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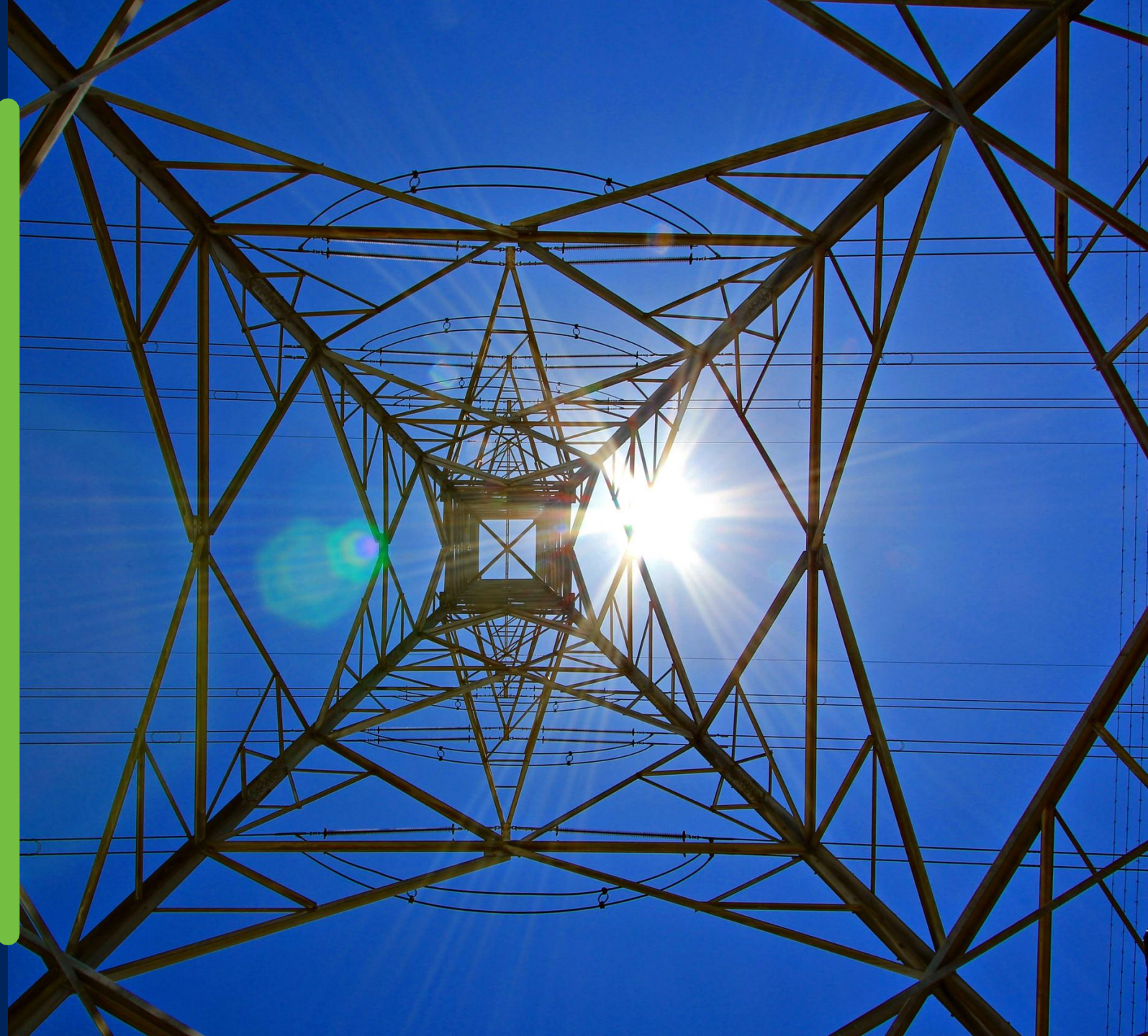
DSO Functions

Distribution Future Electricity Scenarios, Data and Flexible Services

November 2023



Welcome

Please mute your microphones

Please keep your videos switched off

Please type any questions you may have into the chat

This webinar is being recorded

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Agenda

01
Distribution Future Electricity Scenarios

Andrea Ballanti
Smart Grid Engineer

02
Network Development Plan

Michael Keddy
Network Development Engineer

03
Data

Keith Evans
Flexible Solutions Manager

04
Flexible Services

Kate Stewart
Flexible Solutions Analyst

05
Guest speaker Piclo platform

Morgan da Silva
Implementation coordinator at Piclo

06
Questions & Answers

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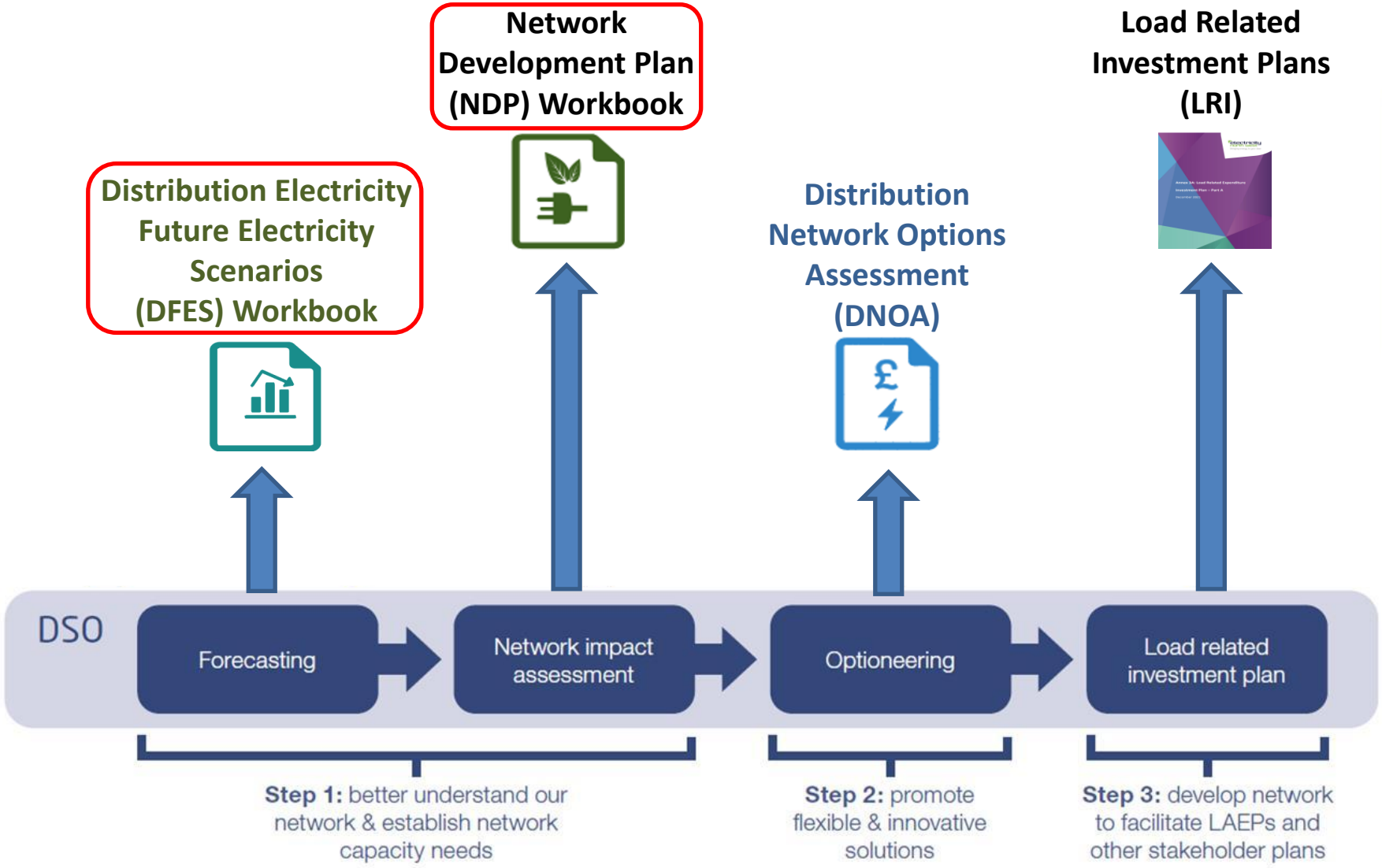
DSO Functions Webinar

Distribution Future Electricity Scenarios & Network Development Plan Workbook Demonstrations

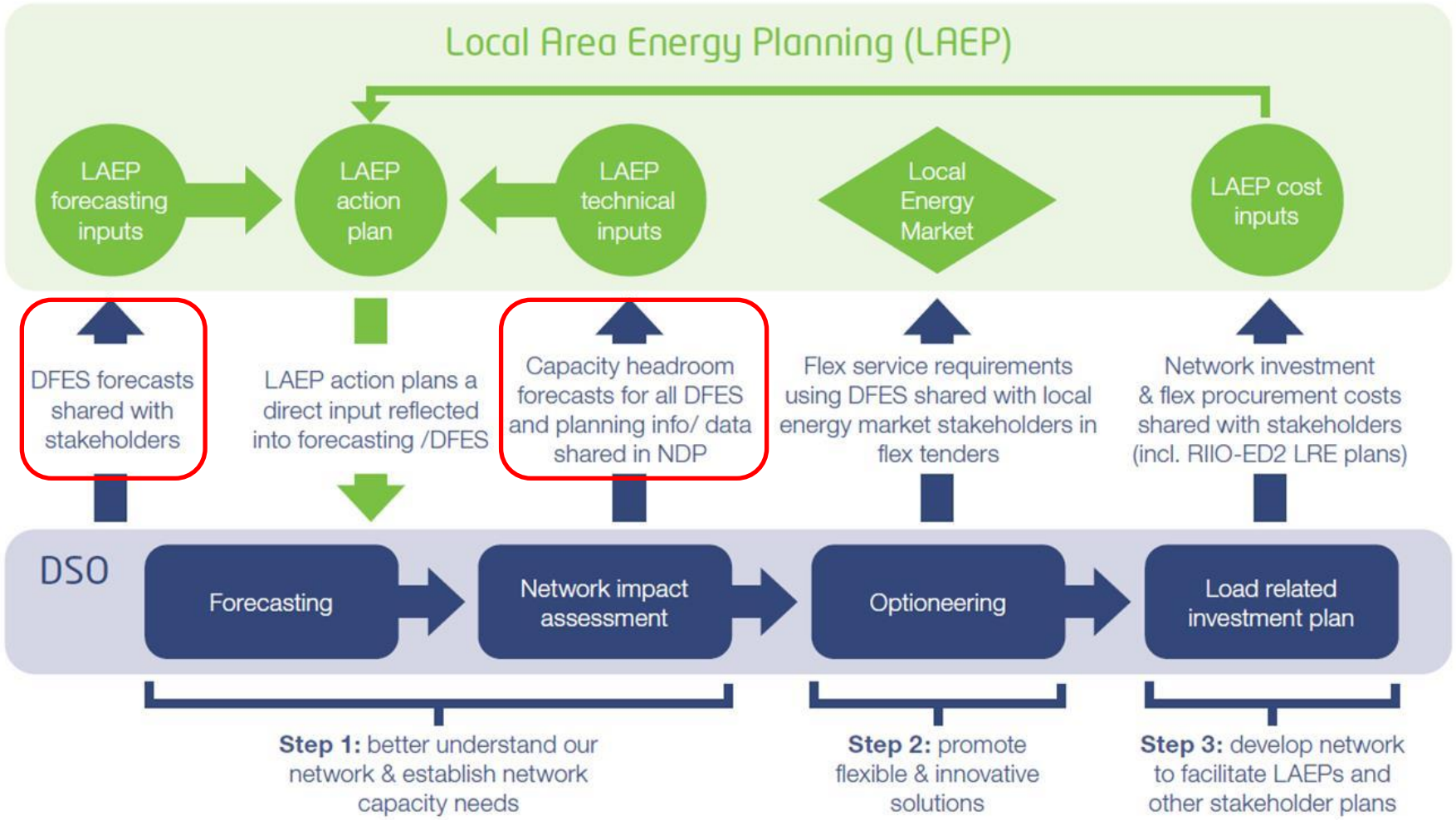
Michael Keddy CEng MIET
Network Development Engineer

Our Load Related Investment Process



LAEP Interactions with our Load Related Investment Process

INTERACTIONS OF LAEP WITH DFES AND DSO PLANNING



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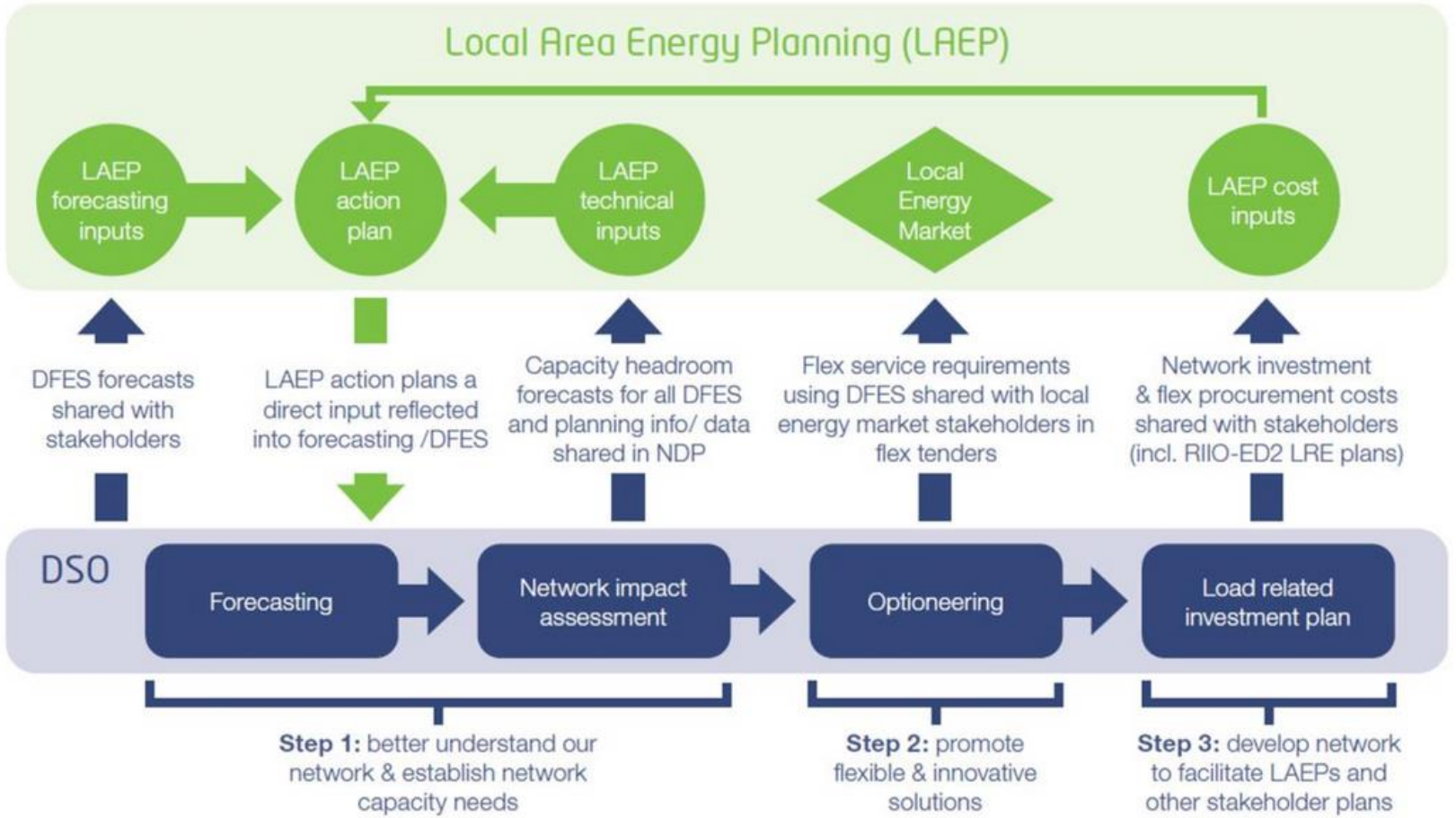
DFES

Workbook in 10'

A Concise Guide to Navigating the DFES Workbook and help you find the information you need to make the most of this useful tool.

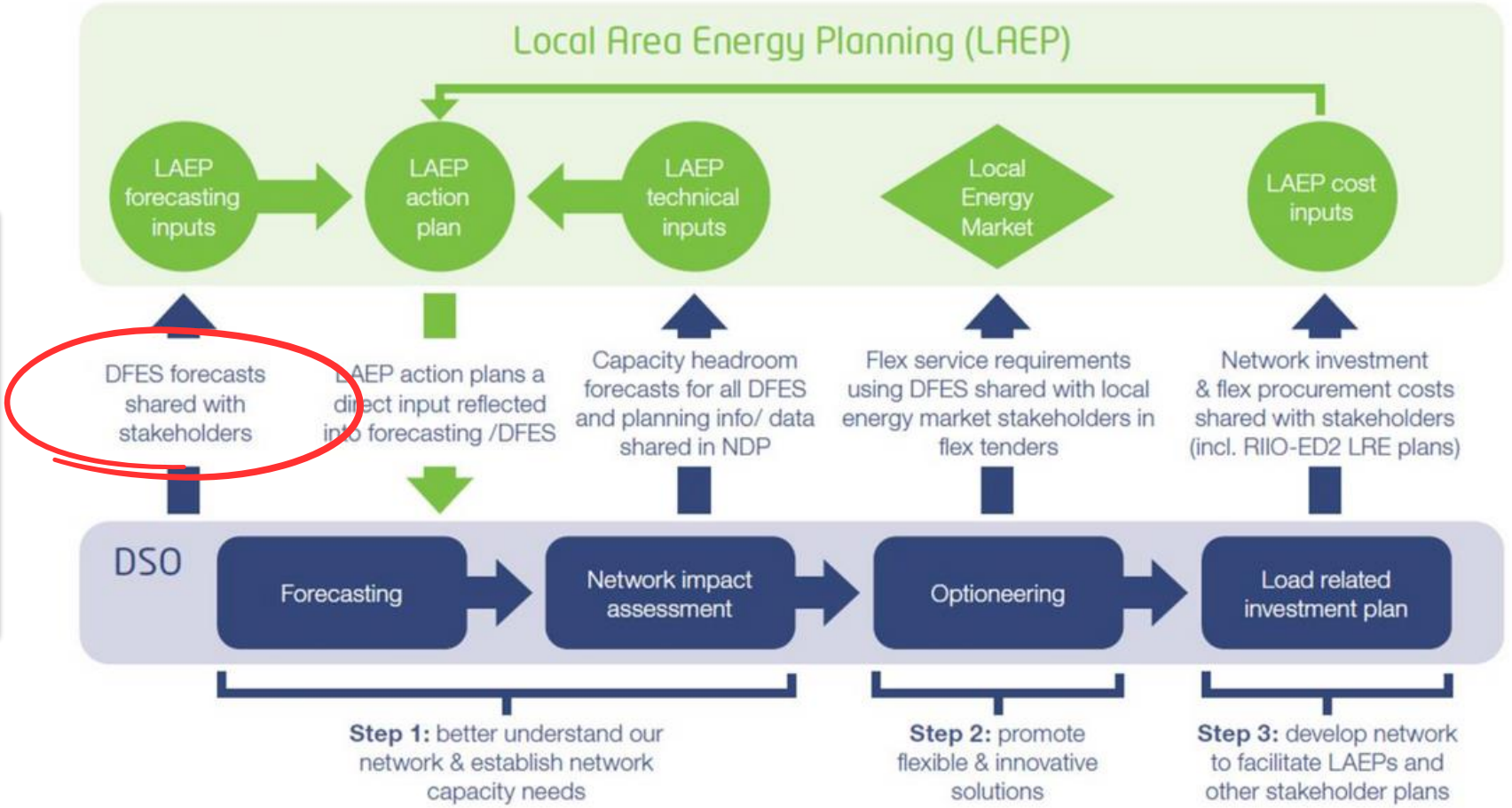
Dr. Andrea Ballanti
DSO Forecasting Engineer

Starting with the Forecast



Starting with the Forecast

DFES Workbook



DFES Workbook Overview

TYPE

Generation

Generation data with breakdown per technology (including battery storage).

Demand

Peak, minimum, LCT uptake, residential and I&C component.

Flexibility

The amount of flexibility required to postpone investment and save customer money.

290,000+ DATA POINTS | 35 EXCEL TABS | FROM 132KV TO LA | 435 NETWORK ASSETS | 30 YEARS HORIZON

DFES Workbook Overview

TYPE

RESOLUTION

Generation

Generation data with breakdown per technology (including battery storage).

Demand

Peak, minimum, LCT uptake, residential and I&C component.

Flexibility

The amount of flexibility required to postpone investment and save customer money..

Time

The forecast extend until 2050.

Scenarios

With the 4 FES Scenarios + our Best View, our high certainty view

Asset Level

From BSP, to Primary and even Local Authority and Counties.

DFES Workbook Map

Useful Information

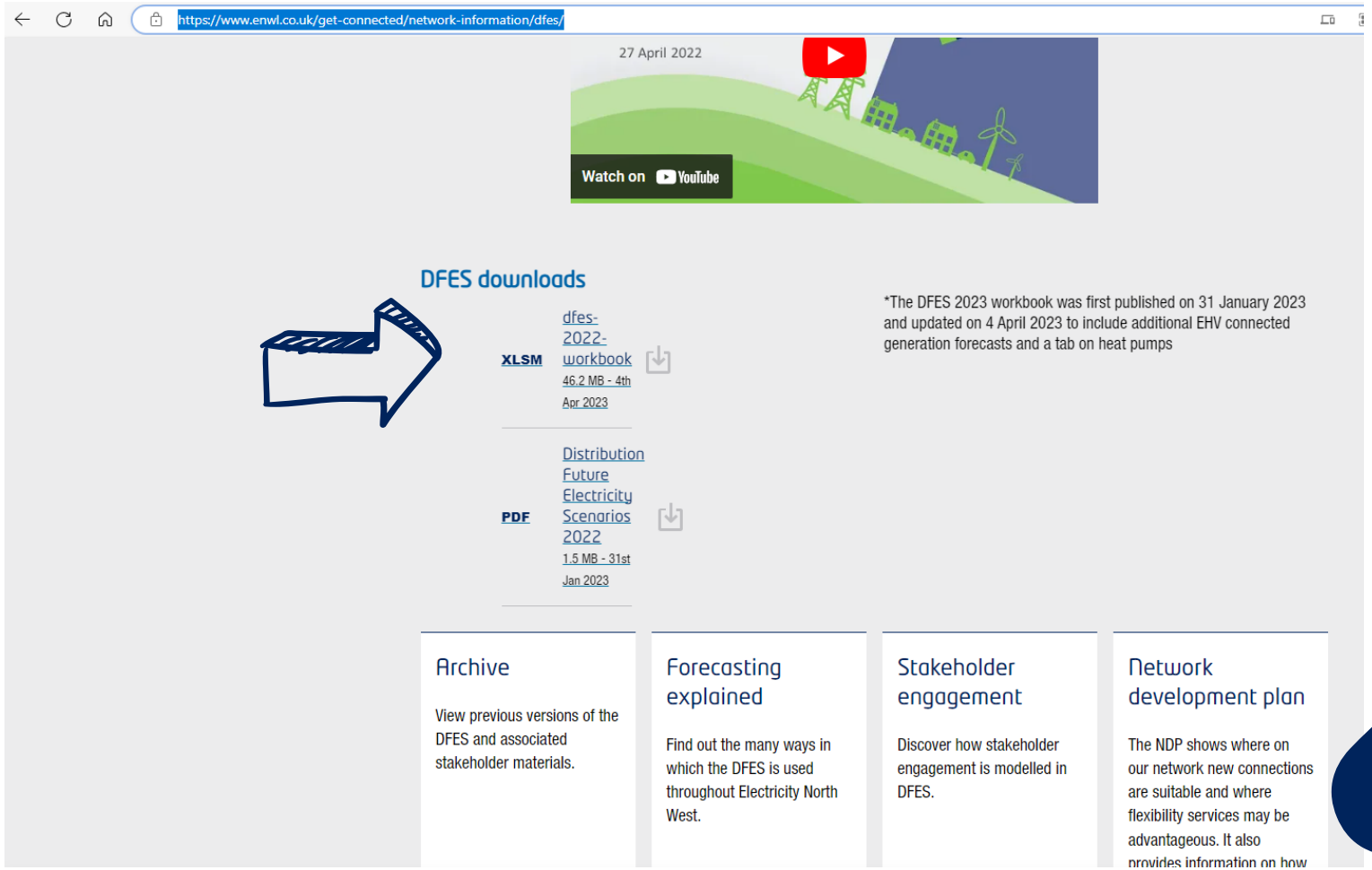
Interactive Graph Tools

BSP and Primary Sub Dataset

DFES Workbook Map

DFES Workbook Map

Let's Explore the DFES Workbook



Download it at

https://www.enwl.co.uk/get-connected/network-information/dfes/

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DSO Data

Active Network Management (ANM)

Keith Evans

Flexible Solutions Manager

DSO Data Sets Available

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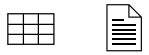
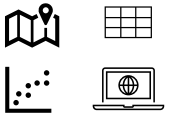
Category	Sub Category	Data	Data Formats
Network Data	Long Term Development Statement (LTDS)	• Schematic diagrams of the 33kV and 132kV systems • Circuit Data • Transformer Data • Load Information • Fault Level Information • Generation Information • HV Network information • Networks Reinforcement Plans	
	Network Asset Viewer (NAV)	• GIS network topology data	
	Substation Locations	• Substation Locations	

 Map  Table  Analyse  API/Export  PDF/Report

DSO Data Sets Available

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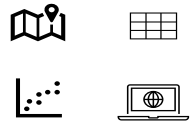
Category	Sub Category	Data	Data Formats
Forecasting	Distribution Future Electricity Scenarios (DFES)	• Entire Network • Bult Supply Point (BSP) data • Primary Substation data • Local Authority Data • County Data • Annual Generation • DG & Storage capacity • Storage • Seasonal LCT demand • Transport	
	Network Development plan (NDP)	• Network Headroom Report (NHR) • Network Development Report (NDR) • NDP Methodology	

 Map  Table  Analyse  API/Export  PDF/Report

DSO Data Sets Available

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Category	Sub Category	Data	Data Formats
Flexible Services	SLC 31E – Procurement Report	• Procurement - Disaggregated • Procurement Locational – Aggregated by GSP • Historical Dispatch	
	Flexible Services Tender Data	• Requirements Data (including mapping data) • Half Hourly forecasts of requirements • Postcodes	
	Primacy	• Risk of Conflict report	
Operational Data	GSP Boundary Flow Data	• GSP Boundary Flow Data	
	Outage Data	• Historical Outage Data (data since 1984)	

Map Table Analyse API/Export PDF/Report

DSO Data Sets Available

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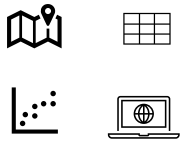
Category	Sub Category	Data	Data Formats
Connections	Headroom/Heat Maps	• HV Distribution Substations Headroom • HV Underground Conductor headroom • HV Overhead Conductor Headroom	
	Embedded Capacity Register	• <1MW • >1MW • Demand Side Response (DSR)	

 Map  Table  Analyse  API/Export  PDF/Report

Use Case Example
Flexibility Service Providers

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A Flexibility Service Provider is looking at possible locations for future growth of their business. Steps they may take:

To help build an initial business case, with long term opportunity planning

- View the Distributed future electricity scenarios (DFES) to see where Demand is anticipated to grow between now and 2050. The data includes predicted growth rates in LCTs, and associated network demands under different scenarios.

More targeted localised and medium term opportunity planning

- Review the Network Development Plan to see where flexible services are anticipated in near to medium term (the next 10 years). Can also use forecasted LCT and Demand growth rates to predict volumes of possible Distributed energy Resources (DERs) they may be able aggregate.
- Review historical procurement data using the SLC31E procurement report, to help with their understanding of capacity and pricing potentials based upon historical procurement and dispatch data.

Use Case Example
Flexibility Service Providers

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Applying for a connection to the network

- View the data on where there is Network Headroom to facilitate new connections, users can also view planned large scale reinforcement schemes using the Network Development Plan (NDP), and Long term development statement (LTDS) data.
- Use GIS and Long Term Development Statement (LTDs) data to view network topology. This allows asset developers to assess the likely points of connection prior to submitting a connections application.

Bid into a Tender to provide services

- Utilise the Flexible Services Requirements data to determine which assets are within the tender zone, review the half hourly forecasted utilisation requirements, and determine a pricing strategy.

Use Case Example
Developer (demand or Generation)

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A developer looking for a new connection. Steps they may take:

Applying for a connection to the network

- View the data on where there is Network Headroom to facilitate new connections, users can also view planned large scale reinforcement schemes using the Network Development Plan (NDP), and Long Term Development Statement (LTDS) data.
- Use GIS and Long Term Development Statement (LTDs) data to view network topology. This allows asset developers to assess the likely points of connection prior to submitting a connections application.
- Submit an application for connection to the network

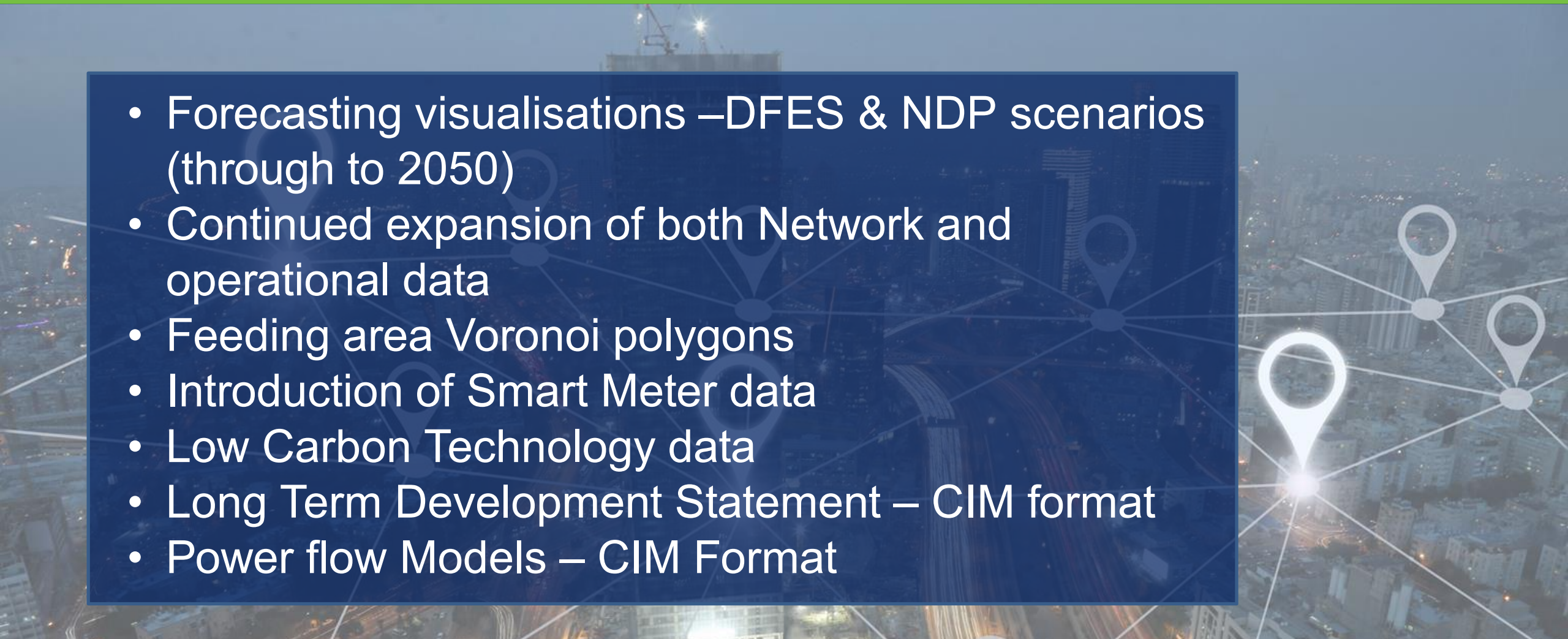
Additional sources of useful information

- Developers may wish to look at historical outage data on the network so they can get an idea of possible future constraints on the connection.
- The Embedded Capacity Register (ECR) shows current and future connections including details of flexible connections. This may help a developer to understand the current market conditions in a region including queue positions for planned reinforcement.
- For ICPs, using the GSP Boundary Flow Data in combination with the network topology data can inform improved network studies in determining possible points of connection, and early identification of potential reinforcement requirements.

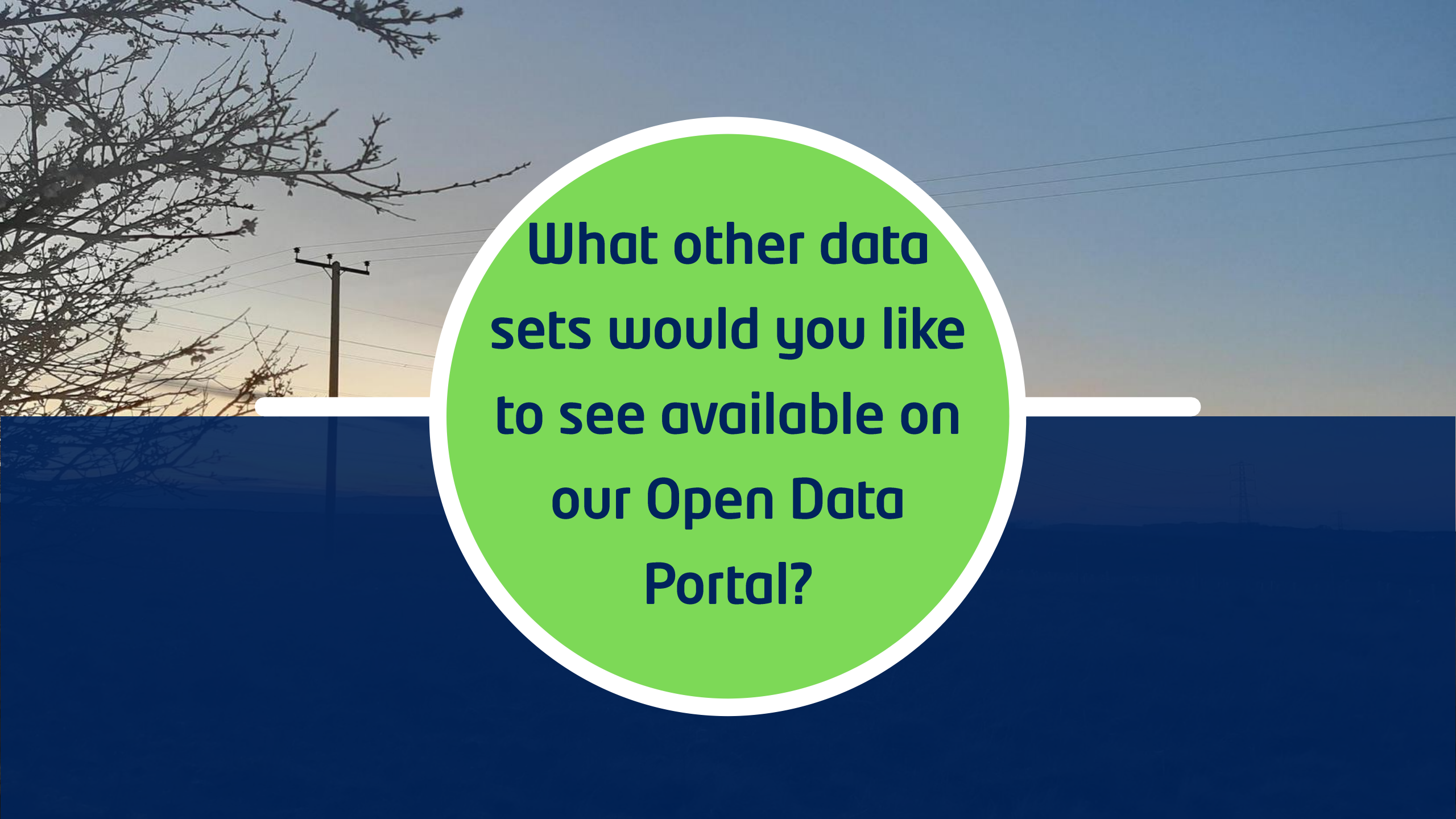

Are there any other topics or data sets you would like us to provide worked examples for?

Interactive demo of Open Data portal

Data Portal
Future Content



- Forecasting visualisations –DFES & NDP scenarios (through to 2050)
- Continued expansion of both Network and operational data
- Feeding area Voronoi polygons
- Introduction of Smart Meter data
- Low Carbon Technology data
- Long Term Development Statement – CIM format
- Power flow Models – CIM Format


What other data sets would you like to see available on our Open Data Portal?

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Flexible Services

A SMART AND EFFICIENT WAY OF FACILITATING THE TRANSITION TO NET-ZERO

Kate Stewart

Flexible Solutions Analyst

What are Flexibility Services?

When the demand for electricity is greater than the amount that we can provide, flexible services are procured to alleviate constraints on our network during peak times

These services are provided by companies or individual customers who own assets in our region that can generate more or use less electricity when required

This allows us to balance supply and demand, ensuring a safe and reliable supply of energy for our customers

Flexibility providers will receive payment from the network for providing this extra capacity

Who can provide flexible services?

Existing metered customers or anyone interested in building a new asset

Capable of adjusting how much electricity they consume or generate

10kW

Can provide a minimum of 10kW of flexible capacity

Aggregated domestic and non-domestic portfolios

Industrial and commercial assets

Types of flexible services:

Demand reduction

- ✓ EV chargers
- ✓ Turning off / shifting intensive processes
- ✓ Controlling heating systems

Generation

- ✓ Renewable generation
- ✓ Battery storage
- ✓ Standby generation

Energy Efficiency Measures

- ✓ Solar panels
- ✓ LED lighting
- ✓ Insulation
- ✓ Modernise equipment

Flexible Services case studies (enwl.co.uk)

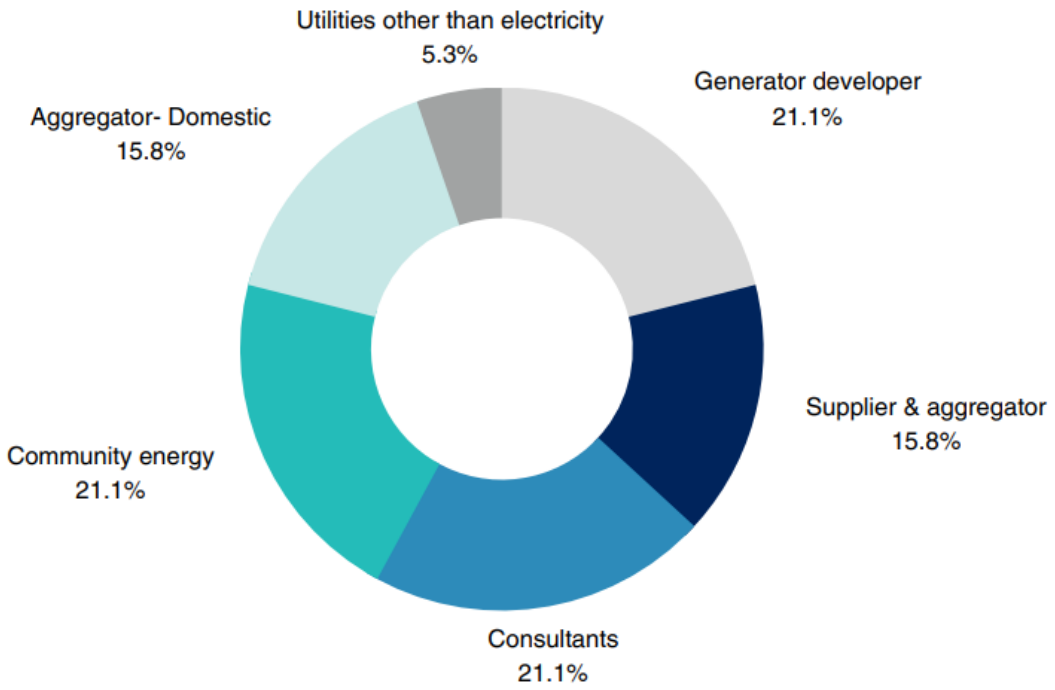
2023 Flexibility Services Consultation

Held over summer period to:

- Engage with stakeholders to collaboratively shape our priorities and approach to procuring flexibility services
- Ensure we continue demonstrating accessibility and simplicity throughout our flexibility processes, with a key focus on data sharing, engagement, technical requirements and contracting
- Hear your views of how we can best support the flexibility services market in Great Britain

The consultation and response summary are available to view within our flexibility document library: [Flexible Services Document Library (enwl.co.uk)]

19 responses- thank you for your feedback!



Responses collected via:

- Webinar
- Email
- 1-2-1 feedback sessions
- Online form

- Further **industry standardisation** of: Products, API interfaces, platforms, availability hours
- **Too many variations** of processes, technical requirements, contracting across all the DNOs
- Lowering **minimum thresholds** to allow smaller players to participate
- **Common contract**: ability to adjust details for longer term requirements if circumstances change and mix of both short and long term contracts is preferable
- More information on **Energy Efficiency Measures** and having it as a separate product
- **Barriers to entry**: Minute by minute metering, penalties, location of requirements and lack of revenue certainty

Our initial commitments

Old approach	New approach
50kw minimum requirement	10kw minimum requirement
Annual commercial qualification requirement	One-off commercial qualification requirement
Minute by minute metering only	Alternative metering granularity now accepted including half hourly
Procure energy efficiency through the secure, dynamic and restore products	Adopt separate energy efficiency product from Spring 2024
V2 Standard Flexibility Services Agreement	Adopt V2.1 for Autumn tender and implement V3 as framework style agreement next year

Continue working with the rest of the industry to design a common API interface

Our latest requirements!

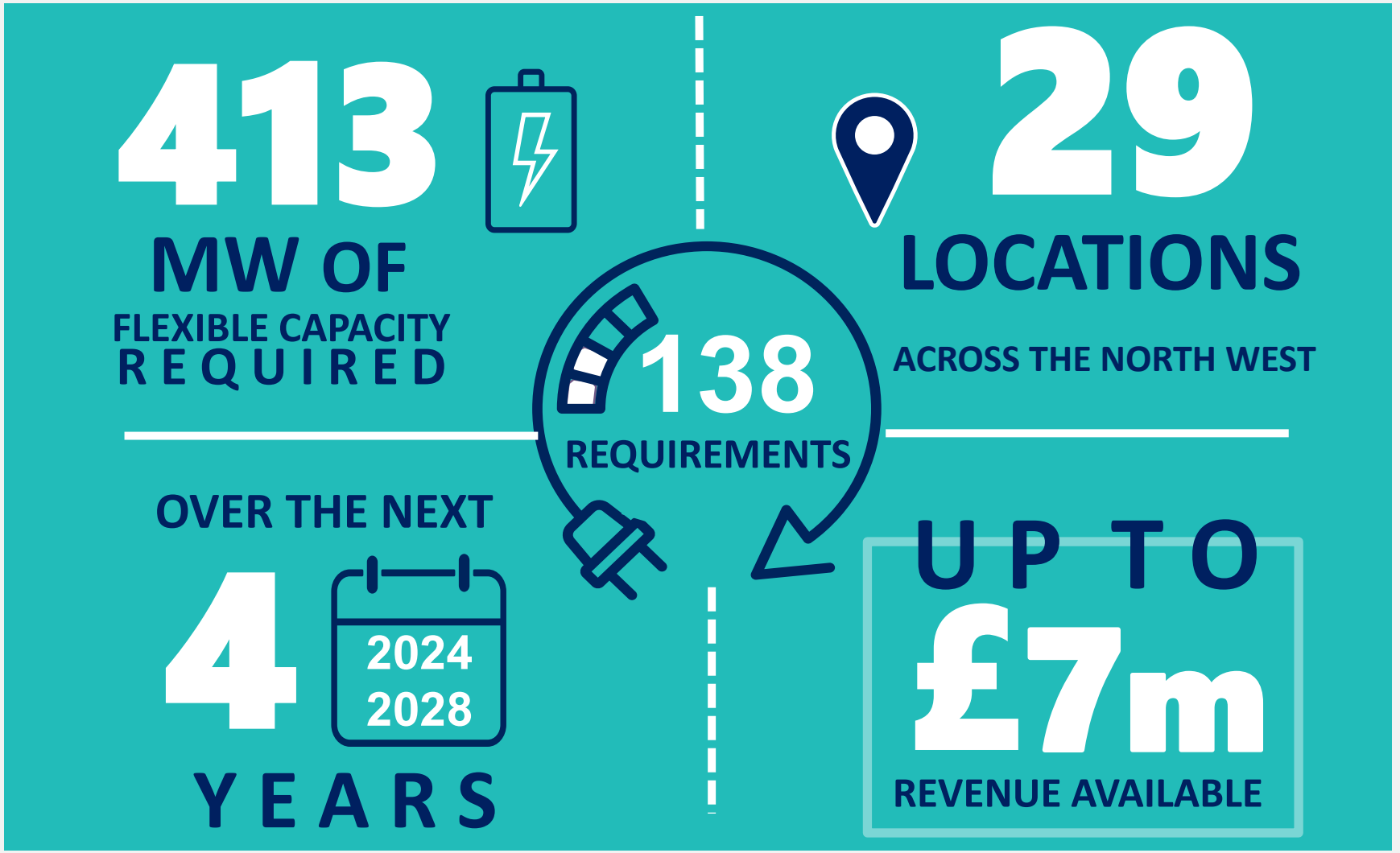
Since 2018

13
tenders

4GW
requirements

32
locations

Autumn 2023 tender



Our requirements by region

Cumbria

17 Locations

245 MW

87 requirements

£2,954,212

Greater Manchester

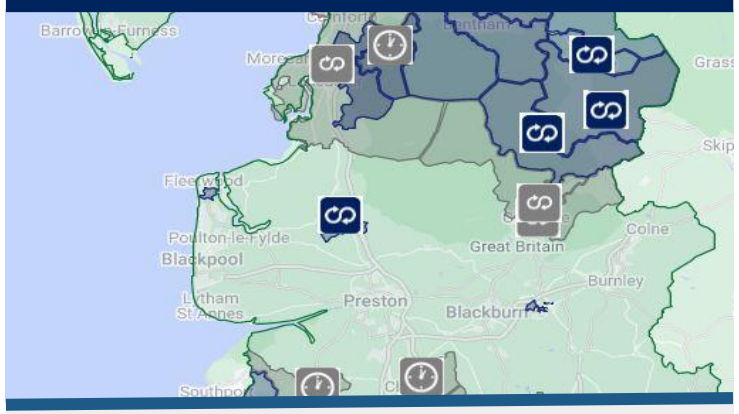
5 Locations

92 MW

24 requirements

£2,866,680

Lancashire



7 Locations

76 MW

27 requirements

£1,107,884

Products

SECURE 11

PRE-FAULT

Helps manage the load at peak times e.g. planned outages or traditional peaks in winter

Provide a scheduled response to manage network loading by preventing demand exceeding capacity on the network

DYNAMIC 28

POST-FAULT

Keeps the power flowing during an unplanned network event

Provide an immediate response following a fault or unplanned network event (abnormality on the network) to avoid loss of supply to customers

RESTORE 99

POST-FAULT

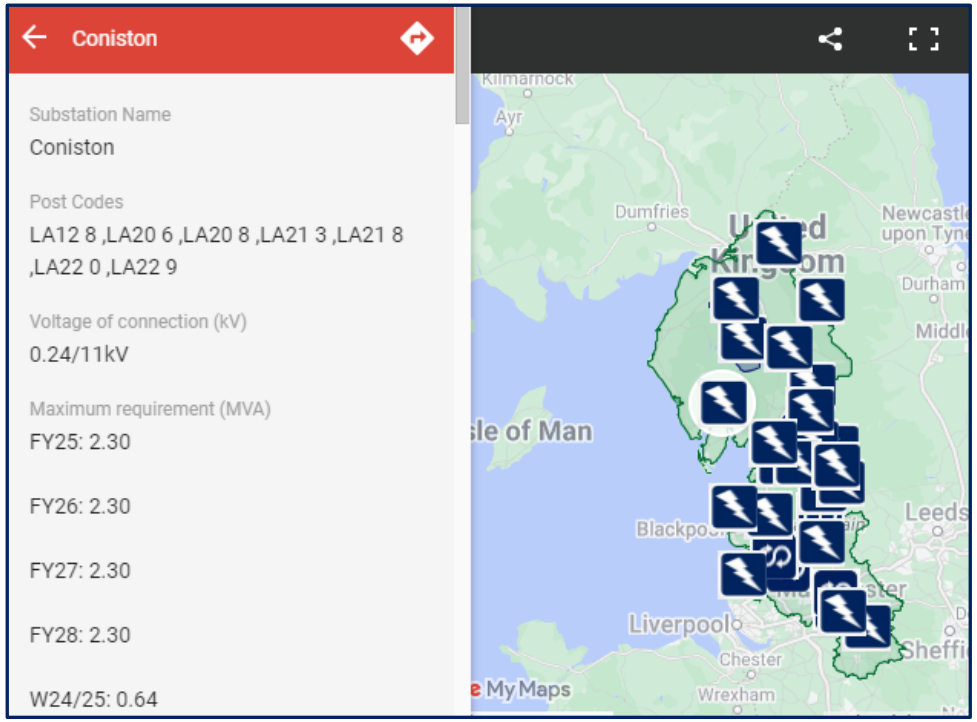
Gets the lights back on following an unplanned network event

Provide an immediate response to help us restore supplies for customers more quickly where we've had a complete loss of supply

Energy Efficiency measures can also provide flexible services through each of the three products, by installing energy efficiency schemes that reduce long term energy demand

Invitation to Tender (ITT) and helpful tools: ENWL website

Our full ITT documentation is published on our website alongside our flexibility map, and includes:



- Invitation to Tender terms and conditions
- Appendix 1: Standard Flexibility Agreement
- Appendix 2: Technical specification
- Appendix 3: Site requirements
- Appendix 4: Half hourly requirements
- Post code checker tool
- Cost calculator tool

[Flexible Services Autumn 2023 tender (enwl.co.uk)]

PicloFlex Platform

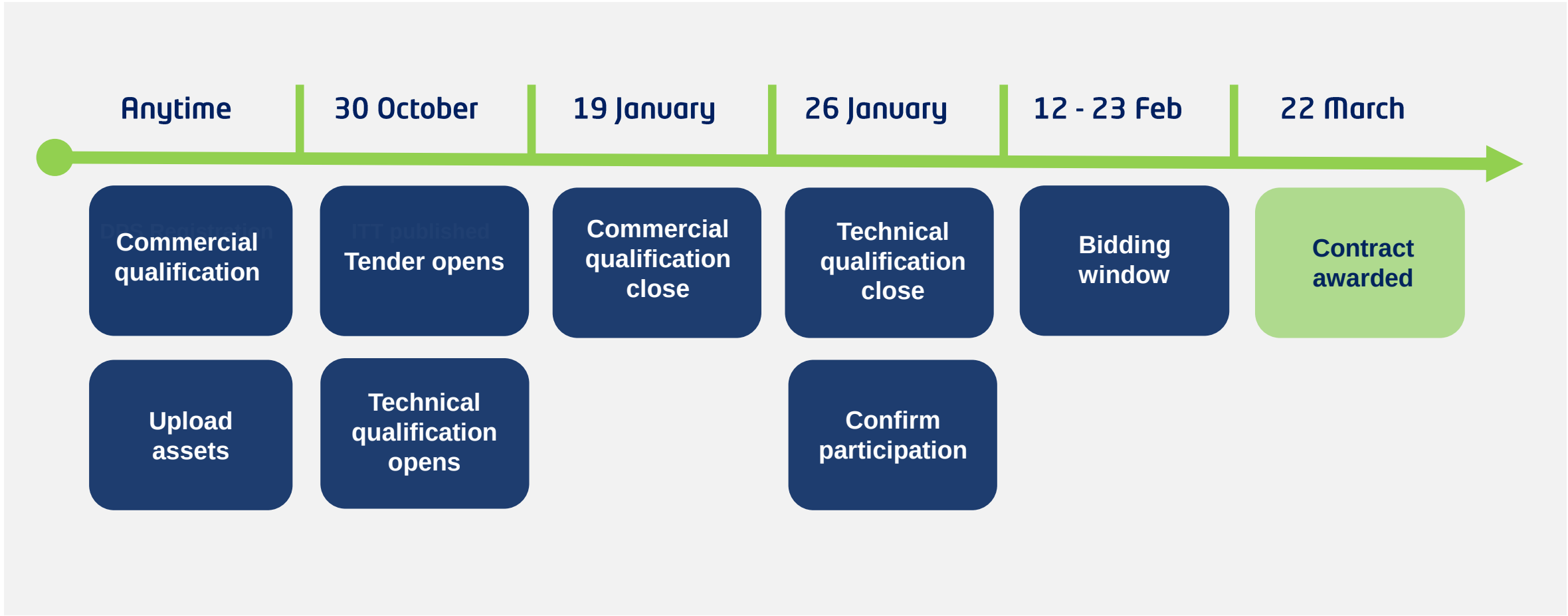
We procure our flexible services tenders via the PicloFlex Platform

Visit https://picloflex.com/ to:

- View our current requirements
- Sign up to the free commercially pre-qualify
- Upload and pre-qualify your flexibility assets
- Submit a bid
- View past competition data
- A summary of our current tender is available via our dedicated profile page

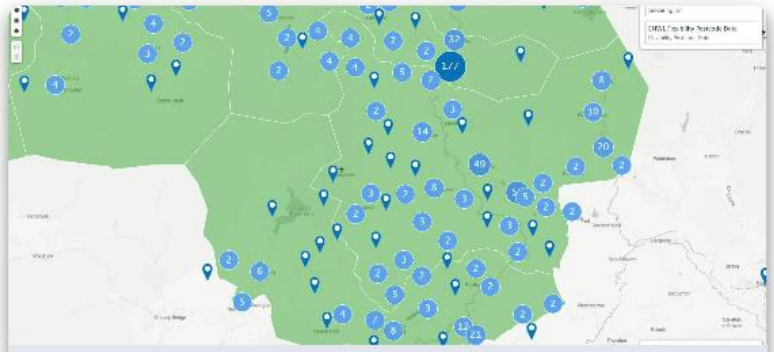
Contact support@picloflex.com for all queries relating to the platform or to book a personalised demo with a member of the team

Procurement timeline



NEW Open Data Portal

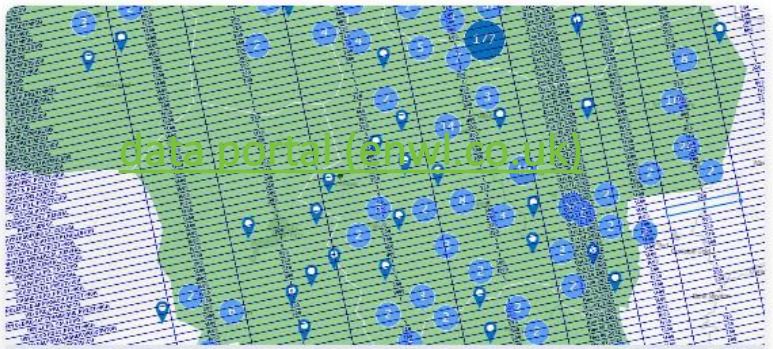
Our requirements are now also available to view on our new Open Data Portal, an external platform hosted by OpenDataSoft.



Flexible Services Map

Our flexibility map displays the locations within our distribution area where we are currently seeking Flexible Services, or may have a requirement in the future..

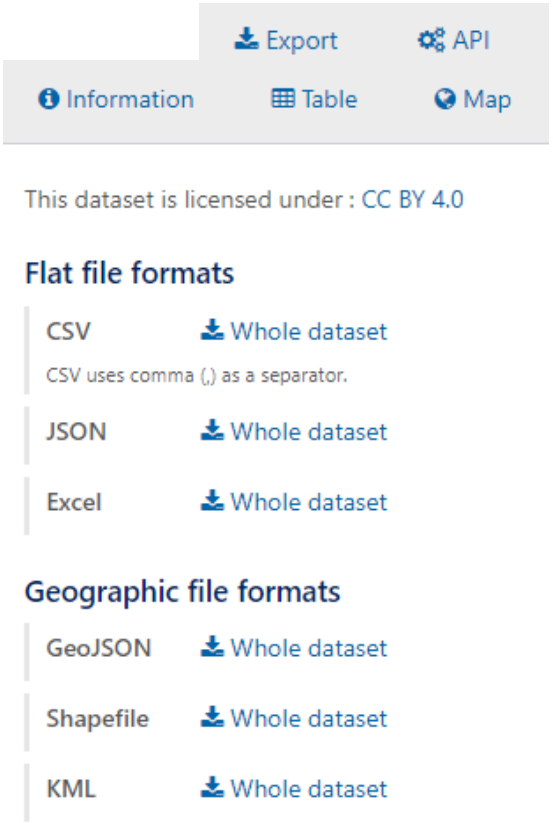
View Map →



Flexible Services Data

Access the source datasets used to create the Flexible Services Map.

Access Source Datasets →



VISIT THE PORTAL HERE: data portal (enwl.co.uk)

SCL31E Distribution Flexibility Procurement Report data now also available to view on the portal!

Useful links

Piclo Flex	Flexible services website	Open Data Portal	Register for updates	1-2-1 Discussions
piclo				
Head over to the Piclo Flex platform to view our latest requirements and take part in our tenders by registering onto our DPS and uploading your assets	All our current and previous requirements, webinar recordings, helpful guides and case studies can be found on ENWL's flexibility portal	Our flexible services requirements and reports are available on our Open Data Portal to view and download in a variety of formats including via API	Sign up to our distribution list to receive our newsletters, latest requirements and event invites	We offer 1-2-1 discussions to assist with any queries relating to the process of providing flexibility Book here

Questions and Answers

We welcome your questions and thoughts

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Thank you for your attention