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Distributed Generation HV / EHV workshop

March 2021

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www.enwl.co.uk

Meet the Team

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Agenda

2020-21 ICE Workplan Update

- Overview
- Heatmap Tool Update
- Interactivity
- DSO Consultation
- Digital Strategy

Future Business Planning

- ICE 2021-22 Workplan Development
- 2023-28 Business Plans (RIIO-ED2)

Questions

Close

2020-21 ICE Workplan Update Overview

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DG HV/EHV Workplan –Update

Commitment	Output / Key Performance Indicator	Delivery Date	Performance
We will communicate with our stakeholders on **Engineering Recommendation G99** requirements for the connection of generation equipment	We shall share best practice and information on the latest national developments to support customers through a dedicated G98/G99 workshop and communicate updates throughout the year.	Q4	✓ Dedicated workshop held February ✓ Regular updates throughout the year
We will target our **Time To Quote** timescales for HV quotations	We aim to outperform the regulatory standard by providing quotes on average in **57 working days** (compared to the guaranteed standard of 65 working days).	Q4	✓ Current year to date of 36 working days
We will target our **Time To Quote** timescales for EHV quotations	We aim to outperform the regulatory standard by providing quotes on average in **57 working days** (compared to the guaranteed standard of 65 working days).	Q4	✓ Current year to date xx working days
We will improve access to **Network Information**	We will produce and publish training material for use of our new **GIS** functionality.	Q3	✓ Network Asset Viewer training material and webinar published
We will review recent improvements to communications on **Transmission constraints.**	We will survey stakeholders to highlight recent changes and seek feedback, and identify any further improvements.	Q2	✓ Surveys issued, no further improvements identified
We will continuously improve how we provide information and publish requirements for **Flexible Services.**	We will promote asset registration. We will publish and promote requirements. We will explore further options for flexible services.	Q4	✓ Promoted via website and during webinars ✓ Requirements published ✓ Ongoing exploring of flexible services

DG HV/EHV Workplan –Update

Commitment	Output / Key Performance Indicator	Delivery Date	Performance
We will brief stakeholders on the development of changes to charges being made by Ofgem	We will provide briefings for stakeholders on the proposed changes to charges through Ofgem's Significant Code Review	Q4	✓ Ofgem publications now deferred to 2021-22
We will review our processes as part of our **continuous improvement to customer service.**	We will engage with stakeholders to review and improve our processes where appropriate.	Q4	✓ Complete
We will engage with our stakeholders to improve outage communication	We will seek feedback on our new outage communications and define further improvements, if required.	Q3	✓ Initial feedback received. ✓ Owner Operator Forum discussion due March 2021
Communication - BAU			**Performance**
We will continue to offer opportunities for stakeholders to engage with us.	We will offer surgery sessions, webinars and 2 workshops covering a range of topics. We will continue to offer 1 out of area workshop.	Q4	✓ Topic specific webinars ✓ On target to deliver 2 online workshops
We will continue to communicate with our stakeholders.	We will continue to issue quarterly updates on ICE Commitments and Health and Safety via newsletters to registered stakeholders	Q4	✓ Quarterly newsletters issued ✓ Tailored communications to keep our stakeholders informed

Update to the Heatmap Tool

“We will further improve the heatmap tool by including information on the size ofg the largest feasible connection based on existing switchgear and a single circuit connection. This will supplement the values of total available capacity for further demand and generation, already listed for each substation.”

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Our Heatmap Tool

What's changed & why?

- As part of the Incentive on Connections Engagement (ICE) scheme, we are committed to listening to feedback from Stakeholders and using it to inform our annual ICE workplan
- Two years ago we launched our Heatmap Tool, which enables developers to assess the level of capacity availability for new connections to our network
- Feedback requested that we improve visibility of network information / capacity for HV connections
- To achieve this we agreed to supplement the values of the total available capacity, with the size of the largest feasible connection for an application (based on existing primary switchgear and a single circuit connection.)

How have we implemented this?

- Previously the suitability for connection RAG status was determined by the total headroom available at the site for new connections
- This was confusing for some users, as the maximum single connection (particularly at HV) was often much lower than the quoted headroom figure, due to network constraints
- To address this we have updated the 11/6.6kV connections data to include the maximum circuit breaker rating (MW) at that Primary. Where there are multiple types of circuit breakers onsite the rating used in the Heatmap tool is the lowest
- On our results table, the RAG status has been updated to take into account the switchgear rating, and inform users as to which factor (switchgear or headroom) is the limiting value
- The online map will also display the switchgear rating details alongside the previously included values

Demonstration

Input example

Easting	485004
Northing	479026
Capacity (MW)	7.5
Connection Type	Demand – N-0

Previous results

Primary Substation Location		Headroom (MW)	Can Connect? (RAG)
Easting	Northing		
389077	440584	13.3	
383248	456995	5.9	
381025	469428	9.6	
381588	463721	7.5	
387571	439522	12.0	
386638	437064	17.1	
386020	438507	8.2	
385446	437481	17.3	
385569	434469	13.7	
385349	433821	14.2	

No longer shows as suitable for connection due to switchgear rating

RAG remains the same as limiting value is the available headroom

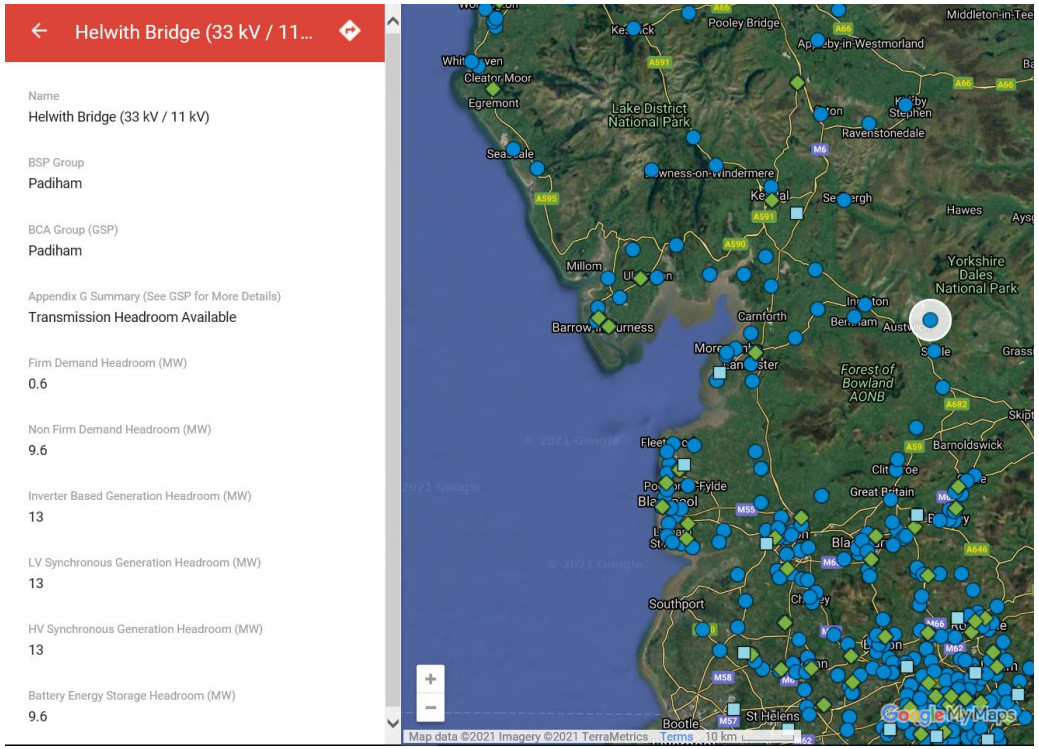
New results

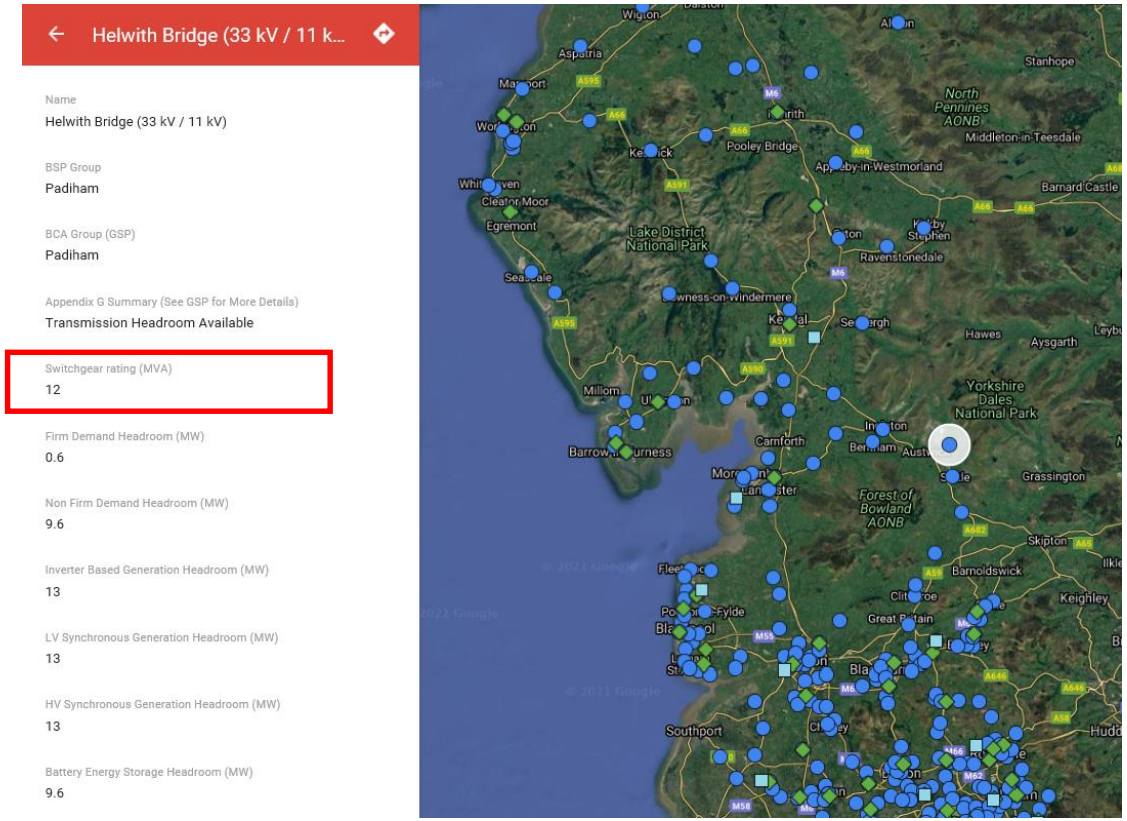
Primary Substation Location		Headroom (MW)	Max Single circuit connection (MW)	Can Connect? (RAG)	Limiting factor
Easting	Northing				
389077	440584	13.3	4.6		Switchgear Rating
383248	456995	5.9	12.0		Headroom
381025	469428	9.6	12.0		Headroom
381588	463721	7.5	12.0		Headroom
387571	439522	12.0	9.1		Switchgear Rating
386638	437064	17.1	7.2		Switchgear Rating
386020	438507	8.2	4.6		Switchgear Rating
385446	437481	17.3	4.6		Switchgear Rating
385569	434469	13.7	4.6		Switchgear Rating
385349	433821	14.2	4.6		Switchgear Rating

Key	
	Capacity <90% of headroom
	Capacity >90% & < 100% of headroom
	Capacity >100% of headroom

Key		
RAG	Limiting factor: Headroom	Limiting factor: Switchgear rating
	Capacity <90% of headroom	Suitable
	Capacity >90% & < 100% of headroom	N/A
	Capacity >100% of headroom	Unsuitable

Map Layout





New rating information appears on map extract as well

Final thoughts

- The Heatmap tool is only intended to be used as an indicator during the early stages of a new application
- Dependent on circuit design and designed point of connection the available capacity may vary from the Heatmap tool indication upon final design.
- If the tool doesn’t indicate capacity then feel free to arrange a consultation with the ENW connections team to further discuss your requirements.
- All the information on the Heatmap tool is correct at time of publication, the new switchgear information will be updated quarterly due to the infrequency of changes to primary switchboards
- Currently the changes only apply to Primary level (11/6.6kV) connections, as the method used is unsuitable for the complexity of the network associated with higher voltages
- The Heatmap Tool(s) are available for everyone and can be found on our website: Heatmap Tool

Questions?

Interactivity Process

“We will adopt best practice identified through the Open Networks Project. We will keep our stakeholders informed on progress”

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Recap of the New Process

New process uses Unconditional and Conditional offers

Early warning notices to notify you of potential interactivity as soon as we are aware

No Moratorium period in new process

Acceptance/ validity period changed to 20 working days per applicant

Conditional offers are not required to make payment of the acceptance fee until their acceptance is declared as valid.

Post Implementation Update

Over 100 notices have been sent out since the new interactivity process was implemented, including Early Warning Notices

All active interactivity queues are now operating on the Conditional process-this means that all currently interactive offers will expire at the end of the 20 working day period if they are not successfully accepted

In order to provide further guidance to our customers, we have created an Interactivity guide to walk through the new process and provide answers to some commonly asked questions and published this on our website

For those customers who were not able to attend our implementation webinar which we held in January, a recording of this is available on the interactivity page of the ENWL website

Key Information to Take Away

- If you receive an Early Warning Notice, it is likely that your Connection Offer will have a shortened acceptance period. Use this advance notice to prepare e.g. schedule any approval meetings needed.

- If you want to accept your offer, you must submit your signed acceptance (and payment if your offer is Unconditional) by the end of your validity period-this cannot be extended

- Remember to pay the A&D fee within 30 calendar days, if applicable to your scheme. *Interactivity does not pause A&D timescales*

Further information

If you have a query regarding a notification and/or Connection Offer please contact the engineer who sent the information

Further guidance can be found on the ENWL website, including the interactivity booklet mentioned on the previous slide

For general queries regarding interactivity please contact interactivity@enwl.co.uk

Any further questions?

Transition to DSO

"We will keep stakeholders informed on the transition of Distribution Network Operators (DNO) to carrying out enhanced Distribution System Operation (DSO) functionality"

Benefits of DSO transition

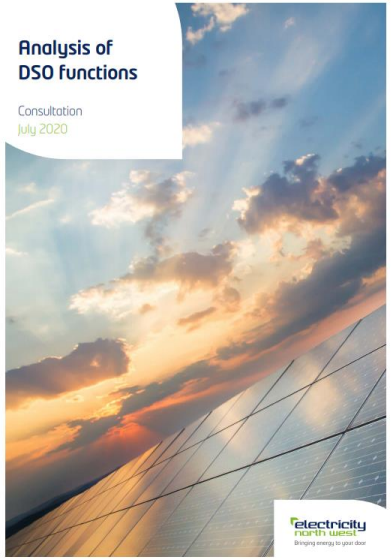
Improved customer experience	• Improved customer experience though sharing of best practice within the ENA Open Networks project
Efficiency savings	• Increase utilisation of networks assets allowing for efficiency savings
Whole system investment	• Improved whole system investment decisions through closer working relationships with other network providers
Low carbon economy	• Facilitating the transition to a low carbon economy.
Increased flexibility	• Allowing all customers the ability, independent of size, to participate in energy trading and balancing
Increased productivity	• Increased productivity as a result of developing new modelling tools, implementing new systems, and improved automation

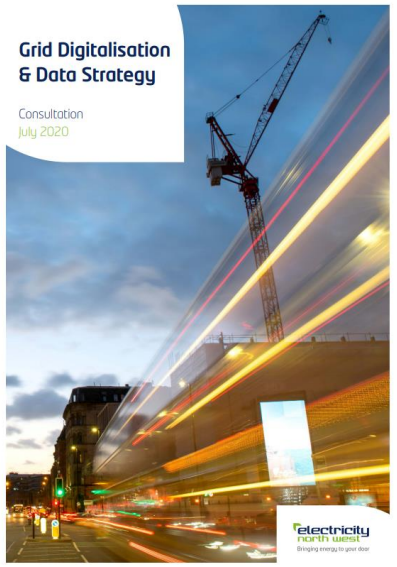
What have we done so far?

ENWL DSO consultations

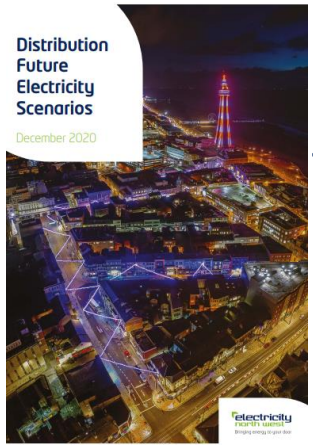
- In May 2020 we launched 3 DSO related consultations.
- The feedback was broadly supportive of our DSO strategies
- We will now review the plans based upon feedback and re-publish
- The feedback will also be used to inform our ED2 business plans
- We are still open to more feedback

https://www.enwl.co.uk/go-net-zero/our-plans-to-go-net-zero/dso/





What have we done so far?

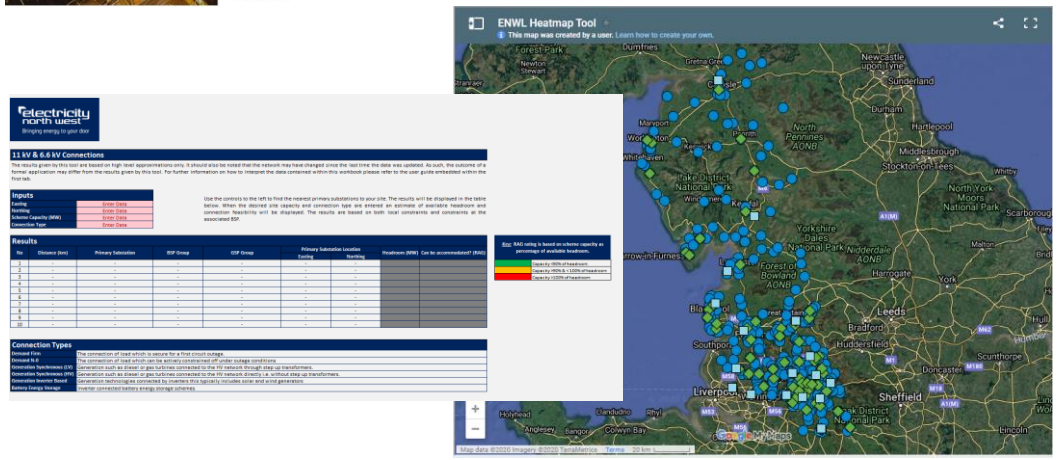


Distribution Future Electricity Scenarios Documents

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

Flexible Services

https://www.enwl.co.uk/go-net-zero/flexible-services/

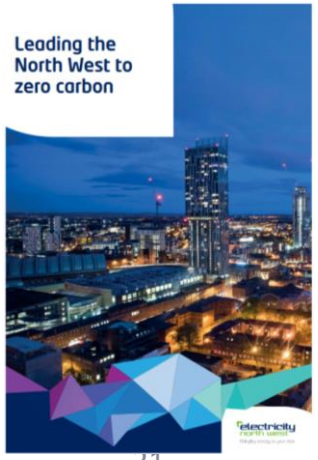


Heat Mapping Tools

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

Carbon Plan

https://www.enwl.co.uk/go-net-zero/our-plans-to-go-net-zero/leading-the-north-west-to-net-zero/



Flexible connections

We currently offer:

System Normal Connection - connection is disconnected or constrained when there is a First Circuit Outage affecting the circuit supplying the customer or the local network.

Export Limited Connection - where installed generation equipment has a greater export capability than agreed levels.

Flexible connections to come:

Timed Connection - capacity restricted within specific time periods

Import Limited Connection - where installed equipment has a greater import capability than agreed levels

Active Network Management - control systems modify import and/or export within agreed limits

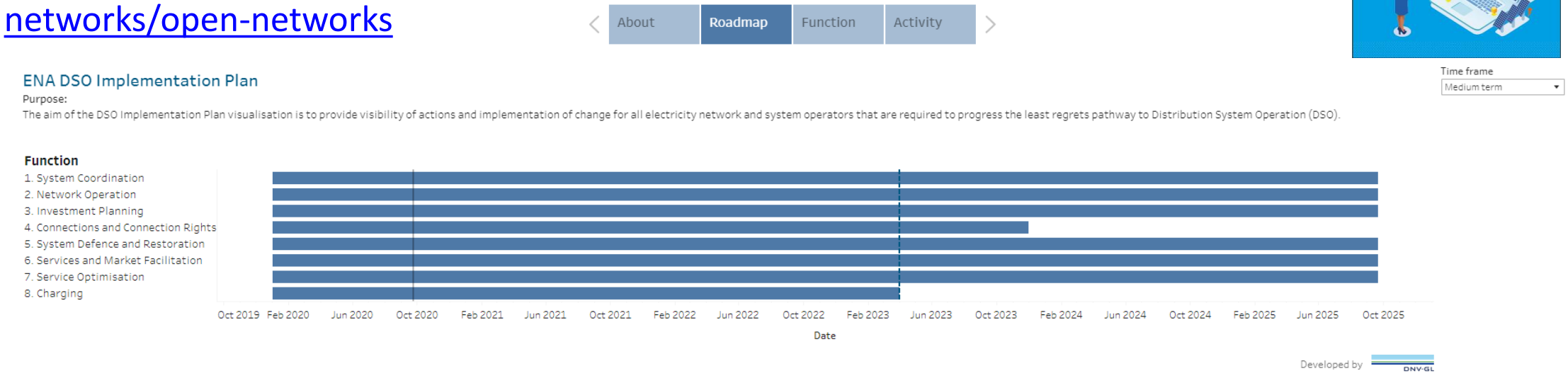
Click for More info

What have we done so far?

Open Networks Project

- Standardised flexible services agreements and product naming
- Developed joint FES methodologies
- Developed and consulted upon new interactivity and queue management processes
- Developed heat mapping good practice
- Created a DSO roadmap for UK's transition to DSO (including DNOs, TOs, ESO, ENA, BEIS, and Ofgem)

https://www.energynetworks.org/creating-tomorrows-networks/open-networks



Highlights of current work

- The development of operational IT systems for managing power flows (ANM)
- Establishment of a neutral market trading system to facilitate trading of flexible services in near real time.
- Establishment of a DSO control desk within the existing control centre
- Improving the quality and quantity of information available to stakeholders
- Updating of policies and procedures

- Offering a greater range of connections options with a range of flexibility
- Improving forecasting techniques, and publishing our data in the form of heat maps, DFES, and flexible services requests
- Developing enhanced modelling tools and techniques and introducing automated connections processes.
- Reducing ENWLs carbon emissions and encouraging others to do the same

Accelerated Loss of Mains Change Programme (ALoMCP)

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Background

G59 requires UK Generation owners to install loss of mains (LoM) protection at their generation sites. This is to ensure that, following a fault that isolates sections of the distribution system to which they are connected from the rest of the electricity system, distributed generation does not form an autonomous power island with the remaining local demand.

The two most commons forms of LoM protection are rate of change of frequency (RoCoF) relays and vector shift (VS) relays.

By September 2022 to comply with the latest requirements, it will be necessary to revise the LoM protection settings for all the existing non-type tested embedded generation fleet to:

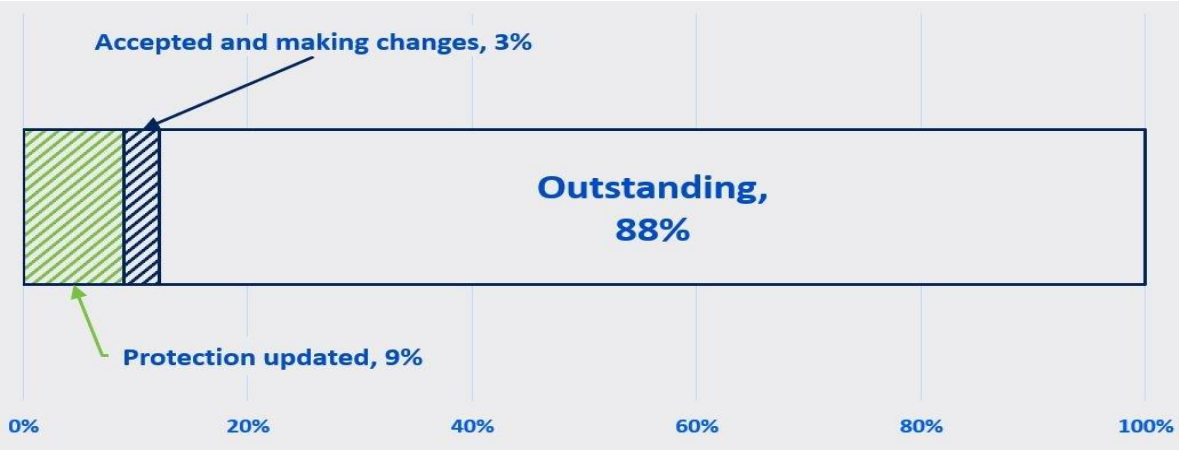
Ensure that where rate of change of frequency (RoCoF) protection relays are used, as part of Loss of Mains protection, the applied setting should be 1Hz/s with a definite time delay of 500ms.

Ensure that vector shift (VS) protection technique should be removed where it is in use

Remove LoM protection from all generation except synchronous and DFIG where a suitable RoCoF setting cannot be made without additional investment.

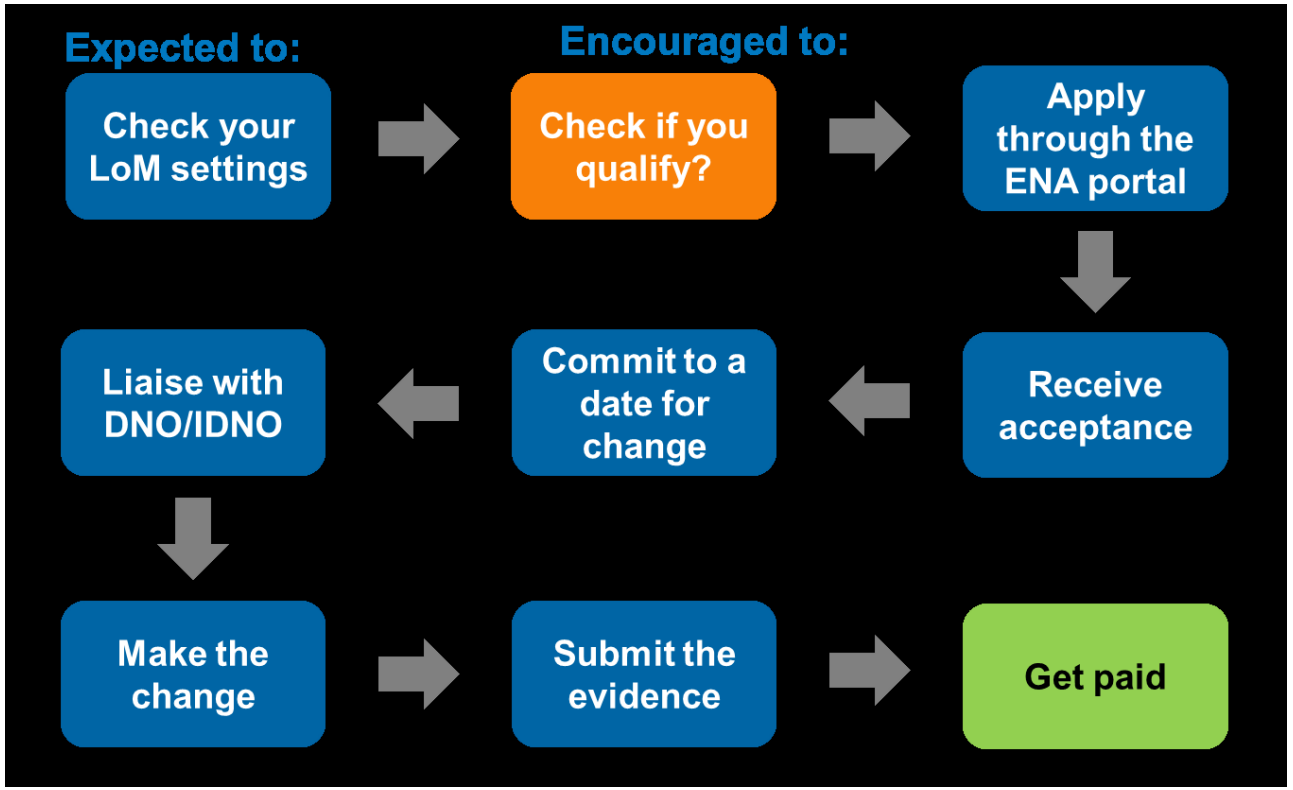
Progress

4/6	224	178	224MW	£570k
application windows complete	accepted applications	confirmed changes to protection	generation capacity updated	In payments made



Percentage of generators on our network with updated protection

Get involved



Window 7 is now open until the 11th May 2021

Applications can be made at:
https://www.ena-eng.org/ALoMCP/

For help and assistance please contact:
ALoMCP@enwl.co.uk

Further information can be found at:
https://www.enwl.co.uk/get-connected/network-information/accelerated-loss-of-mains-change-programme/

Digital Strategy

*"We will keep our stakeholders informed on our Digital Strategy.
We will present an overview of our Digital Strategy at a workshop. We will provide an update on progress via a webinar and / or digital communications. We will signpost opportunities for stakeholders to get involved in national groups and events."*

Continually Improving our Digital Capabilities

Progress to 2023

- Improved Network connectivity data
- Integrating control and customer systems
- Improved Network automation (HV)
- Enabled flexible connections
- Smart street – voltage controls (LV)
- CLASS – voltage controls for National Grid
- Improved network analysis capabilities & replacing non-smart equipment on our assets

Digital Strategy for 2023-28

What is our Digital Strategy?

What is it?

As an industry that relies heavily on technology and data, we constantly work at updating our systems to keep up with technology and network needs.

- Transition to **DSO**
- Implementing the UK's **Energy Data Taskforce** recommendations
- Implementing the **Open Network Project**
- Supporting the **Power the North West's future**
- **Leading the North West to zero carbon**

Describes how we will keep up whilst continuing to deliver network reliability and security, and excellent service.

- New **data platform** supporting external data sharing
- Modified **substation designs** to future proof for new technology
- **Open Data**

What does it mean for me?

Increased openness and transparency

- **Consistency**
- **Transparency**
- **Access**

Improved access to Network Information

- Heatmap Tool
- Long Term Development Statement
- Embedded Capacity Register
- Network Asset Viewer

Improved digital service

- Integrate Network Management System with flexibility trading platforms - facilitating real time trading
- Active Network Management - supporting flexible contracts

Digitalisation

Enabling

- **Data platform – to support analytics and data sharing**
- Operational IT – inc NMS
- Modernising IT estate
- **GIS continual improvement**
- Other internal IT improvements eg workforce related

Innovation

- Operational eg smart street
- Other internal IT improvements eg supply chain

Insight

- **Digitised connection agreements**
- Open data
- **One stop shop for all electricity data?**
- **Common Information model (CIM)**
- Outage information
- Stakeholder information (communications)

Overview and what this means

Digital Strategy

We will fully implement the recommendations of the EDTF*, led by industry regulator Ofgem, and working in collaboration with other energy network operators and Energy Networks Association:

- ***Digitalisation of the energy system*** – in the consumers interest, supporting the principles of 'new data needs', 'continuous improvement' and 'digitalisation'.
- ***Maximising the value of data*** – to aid sharing, data should be 'presumed open'. It should be 'discoverable, searchable and understandable', with common 'structures, interfaces and standards' and be 'secure and resilient'.
- ***Visibility of data*** – should be enabled by publishing data catalogues with meta data describing what is available.
- ***Coordination of asset registration*** – to increase registration compliance, improve the reliability of data and improve the efficiency of data collection.
- ***Visibility of infrastructure and assets*** – should be provided by a unified digital system map of the energy system.

*EDTF : Energy Data Taskforce

What this means for me…

- Updating our digital capabilities
  - Network Management Systems
  - Active Network Management
- Improved quality and integration of network information
- Consistency across industry
- Assumed Open Data
- Improved access – common data platform

Have your say…

The consultation wants to hear your views on :

- What data do you want access to?
- How do you want to access the data?
- What technologies are most important to you?
- Your thoughts on how these technologies will develop by 2028
- What blockers / challenges do you see for us delivering these digital services?

ICE Commitment Progress Update

Present an overview of our Digital Strategy

- Presentation today

Provide an update on progress

- Webinar hosted in July
- Update in newsletter
- Update December
- Notification to be sent on publication of Action plan
  - Deferred - awaiting standardised format from Ofgem before publication

Signpost opportunities to get involved

- Initial strategy consultation & further information promoted via email
- Current consultation covered today

Future Business Planning :
ICE Workplan Development 2021-22

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Proposed ICE Commitments for 21-22

Commitment / Action	Proposed Outcome
We will improve our application of Queue Management principles to slow moving projects	We will adopt best practice identified through the Open Networks Project. We will keep our stakeholders informed on progress.
We will brief stakeholders on the development of changes to **charges** being made by Ofgem	We will provide briefings for stakeholders following announcements on the proposed changes to charges through **Ofgem's significant code review**
We will continuously improve how we provide information and publish requirements for **flexible services**.	We will publish **information and guidance** on how to get involved. We will host a **webinar** to help clarify the process. We will continue to embed the industry-wide **standardised** approach.
We will keep stakeholders informed on our transition of Distribution Network Operators (DNO) to **Distribution System Operators (DSO)**	We will keep stakeholders informed on our transition to incorporate enhanced Distribution System Operation functionality.
We will continue to communicate with our stakeholders	Issue quarterly updates on ICE Commitments to registered stakeholders
We will continue to offer opportunities for stakeholders to **engage** with us.	Offer a minimum of **3 engagement opportunities** across webinars and workshops. We will also provide surgery sessions to meet our stakeholders needs, targeting all are held within 10 working days.
Target **Time to Quote** timescales for **EHV** Quotations	We aim to outperform the regulatory standard by providing quotes on average in **57 working days** (compared to the guaranteed standard of 65 workings days)
Target **Time to Quote** timescales for **HV** Quotations	We aim to outperform the regulatory standard by providing quotes on average in **57 working days** (compared to the guaranteed standard of 65 workings days)

Any comments?

Are these the right commitments?

Have we missed something?

Strategy Consultations

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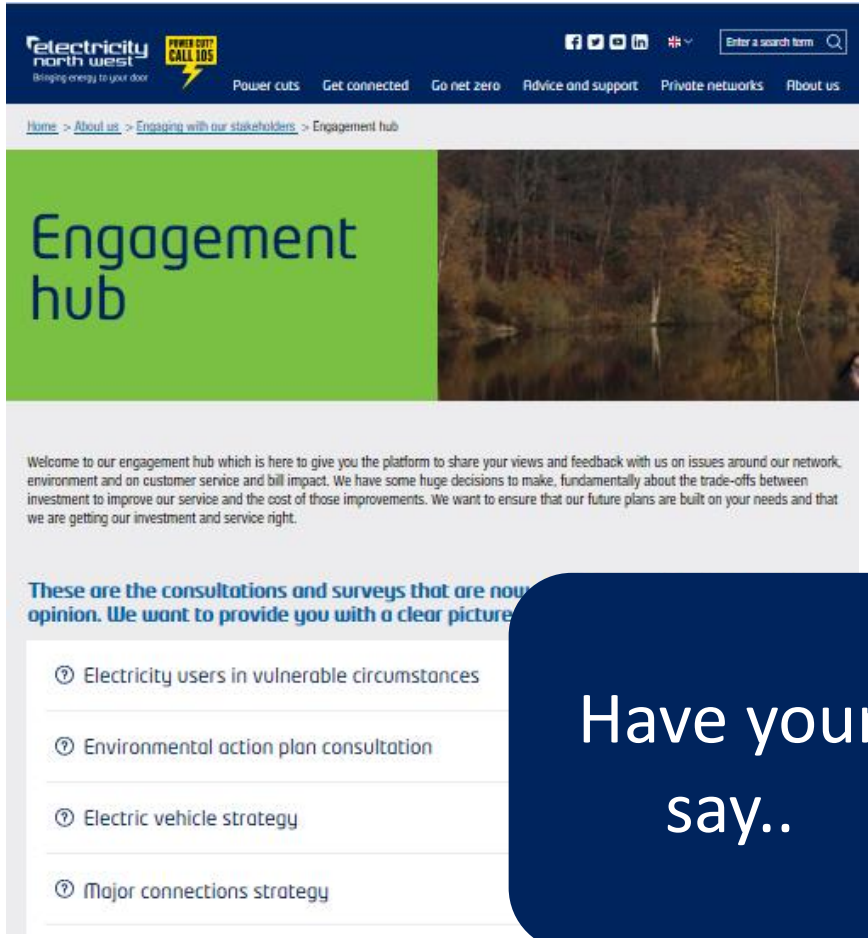
Strategy Consultations

- As part of our preparations for our future business plans, we are consulting on a number of strategies. For more information, visit our website.
- Relevant strategies for DG HV/EHV stakeholders:
  - Major Connections Strategy
  - Distribution System Operation Strategy
  - Digital Strategy
  - Green Recovery projects
- Others
  - Environmental action plan
  - Innovation Strategy
  - Community and Local Energy Strategy
  - Electric Vehicle Strategy
  - Electricity Users in Vulnerable circumstances



Have your say..

Future Business Planning :
2023-28 Business Plans (RIIO-ED2)

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Shaping our Major Connections Strategy

- We have published our strategy for Major Connections where we are seeking your views to inform our future approach.
  - Do you have any views on our current performance against the baseline expectations?
  - If there are any areas where you think we need to improve, do you have any specific suggestions on what we should do?
  - What do you consider best practice, perhaps from your engagement with other network companies?
  - Do you agree that this is a sensible and appropriate approach?
- We are engaging with our stakeholders to Shape our Major Connections Strategy, then Create our plans and finally Consult to capture any final refinements.

Major Connections Strategy – Ofgem requirements

- Ofgem set out its requirements for DNOs to develop and submit ‘major connections strategies’ in its ‘Sector Specific Methodology Decision’ in December 2020:
  - *The DNO’s strategy will need to set out the activities the DNO plans to undertake to improve the services provided to major connections customers in RIIO-ED2.*
  - *Major connection customers include those connections customers in market segments where there is an absence of effective competition (ie they have not passed the Competition Test) and which are not captured by the CSS or TTC incentives.*

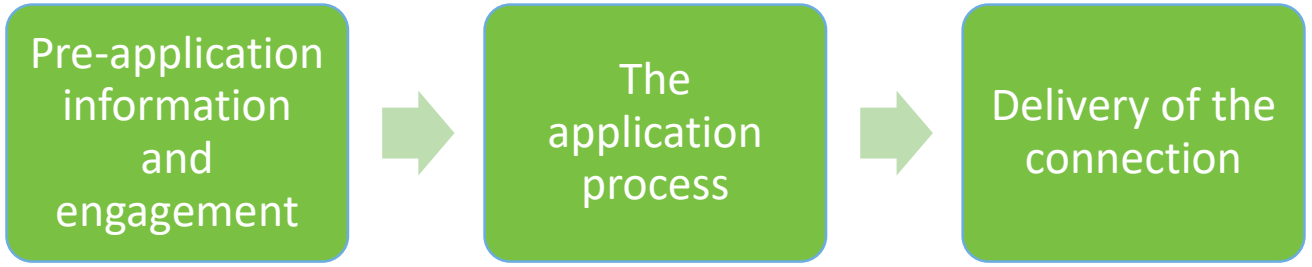
Major Connections Strategy – Ofgem requirements

- Ofgem set out its requirements for DNOs to develop and submit ‘major connections strategies’ in its ‘Sector Specific Methodology Decision’ in December 2020:
  - *We note that the DNOs are still responsible for completing non-contestable connection activities in market segments that have passed the Competition Test. To ensure that DNOs deliver best practice in the provision of non-contestable activities, DNOs’ strategies should capture these activities, even where these have passed the Competition Test.*
    - A high level summary of ‘non-contestable’ activities are shown below:

Contestable	Non-contestable
Design of the network extension to the existing network	Reinforcement of the existing network
Provide all materials and equipment for the work	Agreeing any suitable legal consent that we require for assets we will adopt
Construct the network extension and any other contestable work including all excavation and reinstatement	Inspection, monitoring and testing of any contestable work
Recording any work done and the location of cable routes and other equipment and providing the information to us	Maintaining and providing records of the existing networks

Major Connections Strategy – our approach

- As part of its Sector Specific Methodology Decision, Ofgem set out three high level principles that largely cover the three stages of connections activity:



- **Principle 1**: Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information.
- **Principle 2**: Deliver value for customers by ensuring simplicity and transparency through the applications process.
- **Principle 3**: Facilitate the delivery of timely and economical connections that meet customers' needs.

Baseline Standards – Focus on Pre-application

Principle 1 -Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information

- 5 Baseline Standards – how are we performing now & what does good look like?

1) Provide **access to up to date and relevant information** to enable a connection stakeholder to decide whether, and where, to connect to the distribution network. This should include, but not be limited to, graphical network records that show the location, size and type of assets.

Network Asset Viewer (NAV) available on website which is an intuitive system designed to reflect the current structure of our network and provide data access which is more easy to navigate through.
Our Long term Development Statement provides network details and planned development to help assess potential connections.
Our Heatmap Tool provides a useful tool to assess potential capacity on our HV/EHV network, including appendix G information.

Baseline Standards – Focus on Preapplication

Principle 1 -Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information

- 5 Baseline Standards – how are we performing now & what does good look like?

2) **Communicate** a clear connections process for all customers. This should include providing clarity of DNO, customer and third-party responsibilities. This should also include providing clarity on how issues that arise can be raised and resolved.

Simple process guidance on website
Step by step guidance provided in webinar, slides and recording HERE
Project specific pre-application support available on request

Baseline Standards – Focus on Preapplication

Principle 1 -Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information

- 5 Baseline Standards – how are we performing now & what does good look like?

3) Provide clear explanations of the types of connection products available, the associated costs of each and the information that would need to be provided by the customer to make an application. Where appropriate, this should also include the provision of general information on the potential implications for a customer's connection offer if they change their own requirements, if other customers are seeking to connect in the same area or if they do not accept an offer within its validity period.

Details of options and requirements on website, with further details contained within the Connection Charging Methodology here.

Baseline Standards – Focus on Preapplication

Principle 1 -Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information

- 5 Baseline Standards – how are we performing now & what does good look like?

4) Provide support and help to customers through appropriate channels which should include, but not be limited to, connections surgeries.

Key contacts available for queries on the website.
Project specific ‘surgery sessions’ available on request

Baseline Standards – Focus on Preapplication

Principle 1 -Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information

- 5 Baseline Standards – how are we performing now & what does good look like?

5) Have robust processes in place to proactively engage with stakeholders. This should include how the DNO plans to both identify and address connections issues.

Proactive communications for stakeholders who have expressed an interest in receiving information. Engagement through Workshops, expert panels, webinars and bilateral engagement detailed in ICE reports

Next Steps

- Develop Connections Strategies for relevant market segments
  - Distributed Generation at Low Voltages
  - Unmetered Other
  - Non-contestable works
- Host further engagement to Create and then finally Consult on our Strategies.

Any questions?

Wrap Up & Close

- Please give us your honest feedback either email ICE or leave your feedback in the chat

- Presentation slides will be available via our website shortly.
- Future events, including webinars are available here
- Don't forget to get in touch with us at ICE@enwl.co.uk

- Thank you for your attendance.