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Distributed Generation High Voltage and Extra High Voltage Workshop

November 2021

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Agenda

- Start & Agenda
  - Meet the Team
- 2021-22 ICE Workplan Update
- Heatmap Tool & Appendix G Process
- Network Headroom Report
- Distribution System Operation (DSO) Update
- Questions
- Discussion rooms
- Wrap up & close

Meet the Team

Victoria Brown

Infrastructure Solutions Programme Manager

Garreth Freeman

Connections and Capital Manager

Keith Evans

Flexible Solutions Manager

John Carlisle

Infrastructure Solutions Programme Manager

Lottie Wheatcroft

Incentive on Connections Engagement Manager

Hannah Sharratt

Stakeholder Engagement & Regulatory Manager

Steffan Jones

Infrastructure Solutions Manager

Brian Hoy

Head of Market Regulation

Discussion rooms preview

Applications

- Victoria

Network information

- Garreth & Keith

Delivery

- John

General

- Steffan

2021-22 ICE Workplan Update

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ICE 2021-22 Workplan Performance

➢ We will improve our application of **Queue Management** principles to slow moving projects to ensure consistency with revised industry best practice	➢ Queue management process in place from 1st July ➢ Details covered in July's session and recording available here.	Q2
➢ We will **brief stakeholders** on the development of **changes to charges** being made by Ofgem **significant code review.**	➢ Covered as part of July's session and recording available here. ➢ Webinar in August	Q4
➢ 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.	➢ Covered as part of July's session and recording available here. ➢ Flexible services event planned November. ➢ Further updates planned for Spring	Q4
➢ We will keep stakeholders informed on our transition of Distribution Network Operators (DNO) to **Distribution System Operation (DSO)**	➢ Updates included in today's session. ➢ *DSO strategy*, *Analysis of DSO functions*	Q4

ICE 2021-22 Workplan Performance

➢ We will continue to **communicate** with our stakeholders	➢ Via quarterly newsletters and other communication channels.	Q4
➢ We will continue to offer opportunities for stakeholders to **engage** with us. We will also provide **surgery sessions** to meet our stakeholders needs, targeting all are held **within 10 working days**.	➢ Via workshops / webinars and via surgery sessions upon request.	Q4
➢ Target **Time to Quote** timescales for **HV** Quotations (57 working days)	➢ Year to date average of **42 working days**	Q4
➢ Target **Time to Quote** timescales for **EHV** Quotations (57 working days)	➢ Year to date average of **60 working days**	Q4

ICE 2021-22 Workplan Performance

We would love to hear your feedback, please get in touch with either Lottie or Hannah should you have anything to discuss after the session.
Feel free to add any comments in today's chat or email us ice@enwl.co.uk

It would be great to understand how useful todays event has been
a link to a short survey can be found in the chat.

Heatmap Tool & Appendix G Process

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Heat Map Tool

Excel Workbook

Tools

Background Data

User Guide and Network Maps

11kV & 6.6kV Connections

33kV Connections

Primary Headroom Data

BSP Headroom Data

Transmission Capacity

Workbook Tabs

Heat Map Tool – 11kV & 6.6kV

Inputs		
Easting	374463	Use the controls to the left to find the nearest primary substations to your site. The results will be displayed in the table below. When the desired site capacity and connection type are entered an estimate of available headroom and connection feasibility will be displayed. The results are based on both local constraints and constraints at the associated BSP.
Northing	441514	
Capacity (MW)	7.5	
Connection Type	Generation – Inverter Based	

Distribution Network Capacity Capacity

No	Distance (km)	Primary Substation	BSP Group	BCA Group (GSP)	Primary Substation Location		Headroom (MW)	Max Single circuit connection (MW)	Can Connect? (RAG)	Limiting factor
					Easting	Northing				
1	0.00	PEEL ST	PADIHAM	PADIHAM	374463	441514	19.6	12.0		Switchgear Rating
2	2.09	BLESDALE T13 & RIBBLESDALE T	PADIHAM	PADIHAM	374759	443587	22.1	15.2		Switchgear Rating
3	5.45	WHALLEY	PADIHAM	PADIHAM	373376	436176	26.5	12.0		Switchgear Rating
4	8.92	BOLTON BY BOWLAND	PADIHAM	PADIHAM	378320	449559	8.5	7.6		Switchgear Rating
5	9.18	PADIHAM	PADIHAM	PADIHAM	378428	433238	10.4	7.6		Switchgear Rating
6	9.58	GREAT HARWOOD	HUNCOAT	PADIHAM	373765	431955	6.7	7.2		Headroom
7	10.99	BLACKBURN RD CLAYTON	HUNCOAT	PADIHAM	374632	430529	27.5	7.2		Switchgear Rating
8	11.70	SPRING COTTAGE	NELSON	PADIHAM	385446	437481	0.0	4.6		Headroom
9	11.94	NELSON	NELSON	PADIHAM	386020	438507	0.0	4.6		Headroom
10	12.25	COG LANE	HUNCOAT	PADIHAM	382462	432232	15.7	9.1		Switchgear Rating

No longer shows as suitable for connection due to switchgear rating

User enters connection requirements:

- Grid co-ordinates
- Required capacity
- Connection type
  - i.e. Demand or generation

Results

- Nearest **Primaries**
- Headroom
- Can be accommodated?
  - Inc Limiting Factor (RAG)

Heat Map Tool – 33kV

Please note that the value of headroom quoted by this tool is based on total capacity available for new connections not the maximum size of a single connection which can be much lower. It is normally not possible to accommodate a single connection of more than 40 MW at 33 kV. This is based on the typical load rating of items of plant such as circuit breakers, current transformers and cable terminations.

Inputs		
Easting	374463	Use the controls to the left to find the nearest BSP to your site. The results will be displayed in the table below. When the desired site capacity and connection type are entered an estimate of available headroom and connection feasibility will be displayed. It should be noted that the network assets surrounding your site may not be fed from the closest BSP.
Northing	441514	
Capacity (MW)	30	
Connection Type	Generation - Inverter Based	

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

Distribution Network Capacity Capacity							
No	Distance (km)	BSP	CA Group (GSP	BSP Location		Headroom (MW)	Can Connect? (RAG)
				Easting	Northing		
1	9.25	PADIHAM	PADIHAM	378571	433224	150.1	
2	11.01	HUNCOAT	PADIHAM	377997	431083	45.6	
3	11.88	NELSON	PADIHAM	385989	438643	0.0	
4	12.82	BLACKBURN	PENWORTHAM	370584	429294	53.8	
5	13.15	BURNLEY	ROCHDALE	385569	434469	112.3	
6	17.21	LOWER DARWEN	ROCHDALE	369635	424981	3.0	
7	19.66	PRESTON EAST	PENWORTHAM	356774	432942	10.7	
8	20.35	ROSSENDALE	PADIHAM	380261	422010	120.6	
9	25.78	RIBBLE	PENWORTHAM	351794	429241	10.7	
10	27.26	LEYLAND	PENWORTHAM	354121	423373	129.4	

Transmission Constraints (App G)		
Materiality Headroom (MW)	Fault Level Headroom	Transmission System Comment (see tab 6
43.9	1.7	Modification Application Required
43.9	1.7	Modification Application Required
43.9	1.7	Modification Application Required
2.9	3.2	Modification Application Required
25.0	3.2	Modification Application Required
25.0	3.2	Modification Application Required
2.9	3.2	Modification Application Required
43.9	1.7	Modification Application Required
2.9	3.2	Modification Application Required
2.9	3.2	Modification Application Required

- Provides overall headroom and RAG status, similar to the 11/6.6kV tab
- No limiting factor, but gives indication of maximum single circuit connection above. This is due to the method used being unsuitable for the complexity of the network associated with higher voltages
- Highlights Transmission Constraints

Heat Map Tool – Transmission Capacity

Appendix G Summary									
GSP / Site	Capacity of Connected & Contracted Connections (MW)				Materiality Headroom (Part 5) (MW)	Materiality Status	Capacity in Project Progression / Modification Application	Total Aggregated Developer Capacity Limit(MW)	Transmission FL Headroom (kA)
	Part 1	Part 2	Part 3	Part 4					
BOLD*	25.1	50.4	0.0	0.0	0.0	B	N/A	75.5	0.0
BREDBURY	10.1	94.1	0.0	0.0	42.2	A	0.0	146.4	2.9
CARRINGTON	105.0	59.0	0.0	0.0	174.0	A	0.0	338.0	5.0
HARKER	670.8	119.6	0.0	105.5	69.9	C	0.0	965.8	0.1
HUTTON	47.9	0.0	0.0	53.0	108.0	C	0.0	163.9	0.3
HEYSHAM	292.6	0.0	0.0	82.0	61.4	C	204.5	436.0	0.2
KEARSLEY	57.9	240.7	0.0	0.0	32.3	A	0.0	330.9	3.0
KIRKBY	6.0	146.4	0.0	0.0	55.8	A	0.0	208.2	3.0
MACCLESFIELD	27.9	22.6	0.0	0.0	47.4	A	0.0	97.9	2.6
PADIHAM	35.5	146.6	0.0	0.0	43.9	B	120.2	226.0	1.7
PENWORTHAM	187.9	556.1	0.0	0.0	2.9	B	67.6	746.9	3.2
ROCHDALE	204.1	167.6	0.0	49.9	25.0	B	65.0	494.2	3.2
SOUTH MANCHESTER	22.2	73.3	0.0	0.0	86.6	A	0.0	182.1	0.6
STALYBRIDGE	58.3	169.0	0.0	0.0	86.0	A	0.0	313.3	1.0
STANAH	195.9	63.5	0.0	0.0	0.0	B	40.0	259.4	0.0
WASHWAY FARM	7.9	101.2	0.0	0.0	36.3	A	0.0	145.4	2.6
WHITEGATE	32.0	119.1	0.0	0.0	105.8	A	0.0	256.9	3.5

- Highlights Materiality Headroom on the NGET network-it is not an indication of capacity on the 132kV network
- Materiality Status shows whether there is a Project Progression or Modification Application ongoing

Final thoughts on the Heatmap…

- 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 ENWL 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 – however, the heatmap is updated monthly to reflect new acceptances and any scheme cancellations.
- The Heatmap Tool(s) are available on our website: Heatmap Tool

Any questions on the heatmap before we move to the Appendix G process?

Overview of the Appendix G Process

Appendix G is the mechanism through which ENWL inform NGESO of changes to the contracted generation capacity on our network

Appendix G is applicable to all generation connections at 1MW or over

Each GSP (Grid Supply Point) has a thermal and fault level materiality headroom determined by NGESO

We have given each GSP a materiality status on our heatmap:

‘A’ status – latest App G information shows there is spare transmission system capacity at this location
‘B’ status – Insufficient capacity without undertaking additional transmission system assessment
‘C’ status – Insufficient capacity without undertaking work on the Transmission system. These works have already been identified.

The Process – Sufficient Headroom

Generator applies to ENWL for connection to distribution network and receives a connection offer

ENWL receive a valid acceptance for the Offer. ENWL confirm against existing Appendix G data whether there is sufficient headroom at affected GSP

Is there sufficient headroom?

NO

YES

ENWL will add the generator onto their monthly update for the affected GSP and submit to NGESO

NGESO will sign off the updated Appendix G submission and return to ENWL as soon as practically possible

Once received, ENWL will inform the Generator that there is headroom, and no further applications or fees are applicable to NGESO within one month

The Process – Insufficient Headroom

ENWL will inform the affected applicant their connection cannot proceed without a Project Progression. ENWL will advise on the fee associated with the Project Progression and the applicant will have the choice to proceed or not. invoice the applicant. If the applicant does not wish to proceed, this constitutes a withdrawal of the accepted Connection Offer

Applicant does not proceed

The Project Progression is not submitted. The accepted Connection Offer is cancelled, and any unspent funds will be refunded.

Applicant proceeds

ENWL will invoice the applicant.

Once the invoice is paid, the monies will be sent to NGESO alongside the data for submission.

NGESO will confirm that the data submitted is acceptable and payment is received.

NGESO will respond to ENWL by the end of 90 days with either a 'no works' return or a Construction Agreement.

The Process – Insufficient Headroom cont.

If a No Works return is received, NGESO have identified headroom without further works

However, if a Construction Agreement is received, Transmission works have been identified to be required prior to the energisation of further generation. We will inform the applicant of the identified works, timescales and associated security payments. The applicant can then accept or decline the terms.

Decline

If the applicant does not wish to proceed, then they are not obliged to do so. However, this would trigger the withdrawal of the accepted Connection Offer.

A refund of any unspent funds would be issued to the applicant.

Should no affected applicant wish to proceed, the Construction Agreement will not be accepted by ENWL and will lapse

Accept

ENWL will accept the Construction Agreement with NGESO within 3 months. After this 3-month period, the proposed agreement shall lapse and become void if not accepted.

Once accepted, there is a Modification Application associated with the affected GSP.

Discussions then continue with NGESO to determine a programme etc. A minimum of 24 months from acceptance of a Mod App to conclusion is typical.

Transmission Capacity II

Appendix G Summary									
GSP / Site	Capacity of Connected & Contracted Connections (MW)				Materiality Headroom (Part 5) (MW)	Materiality Status	Capacity in Project Progression / Modification Application	Total Aggregated Developer Capacity Limit(MW)	Transmission FL Headroom (kA)
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'A' status – latest App G information shows there is spare transmission system capacity at this location
'B' status – Insufficient capacity without undertaking additional transmission system assessment
'C' status – Insufficient capacity without undertaking work on the Transmission system. These works have already been identified.

Final thoughts & Questions…

- If an accepted connection is connecting onto a GSP with a current Modification Application or Project Progression then it cannot proceed without agreeing to the appropriate works/assessment.

- The Materiality Headroom on the heatmap does not take into consideration headroom once future works are completed. Eg for a GSP that has a current Mod App, this will remain as status C until the works are completed.

- All Appendix G documentation is updated on a monthly basis

Any questions?

Network Headroom Report

Providing clarity to help achieve Net Zero

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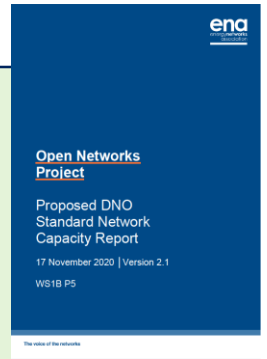
Background

WS1B P5 commences work

WS1B P5 **Reports on Network Capacity Report**



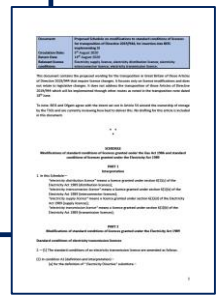
DNOs publish **Network Capacity Report** defined by WS1B P5 '20

WS1B P5 **Reports on NDP Form of Statement**

DNOs publish first NDPs

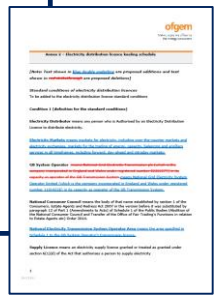
Feb 2020 | August 2020 | November 2020 | 31st December 2020 | end August 2021 | December 2021 | May2022

BEIS issue **draft licence conditions** for GB implementation of the EU Clean Energy Package



New licence conditions effective

NDP = Licence Condition 25B



* Network Development Plan

Network Development Plan – Licence Condition 25B

Form of Statement

Introduction

Part A: Scope and contents of network development plan

Part B: Using data, methodology, and processes for the network development plan

Part C: Information exclusions

Part E: Consultation

Part F: Submission to the Authority

Part G: Changes to the form of network development plan

Part H: Publication of the network development plan

Process

The NDP Form of Statement comprises 3 parts

Parts of the network most suited to new connections

Parts of the network where reinforcement required

Parts of the network where flex required

1) Network headroom reporting

New infrastructure

Flex services

2) Network development reporting

Methodology for preparing the network development plan

Assumptions

3) Methodology

24

Live demonstration of the NHR

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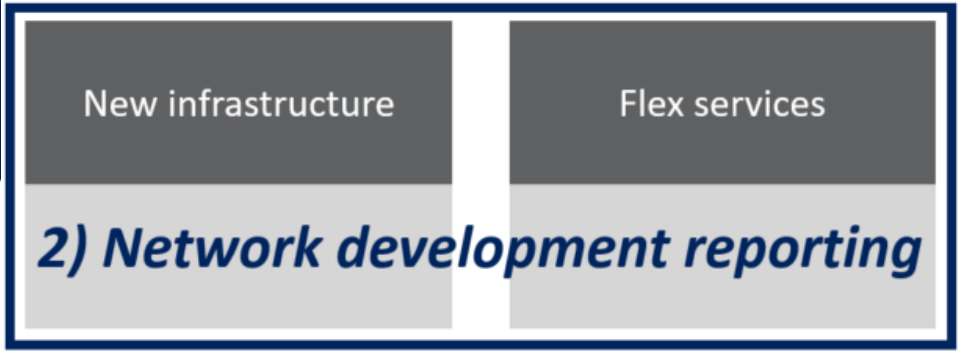
NDP Form of Statement – Network Headroom Reporting

Scope of Network Headroom Reporting	Deliverable
Date range	Every year to be covered individually between 1-10 years
	After the 10th year, this requirement moves to every five years up to 2050 aligning with DFES timescales;
Scenarios	**Four DFES scenarios, plus a 'best view' scenario where different;**
Network capacities and assessment methodology	Demand and generation capacities in terms of spare margin in MW per year per scenario
	This will reflect approved network developments in delivery including asset-based enhancements
	Information to be considerate of thermal loading and fault level constraints as a minimum
Coverage	Capacity information to be provided for all BSP and primary substations down to and including the primary secondary voltage, typically HV (11kV or 6.6kV)
Format and publication	The format of the network capacity reporting part of the NDP will be tabular in nature with the respective DNOs to add interactivity to the workbook if required. A short guidance document shall be included to explain the scope of the data workbook, define each data element and give user instructions.
	Annual update
Information sources	Network parameters underlying the capacity reports shall be based on the latest LTDS
	Existing and future network demand and generation shall be based on the latest DFES

Network Development Reporting



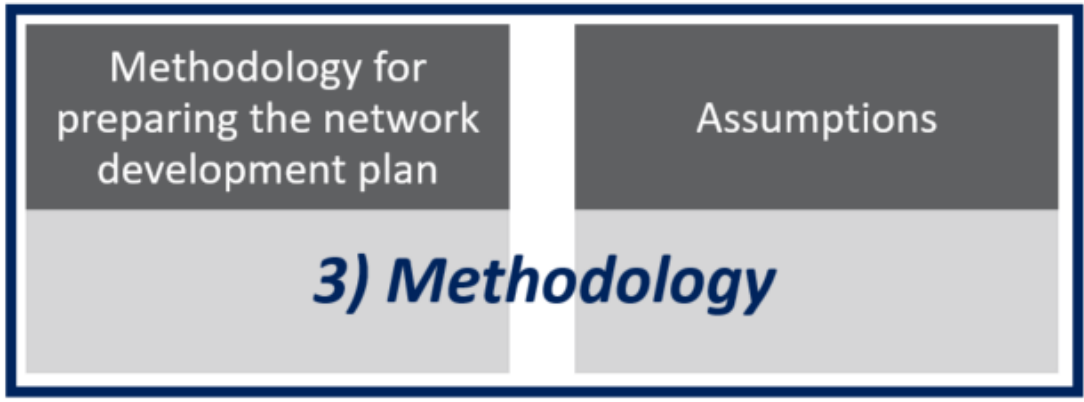
Scope

List of high level plans for network interventions and flexible service requirements:

- For years 1 – 10
- Location of the intervention, covering whole network down to primary substation HV bars
- Development requirements for flexibility services and new infrastructure (table below)
- Justification for the need for network developments
- Where it resides on the delivery lifecycle (signposting, approved plan, in delivery etc.)

Flexibility services	New infrastructure
○ Magnitude; ○ Year of intervention, likely duration i.e. number of years in the future; ○ Nature of requirement / flexibility product;	○ Timing and high level scope of intervention; construction duration (start & finish) ○ Details of connectivity; link to the Long Term Development Statement (LTDS)? ○ Asset quantities approx. circuit lengths, number of transformers etc ○ Equipment ratings.

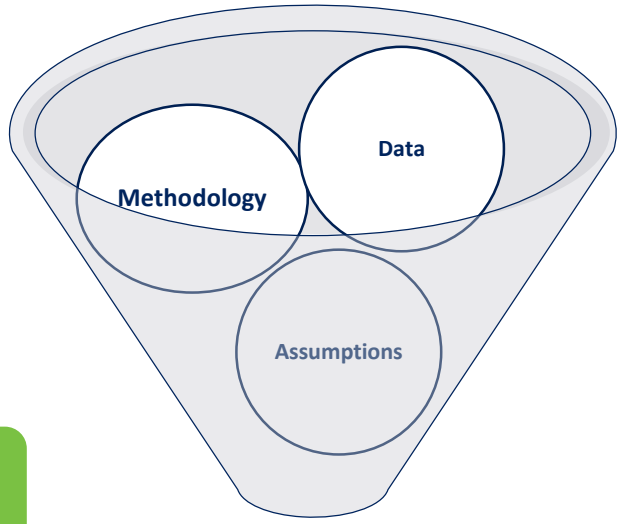
Methodology Reporting

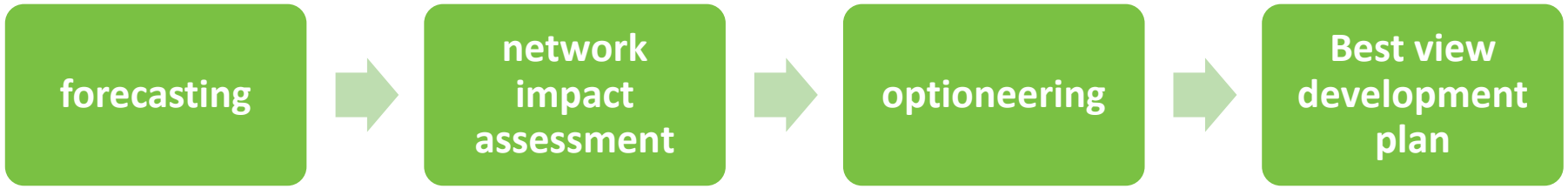


Scope

The licence agreement states that we have to be transparent

- Methodology document to cover the end to end process
- Sufficient detail to provide stakeholders with sufficient detail to understand sensitivities and extrapolate NDP results



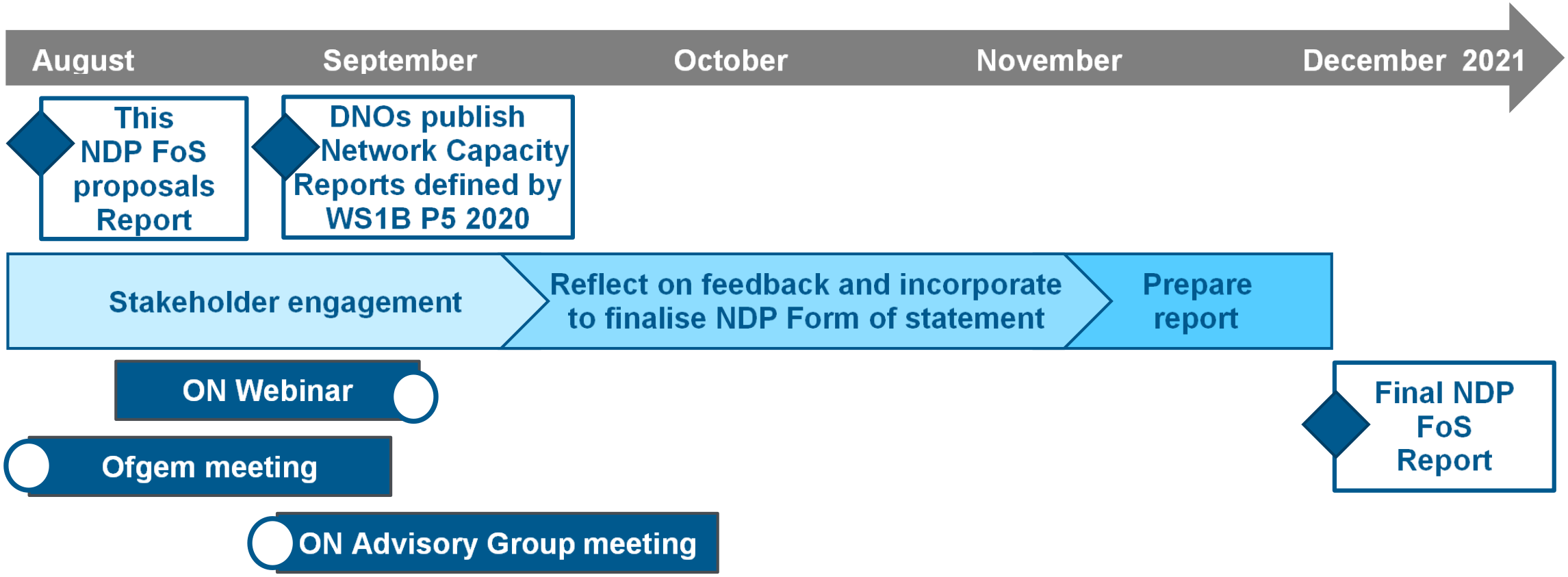


NDP

NDP Form of Statement – Other sections in the report

- **Governance**
  - Governance of the NDP Form of Statement (FoS) is required to ensure consistency in future DNO reports
  - The NDP FoS should be enhanced and modified going forward to reflect stakeholder feedback and adjusted to meet their new requirements.
  - Governance through the ENA is a preferable allowing for agile updates whilst involving all DNOs through a working group.
  - Consideration should be given to defining it
    - Including it under the governance of the Distribution Code Review Panel by listing it in an Annex or instead making it an ENA guidance document which continues to be owned and kept under reviewed as an Open Networks project product
- **Feedforward**
  - Learnings relevant to the LTDS review
  - Distribution network capacity in relation to existing Transmission Operator network capacity reports

NDP Form of Statement – Next Steps



Questions?

Thank You!

Please contact
Garreth Garreth.Freeman@ENWL.co.uk

for more information or to share further thoughts

Form of Statement report due December – any feedback prior would be greatly appreciated

Distribution System Operation (DSO) Update

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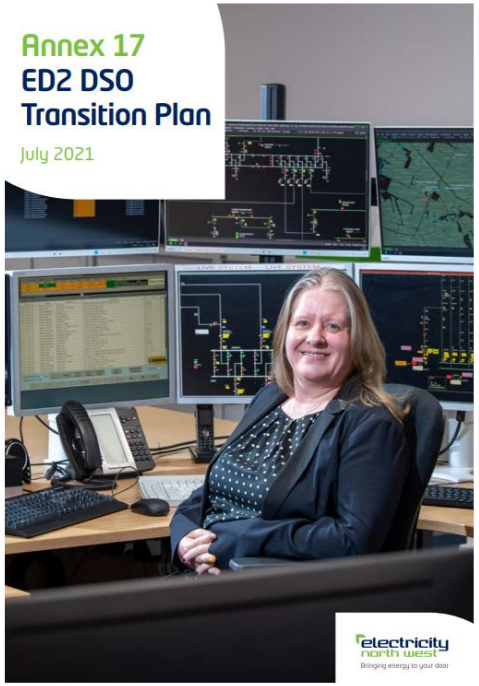
Headlines

[Draft ED2 DSO Transition Plan]

We share the draft plans of our transition to distribution system operation, specifically across the ED2 price control period from 2023 to 2028.



[DSO Strategy]

Describes the progress we have made since publishing our first strategy document in 2018 and the next steps on our DSO and net zero carbon journey

Introduction to Active Network Management

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Introduction to Active Network Management

- Active Network Management (ANM) connects separate components of a smart grid such as generators, storage devices, controllable demands etc., by implementing software to monitor and control the operation of these devices.

- Under this scheme, sites with flexible connections can be instructed, via automated controls, to limit their power input or output thus avoiding too much energy being put onto or being drawn from the network that could otherwise cause outages and system faults.

- Currently the ENWL ANM scheme is due to go live towards the beginning of 2023

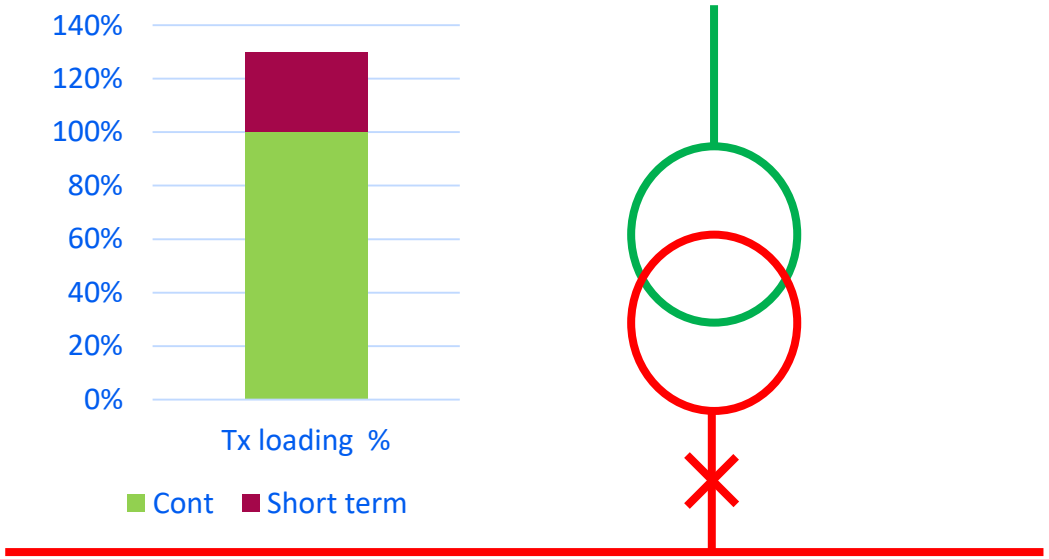
- We are currently in the final stages of implementing a new network management system which facilitates ANM to be integrated.

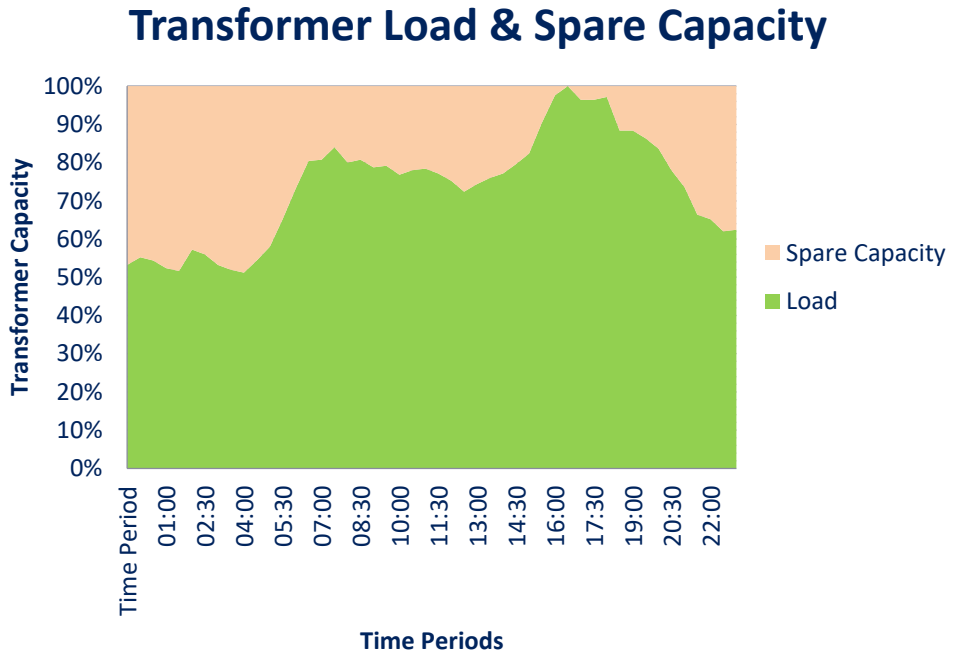
- In order to ensure that the system works to its maximum potential from Day 1 we are currently working to develop and integrate a range of new flexible connections into business as usual – we will update you on these once they are further developed.

The ANM system will offer the following benefits:

- Allows faster connections – incorporating less network reinforcement
- Potentially cheaper connection costs – using existing capacity of the network
- Increase the amount of time generators can remain on supply – This may result in periods where generators are curtailed, however not completely disconnected
- Increase network utilisation (get more out of the same assets)
- Decrease the need for system reinforcement - resulting in financial savings, as well as less embodied carbon
- Facilitating the utilisation of flexible services– offering financial opportunities for network users to provide services to the grid
- Facilitates a market to be established for users to trade energy – Particularly good for community and local energy groups/partnerships
- Increased network security of supplies by increasing speed of automated switching, resulting in less network overloads and increase speeds of restoration following a fault

ANM Overview – Typical primary transformer

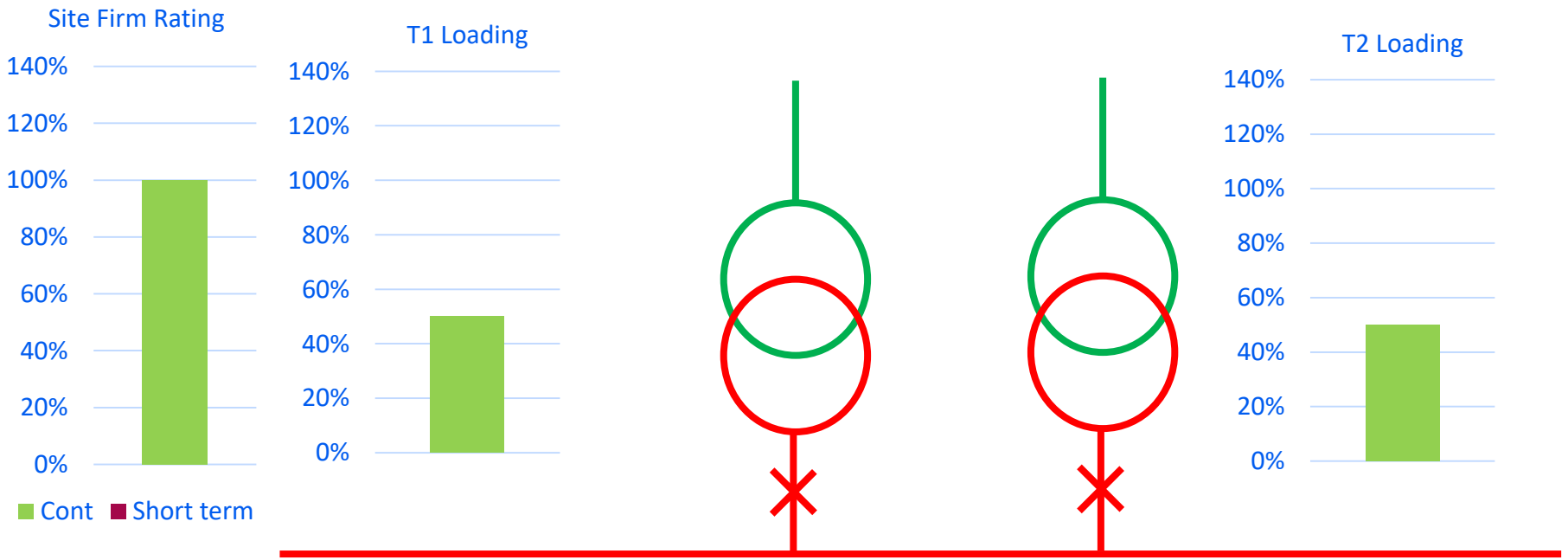




- A Transformer is rated to run continuously at 100%
- Cyclic ratings are used for short term loading (Typically 100%-130%)
- Emergency ratings for very short term situations. E.g. Faults

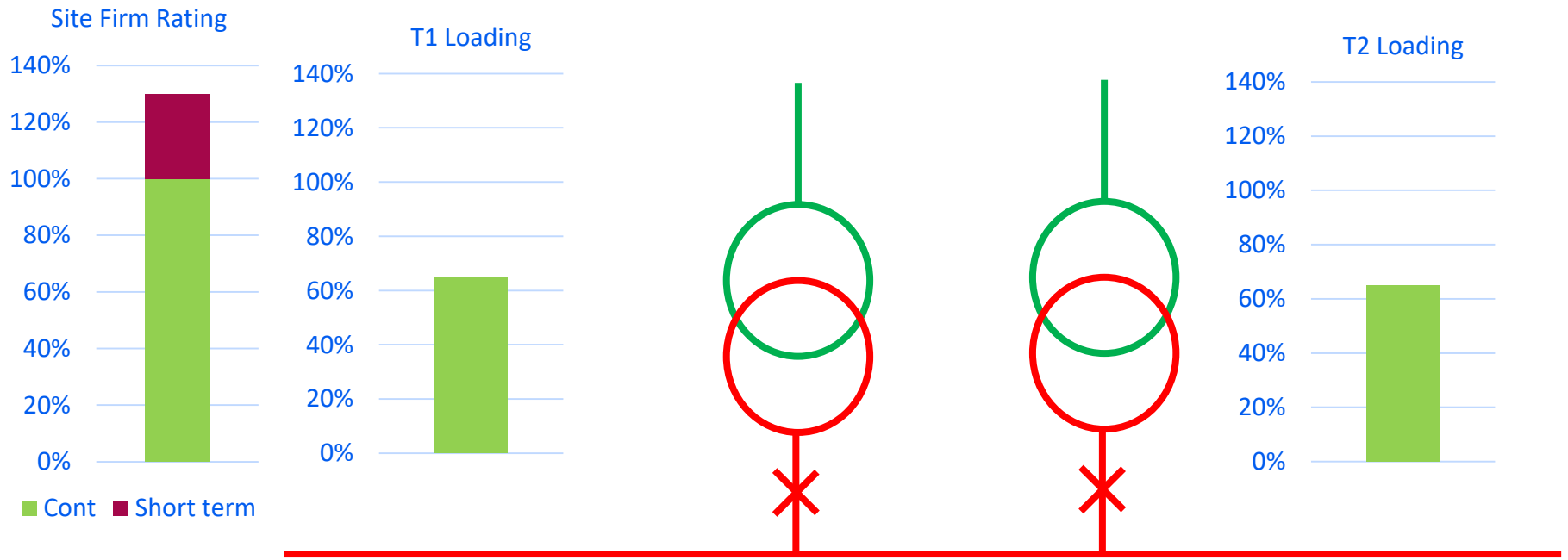
Typical primary substation current (without ANM)

With 2 transformers the substation total load can be shared



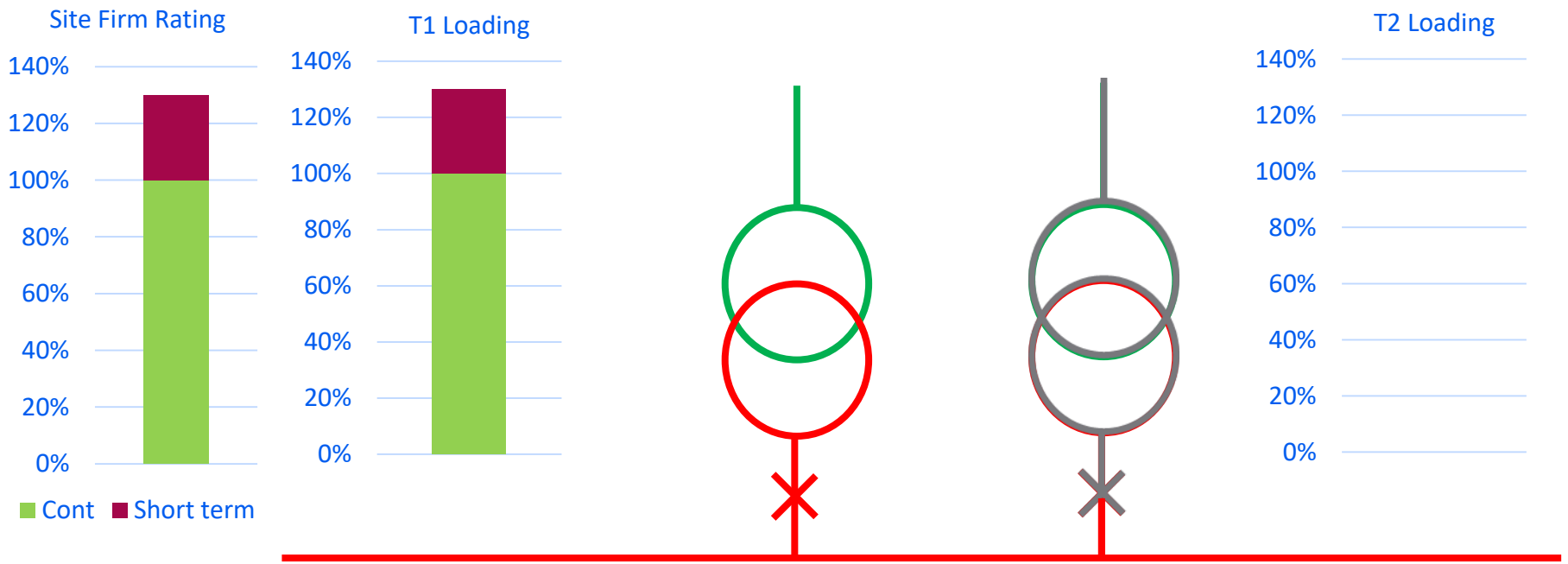
- 100% of the total substation load can be shared, so 50% loading on each transformer

Typical primary substation (with ANM)



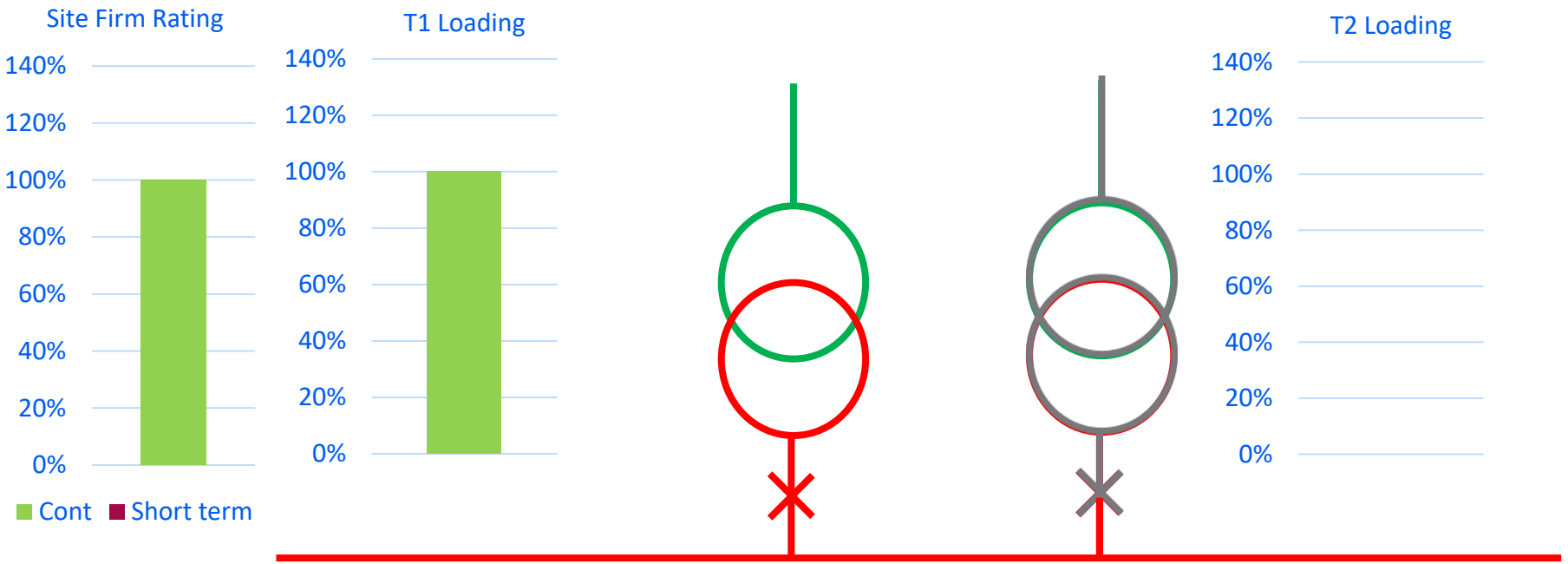
- Neither transformer is overloaded during normal running both operating at 65% of firm rating
- The substation is in exceedance of its continuous operating rating, without ANM this would not normally be allowed resulting in reinforcement

Typical primary substation – Network fault



- T2 Transformer faults, if fully loaded the 130% appears on T1
- This is within the cyclic rating of T1, however only for a short duration before permanent damage is experienced

ANM Resolves Constraint



- The ANM system will detect that the transformer is overloaded and will dispatch flexible services or trigger constraints.
- This example has shown how we can get 30% more capacity out of a standard double primary substation. This same logic is scaled up across the entire network of 13,000 km of overhead power lines and more than 44,000 km of underground electricity cables, and more than 35,000 substations

- If you are interested to know more about the Active Network Management system and user interactions, we are happy to discuss this in more detail contact us for more information.

Flexibility Services

electricity north west
Bringing energy to your door

Introduction

The UK is embracing a **zero carbon future**, and the way energy is generated, stored and consumed is changing rapidly

The uptake in **Low Carbon Technologies (LCTs)** such as electric vehicles and heat pumps has lead to more demand being placed on our network

As we move towards **Distribution System Operation (DSO)** and more local network management, Flexible Services can balance supply and demand– helping to decarbonise our electricity supply while ensuring that our network remains resilient and reliable

What are Flexible Services?

When the demand for electricity in an area is greater than the amount that we are capable of providing, we can utilise companies or individual customers known as Distributed Energy Resources (DERs) to alleviate constraints

This ensures a safe and reliable supply of energy

There are lots of things that can cause an increase in the demand for electricity, leading to network constraints

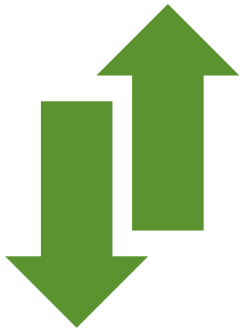
Electric heating in Winter

Air conditioning in the Summer

Big televised events

The uptake of LCTs

These DERs can be generators, consumers, and electricity storage connected to our networks that can increase exports (generate more) or reduce imports (consume less) when instructed



In return for providing Flexible Services, DERs will receive payment £

Who can take part?

To participate in our tenders and receive payment in return for providing flexible services to our network, you need to:

- ✓ Have an asset in one of our requirement areas
- ✓ Be capable of adjusting how much electricity you consume or generate
- ✓ and provide a minimum of 50kW either individually or via an aggregator

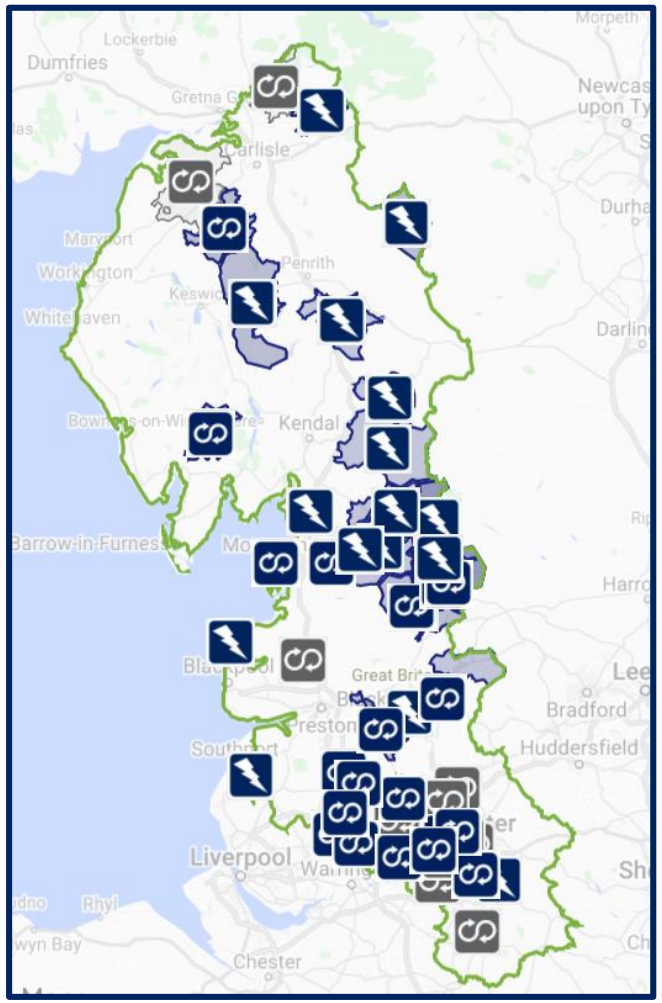
Flexibility requirements map

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.

The icons next to each location name relate to the response type that we are looking for:

- Sustain
- Restore
- Dynamic
- Secure

Autumn 2021 requirements



Our Autumn 2021 tender asks Flexibility Providers for **259MW** of flexibility across **37 locations** in the North West; worth up to £2m

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

Our current requirements are also available on Piclo Flex platform, however forecasted sites for ED2 are shown on our map in grey.

Join our webinar

Net Zero and flexibility in the NW – what does it mean for your business?

- Fri, 3 December 2021; 10:00 – 12:00 GMT
- Topics to be covered:
  - DSO transition
  - Flexible services
  - Net zero
- Sign up to the event

Get in touch

Email

For all queries relating to this event, or flexibility services, please contact our team at flexible.contracts@enwl.co.uk

Register asset

You can register your asset(s) on our website to be notified when we have a requirement in your area

Surgery appointments

We offer 1-2-1 surgery appointments to assist with any queries relating to the process of providing flexibility

Book here

Sign up

Sign up to our distribution list to receive our newsletters, tender information and event invites

Accelerated Loss of Mains Change Program (ALoMCP)

electricity north west
Bringing energy to your door

Background

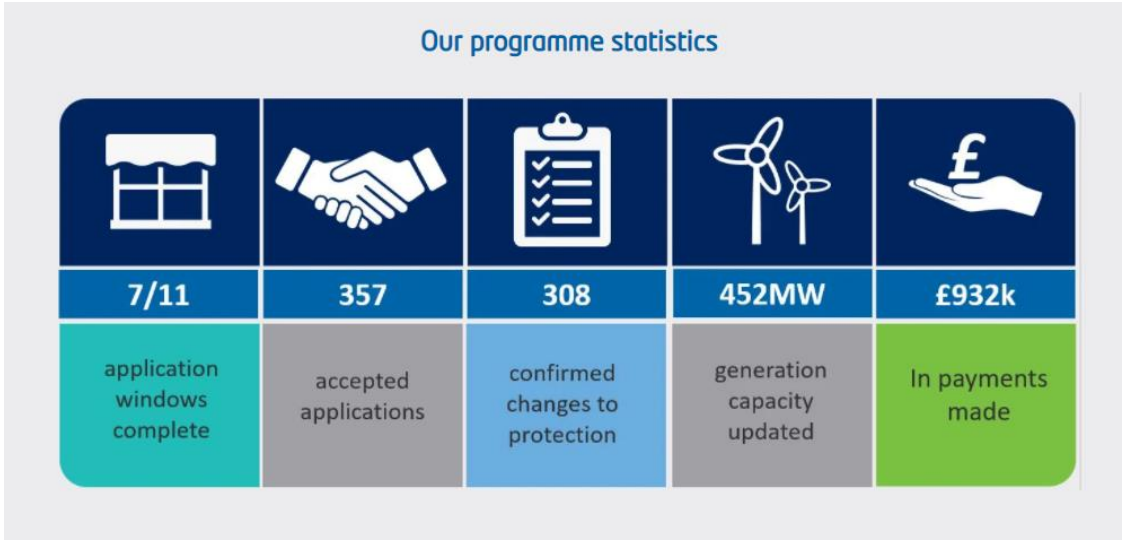
G59 requires UK Generation owners to install loss of mains (LoM) protection at their generation sites. This is to ensure that, following a fault that isolates sections of the distribution system to which they are connected from the rest of the electricity system, distributed generation does not form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

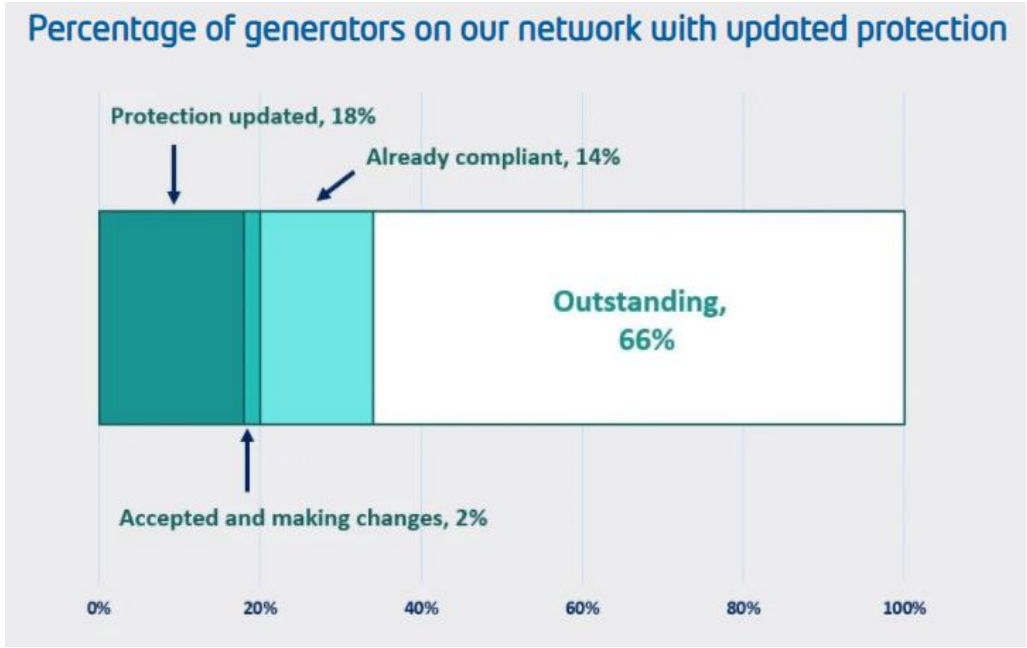
The two most commons forms of LoM protection are rate of change of frequency (RoCoF) relays and vector shift (VS) relays.

By September 2022 to comply with the latest requirements, it will be necessary to revise the LoM protection settings for all the existing embedded generation fleet (installed Pre-February 2018) 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 as Loss of Mains protection.
- Remove LoM protection from all generation except synchronous and DFIG where a suitable RoCoF setting cannot be made without additional investment.

Accelerated Loss of Mains – 1 year left





All changes must be made before September 2022

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:

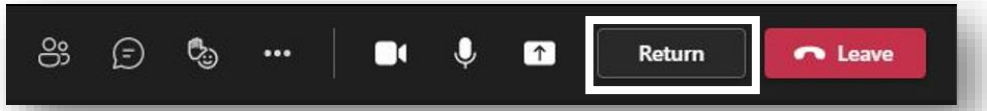
https://www.enwl.co.uk/get-connected/network-information/accelerated-loss-of-mains-change-programme/

- Funding available:
  - £4000 (Exc VAT) per relay change
  - £1500 (Exc VAT) for first setting change + £500 (Exc VAT) for an additional 5 setting changes.

Any questions?

Discussion rooms

- Add to the chat which room you would like to enter.
- If you would like to join a different room, click return. This will bring you back to the main room and you will be assigned to your chosen room.



- The break out rooms are not recorded.

Applications

- Victoria

Network information

- Garreth & Keith

Delivery

- John

General

- Steffan

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.