scenarios (DFES), Long Term Development Statement (LTDS) and the regulatory reporting of our Load Indices; with the same information being used to create the Network Development Plan (NDP), which ultimately drives our approach to constraint management and the use of flexibility services in managing capacity on our network.



5 Distribution Future Electricity Scenarios

The DFES are long-term forecasting scenarios of electricity demand supplied by our distribution networks, as well as forecasts of DG and battery storage connected to our networks. Our DFES uses models that show the impact of customer choice and societal change. We also consider granular data on local characteristics and the plans of our local stakeholders and customers.

We have produced a set of five scenarios: Falling Short, System Transformation, Consumer transformation, Leading the Way and Best View. The first four reflect the same high-level assumptions. They are defined using a common agreed framework with all GB DNOs and the National Grid Electricity System

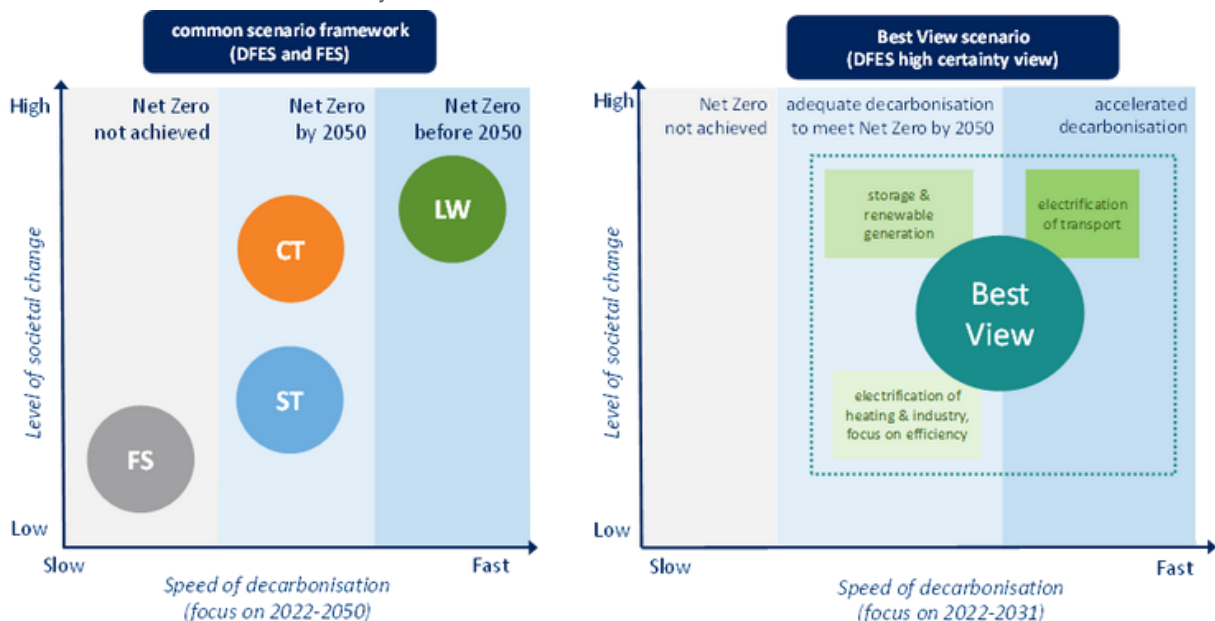


Operator to provide a consistent system view with two axes to define the scenario assumptions: the speed of decarbonisation versus the level of societal change. However, this year the Steady Progression scenario has been renamed as Falling Short to highlight that this scenario does not meet the UK’s Net Zero target of 2050.

Best View is the region’s highest certainty scenario that focuses on high certainty in the next one to ten years. The high-level assumptions in our Best View scenario have not changed, for example, we still expect that the electrification of transport will accelerate in our area as we approach 2030, whereas a slow electrification of heating is not expected to change until after 2026 and the UK government’s decision on the future of hydrogen for domestic heating.

More information on our DFES report as well as the detailed workbook data (over 30 datasets of granular forecasts) can be found online at our DFES website.

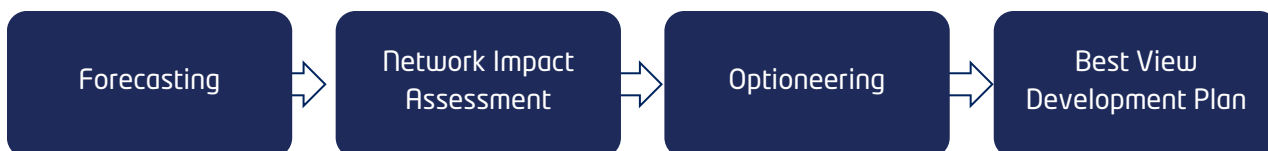
Our Distribution Future Electricity Scenarios 2022



5.1 Network Development Plan

Electricity North West's approach to capacity related network planning follows a systematic end-to-end development process, as shown in Fig. 1 and this Network Development Plan (NDP) follows the methodology applied at each step.

Figure 1 High-level capacity related network planning methodology



Forecasts of credible futures (from DFES) are an essential starting point as customers' and wider stakeholder requirements are expected to continue to change within an evolving energy system influenced by Net Zero targets. These alternative views of the future allow us to prepare for a range of eventualities including different levels of low carbon technology uptake. Analysis of demand and generation forecasts informs our understanding of where our network will have sufficient capacity and how this varies for each scenario. Our forecasts of capacity headroom for demand and generation are published in our [NDP workbook](#) which is updated on an annual basis using the latest DFES forecasts.

Where we identify potential network constraints, we consider mitigation options based on their location, magnitude nature and timing dependencies. This optioneering process provides a view of future development requirements and is supported in the near term by a comprehensive cost-benefit analysis to support our decision-making. All decisions are reviewed and may be revised throughout the progression of each development project. Our network development options for conventional reinforcement and associated flexibility service requirements are published in our [NDP report](#).

5.2 Connecting onto our network

In the North West over the past four years, we've seen a 360% increase in the number of connections quotes over 1MW that have been accepted by customers. That's from a total of just under 400MW in 2020 to more than 4GW this year alone.

In 2022 just 7% of our quotes were accepted, we're now seeing more than 25% of quotes accepted, with a total of 8.7GW now in the pipeline for the region. The average size of such connections has increased from 10MW in 2019/20 to 45MW in 2023/24.

We are taking the capacity challenge for new connections seriously and have:

- provided an additional 1.4GW from our implementation of new technical limits at five grid supply points;
- provided another 1GW from enhancing our policies to adapt to new technologies; cleared 180MW of so-called 'zombie projects' from the pipeline
- continued to innovate and expand our network to meet the growing needs of our customers;
- put plans in place to enable an additional 1GW by applying new technical limits at another four Grid Supply Points in the coming months.

The new technical limits allow earlier non-firm, or potentially constrained, access to contracted customers ahead of their currently agreed National Grid consent date while required transmission reinforcement work is completed by National Grid.

We're also continuing to work with the Energy Networks Association alongside other distribution network operators, National Grid Transmission, National Grid Electricity System Operator and Ofgem to find solutions to the increasing demand for generation connections.

From as far back as April last year we changed key policies in how we assess connections taking a pragmatic approach informed by real-world use of the network. Following a review of the impact of new technologies connected across the UK, we enhanced our policies to release more capacity to customers for connection. We were the first network operator to do this and our customers are now benefiting from that continued approach. We're pulling together as an industry and taking some decisive action while also recognising the process to ensure fairness to all applicants. We're continuing to engage with customers, stakeholders and the industry as a whole, and we also have long-term investment plans in place to continue to meet the growing demand for connections to our network. For more information see www.enwl.co.uk/capacity.

5.3 Flexibility first

The use of flexibility services is a key Distribution System Operation (DSO) function and a vehicle for change, as it facilitates the North West's transition to net zero carbon. The rise in low-carbon technologies will ultimately result in a lot more demand being placed on our network, and the cost of upgrading the network to meet this increased demand would mean higher bills for customers. We are therefore trialling smarter, more affordable techniques to use the existing network more efficiently, which will reduce costs for all our electricity customers in the future. Some of the ways in which we can facilitate the extra demand associated with the transition to net zero whilst utilising our existing network is through the procurement of flexibility services and the promotion of energy efficiency measures.

In our RIIO-ED2 business plan, we used Cost Benefit Analysis (CBA) to present how the use of flexibility services can be cost-efficient for our customers. Using flexibility, we can deliver over £3.5 million of cost savings per year from 2023 to 2028 by avoiding or deferring conventional reinforcement and passed through to customers via reductions in network charges. At times of high electricity demand and when the network is operating abnormally, we are looking to enter into contracts with Flexibility Service Providers (FSPs) to adjust how much electricity they consume or generate either through flexibility or energy efficiency measures, in return for financial payment as an alternative to traditional approaches. The aim is to reduce the cost for electricity distribution networks in customer energy bills while ensuring that our network remains reliable, resilient and meets our customers' needs.

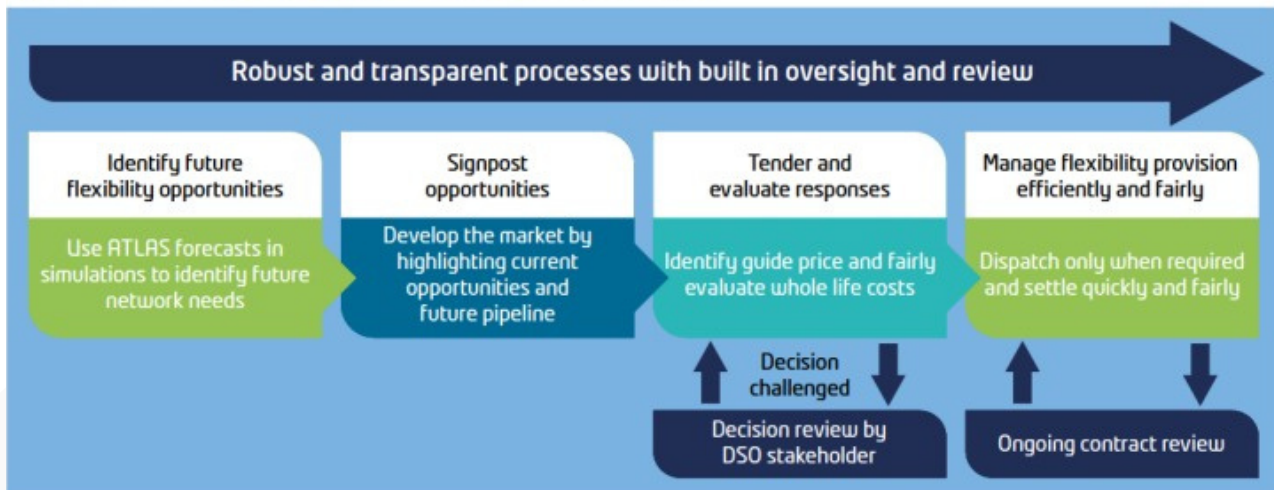
Electricity North West has a 'flexibility first' approach, in that it promotes flexible opportunities to the market first, as an alternative to traditional network capacity provision and seeks to deploy at all opportunities where it is robust and economic to do so. The below table details where flexibility can be used to mitigate the need for asset intervention in these different constraint categories. Where flexibility cannot be used, there may still be a need to use traditional asset-based solutions, but even in these instances, we will still seek to innovate to develop the most efficient solution.

Figure 5.3: Network constraints and potential to use flexibility

Network constraint category	Potential to use flexibility
Fault level constraint	No
Power quality (voltage, harmonics) issue	No
Protection	No
Non-compliance with EREC P2/8	Yes
Thermal capacity constraint or voltage exceedance	Yes
Thermal limitation in neutral conductor	Yes
Voltage step change	No

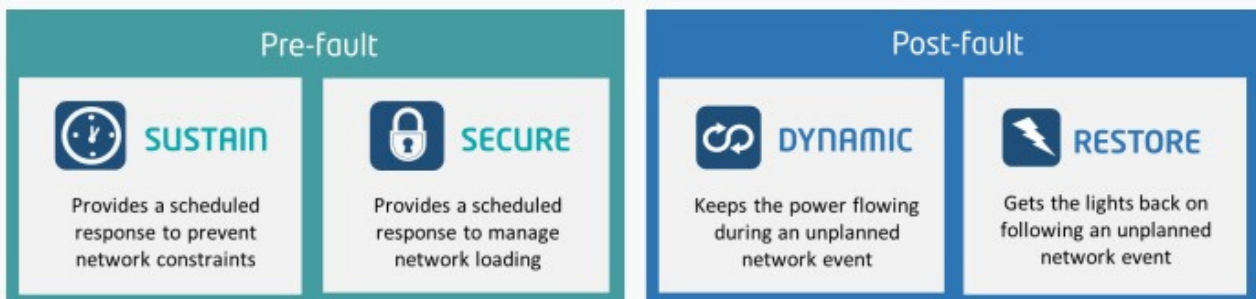
Our approach to the use of flexibility services to support a capacity requirement can be two-fold; flexibility services can be a key interim solution while we assess load growth and a wider strategic conventional reinforcement therefore avoiding inefficient piecemeal network expansion and stranded assets. Alternatively, flexibility services also allow us to mitigate the risk if demand growth is accelerated and there is a long lead time associated with asset-based interventions. In some instances, depending on the level of flexibility market in the location of the capacity requirement and the scale of the capacity requirement, flexibility services could be considered as an enduring network solution. We remain committed to ensuring we champion a level playing field for all network users with connected resources and adopt a neutral market position in everything we do. Each year we aim to increase the accessibility and transparency of flexibility services opportunities.

Figure 4.10: Robust and transparent processes for delivering flexibility first



Our procurement processes are common across the DNOs and continue to be refined and standardised through dedicated workstreams under the Open Networks Project and through collaborative work with other DNOs and our Procurement platform provider. This involves continuous development and standardisation of the processes used for identification, signposting, tendering (including pre-qualification and contracting) evaluating and purchasing flexibility including its dispatch, baselining and settlement, as well as its coordination rules. We also ensure consistency throughout our publications, those sites put forward to ‘signposting’ being reflective of those studied under the Network Development Plan, and available to view on our flexibility map, showing potential opportunities in the three to five-year and five to ten-year planning horizons.

Below is an overview of each product that is currently being procured. Further detail is provided at our webinar events and a simple explanation can be found in the helpful guides section of our document library. Energy efficiency delivers benefits across all product types and is therefore considered a viable option and promoted for all flexibility tenders.



SUSTAIN: Flexibility providers flex their supply up or down in accordance with a schedule to help manage network constraints by providing additional capacity and capability.

SECURE: Flexibility Providers are available at peak times to help manage the load on the networks and prevent it from exceeding it’s capabilities.

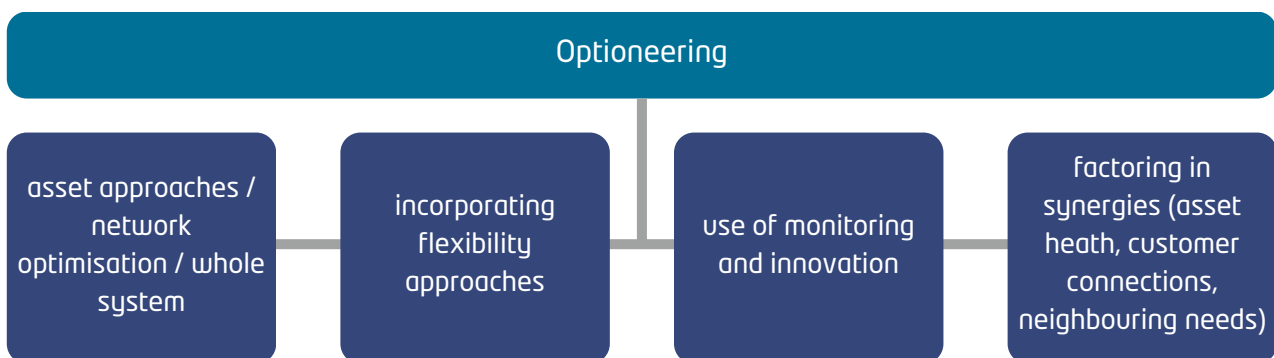
DYNAMIC: Flexibility Providers are available and provide an immediate response following a fault or unplanned network event.

RESTORE: Flexibility Providers are available and provide an immediate response to help us restore supplies for customers more quickly following an unplanned network event.

6 Optioneering

When we have a view of requirements in a constrained area we then begin to consider the range of network options to create future capacity based on location, magnitude, nature and timing dependencies. Interventions could range from purchasing flexible demand and generation services to investing in new assets or deploying innovative technology to ensure that the necessary capacity is available up to 2030 and beyond.

This optioneering process provides a view of future development requirements and is supported in the near term by a comprehensive cost-benefit analysis to support our decision-making. Alternative approaches are thoroughly assessed to ensure that the optimal development plan is identified, considering the timing of interventions and not foreclosing future pathways. For development of the EHV network, this is supported by the use of rigorous cost-benefit analysis which ensures that flexible solutions are considered equitably alongside traditional asset solutions



The options considered for intervention are:

- Procurement of flexibility services
- Network reconfiguration and/or voltage control
- Delivering an energy efficiency programme
- Innovative solutions, and
- Network reinforcement

By determining the cost of the most efficient traditional reinforcement option we provide the counterfactual for any assessment of the alternatives. The network planning processes to identify the asset intervention solution are done in parallel with developing the alternative solutions. To ensure that our approach is transparent and open to review, we have described this process in detail within our Network Development Plan. We also look for proactive network interventions that consider cost efficiencies and risk mitigation across larger areas and allow us to avoid piecemeal expansion of the network.

Positively engaging with as many solution providers as possible in all our decisions is key to our strategy of delivering efficiencies for our customers, and ensuring that we have the widest range of options possible for evaluation to adopt the most suitable economic approaches. We publish information on all network constraints to encourage potential solutions from all parties e.g. Flexibility providers, Customers, the Electricity System Operator (ESO), Transmission Operators (TO), OTHER Distribution Network Operators (DNO) and Independent Distribution Network Operators (IDNO), and groups such as local community groups. This holistic approach would, for example, allow a community energy group to bring forward a proposal for an energy efficiency programme in its locality to solve a network capacity need. Working with other energy vectors and local authorities will be a key part of developing whole system outcomes through the planning process.

[ndp--methodology.pdf \(enwl.co.uk\)](#)

These are described within a 'needs' paper that covers:



7 Evaluation

The needs paper will detail the options that are to be assessed for each scheme.

Two different Cost Benefit Analysis models are used, the Ofgem Cost Benefit Analysis (CBA) tool, as used throughout our RII0-ED2 submission, and the Common Evaluation Methodology (CEM) and Tool as developed through the Open Networks Project, led by Electricity North West and supported by Baringa (Business Management Consultants).

7.1 Ofgem Cost Benefit Analysis (CBA) tool

The Ofgem CBA tool is used for comparing all potential options to the identified constraint, except flexibility where the CEM tool is used. The most cost-effective solution identified through the CBA evaluation will then be used as the counterfactual for evaluation of a flexible solution.

7.2 Common Evaluation Methodology (CEM) tool

In RII0-ED1, Electricity North West Limited led the development of the CEM tool within Workstream 1A of the Open Networks Project in collaboration with other DNOs and supported by Baringa. The CEM tool builds on much of the learning from the ENWL-developed Real Options Cost Benefit Analysis model and is similarly based on the Ofgem CBA model.

The CEM tool is used to identify the ceiling price available for flexibility on an individual site basis. This price is derived from the most cost effective solution as identified as the counterfactual from the Ofgem CBA, and then published on the Piclo platform, the flexibility hub of Electricity North West's website in the tender appendices, our flexibility map, and our Open Data Portal.

Cost calculators are available for Flexibility Providers to use as a tool for calculating their optimal bid price, in accordance with the ceiling price for each window.

ENWL undertakes this evaluation in accordance with the 'good practice guide', also developed through the Open Networks Project, and completed CEM assessments are available to view for each tender round: [Previous Flexible Services Requirements \(enwl.co.uk\)](https://www.enwl.co.uk/previous-flexible-services-requirements)

The ongoing governance of the tool is managed through the Open Networks Project, and all future modifications will be consulted upon with stakeholders.

Link to tool, user guide, best practice guide.

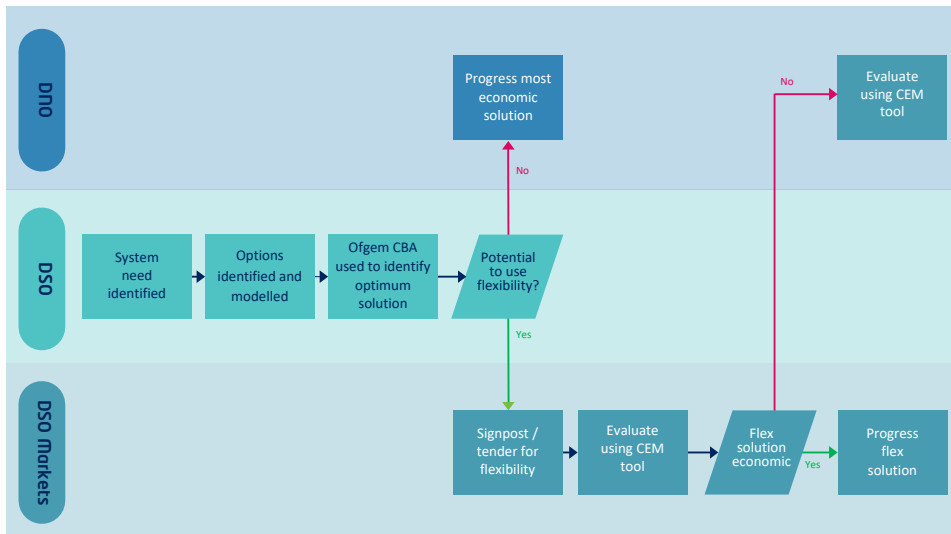
User guide: [https://www.energynetworks.org/assets/images/Resource%20library/ON22-WS1A-P1%20Updated%20CEM%20and%20Tool%20User%20Guide%20\(14%20Jan%202022\)%20\(1\).pdf](https://www.energynetworks.org/assets/images/Resource%20library/ON22-WS1A-P1%20Updated%20CEM%20and%20Tool%20User%20Guide%20(14%20Jan%202022)%20(1).pdf)

Tool: <https://www.energynetworks.org/assets/images/Resource%20library/ON22-WS1A-P1%20Common%20Evaluation%20Methodology%20Tool%20Version%202.2.zip>

Good practice guide: [https://www.energynetworks.org/industry-hub/resource-library/on22-ws1a-p1-good-practice-guide-for-cem-tool-\(dec-2022\).pdf](https://www.energynetworks.org/industry-hub/resource-library/on22-ws1a-p1-good-practice-guide-for-cem-tool-(dec-2022).pdf)

8 Recommendation

Following the engagement, analysis and optioneering undertaken in previous steps, our process concludes with our recommendation for each constraint. These are published per GSP, summarising the number of schemes assessed and our subsequent recommendations.

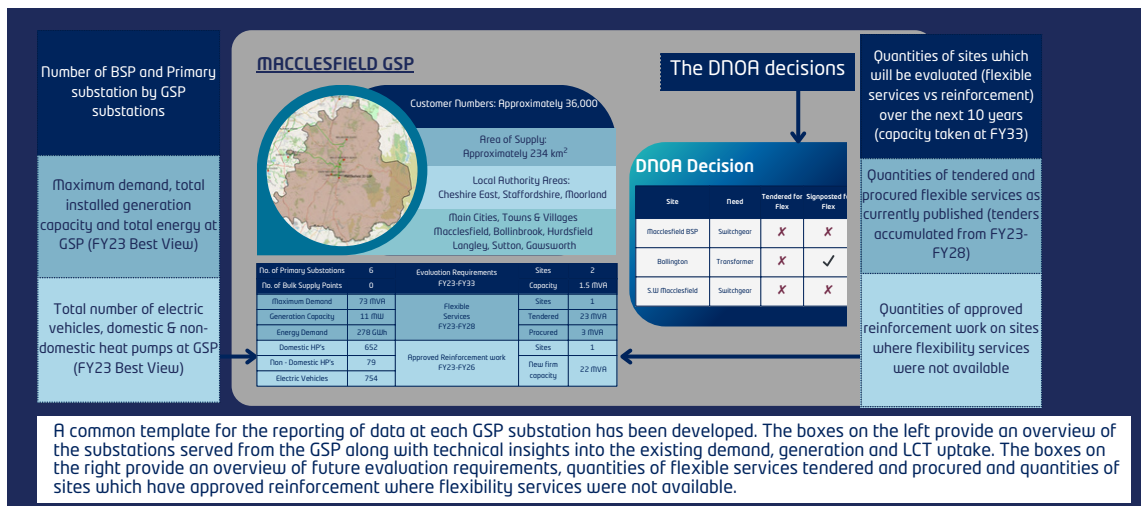


Schemes will be reviewed annually and reported on through the DNOA, DFES, LTDS & NDP.

Report Structure example report – how to interpret

Recommendation:

- **Flexibility** – a result of the CEM tool indicates flexibility is cost effective and efficient
- **Reinforce** – the evaluation indicates that reinforcement is cost effective and efficient
- **Reinforce with flexibility** – where there is a requirement for reinforcement, but flexibility is efficient to be utilised in the interim while reinforcement is being undertaken
- **Remove and monitor** – continue to monitor the site



A common template for the reporting of data at each GSP substation has been developed. The boxes on the left provide an overview of the substations served from the GSP along with technical insights into the existing demand, generation and LCT uptake. The boxes on the right provide an overview of future evaluation requirements, quantities of flexible services tendered and procured and quantities of sites which have approved reinforcement where flexibility services were not available.

Decisions are disseminated both internally and externally through several channels:

- Our DSO stakeholder panel serves as a platform for transparent communication, offering a 10-day standstill period for stakeholders to scrutinise and potentially challenge our recommendations.
- Information is shared through this report, ensuring comprehensive visibility and understanding of our decisions.
- Details regarding flexibility tender specifications are promptly published on our 'previous requirements' webpage within 30 days of contract award. Additionally, this platform hosts the published Common Evaluation Methodology (CEM) tools used for evaluation.
- Annually, a comprehensive Distributed Flexibility Procurement Report is released, encapsulating our decisions and actions in the realm of distributed flexibility procurement, providing a comprehensive overview of our strategies and outcomes.

9 Feedback



This document is intended to serve as a comprehensive guide to the methodologies and processes that inform our network investment activities. We remain committed to transparency, ensuring that our investments are both economical and efficient, thereby yielding tangible benefits for our customers. However, we want to ensure that this provides a useful resource to our stakeholders, and we welcome feedback on these documents and how we communicate these processes and decisions.

We will refresh this document annually to reflect changes in our DFES, looking to our stakeholders to help us inform future iterations. Data flows and engagement between all actors remains crucial in the journey to net zero, ensuring our customers' needs are reflected the development and operation of our network.

Have your say on our future network development - Feedback to development.plans@enwl.co.uk

We welcome your feedback on our DNOA methodology and report and invite you to share your thoughts by completing our short [feedback form](#).

If you want to speak to the team about development plans – [book a slot today](#).

Be part of the conversation and join our next DSO Discussions forum on 1 February 2024 where we will cover the DNOA and seek stakeholder feedback. [Register your place](#).