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north west

Bringing energy to your door



C₂C

Capacity to Customers

Change the way you use electricity – and save money

www.enwl.co.uk/c2c



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Welcome and Introductions

Simon Brooke

Low Carbon Projects Manager



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- **Fire alarms** - None planned, nearest fire exit in foyer
- **Toilets** - outside the conference room, on your left
- **Mobile phones** - please switch off or to silent
- **Break** - mid morning
- **Lunch** - from 12.30

Meet the team



Jayne Ferguson

Project Administrator,
Future Networks

This morning's agenda



- **An Introduction to Electricity North West & the Low Carbon Challenge** **Simon Brooke**
- **Capacity to Customers (C₂C)** **Craig McNicol**
- **C₂C New Connections Process** **Ged Flanagan, John Lucas and Simon Brooke**
- **C₂C in Practice – Case Studies**
- **C₂C Project Summary and Next Steps** **Craig McNicol**
- **Questions & Answers** **Craig McNicol**



- **Feel free to ask questions throughout the morning**
- We want today's event to be informal
- Opportunities during the round table discussion and at the end of the seminar
- A key objective of our trial, is gaining valuable learning





An Introduction to Electricity North West and the Low Carbon Challenge

Simon Brooke
Low Carbon Projects Manager



Who is **switched on** to the needs of our customers ...

The UK's **2nd CITY**



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Who is **switched on** to the needs of our customers ...

The world's **GREATEST** football clubs

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Who is **switched on** to the needs of our customers ...

One of the UK's **BUSIEST** International Airports



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Who is **switched on** to the needs of our customers ...

The region's **BUSIEST** Hospitals

The logo for Electricity Northwest, featuring a stylized white 'e' icon followed by the words 'electricity' and 'northwest' in a lowercase, sans-serif font. The logo is positioned in the bottom right corner of the image, partially overlapping the building's facade.

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Who is **switched on** to the needs of our customers ...

TRANSPORT Systems

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Who is **switched on** to the needs of our customers ...

Economic **INVESTMENT**



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Connecting the North West



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We primarily serve the North West and we're based here

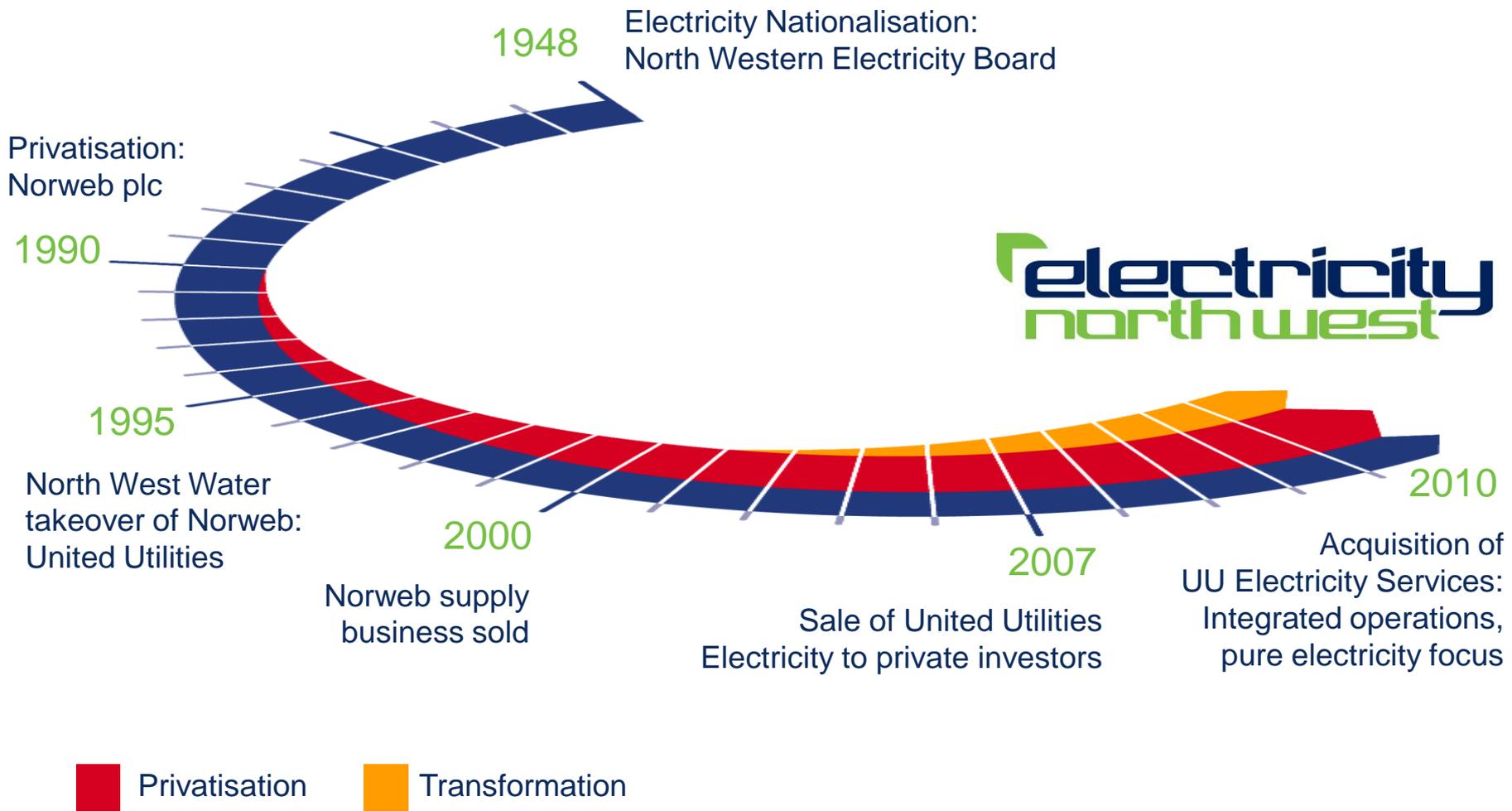
We serve approximately **5 million people** at 2.4 million domestic and industrial locations

£9bn of network assets

- 58,000km of cable
- 14 grid supply points
- 363 primary substations
- 34,000 transforming points



Connecting the North West

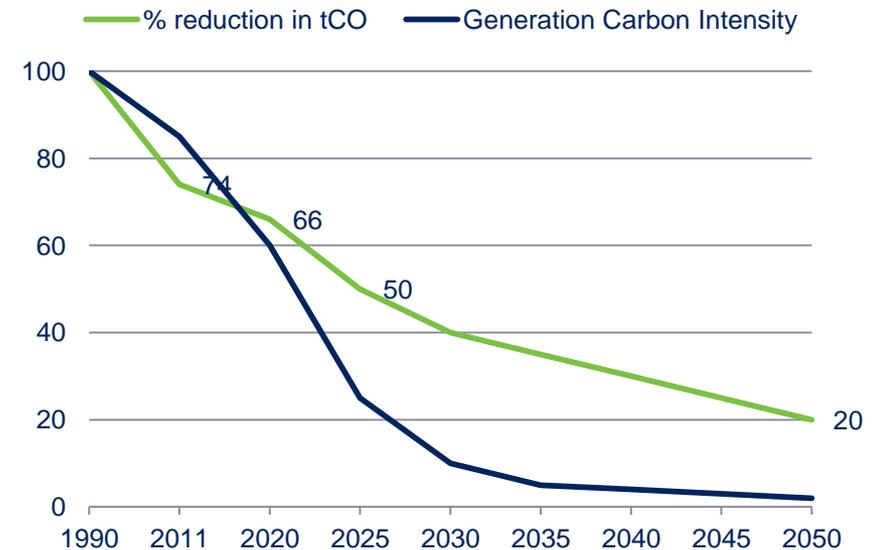


UK Energy Challenges



- 2011 position 1/3rd Electricity, 1/3rd Gas, 1/3rd Oil
- 2020 **34%** reduction in CO₂
 - 40% from Wind / PV & new Nuclear
 - 5% Transport 120,000 EV / Hybrid
 - 26M Smart Meters fitted
- 2050 **80%** reduction in CO₂
 - Doubling in electricity demand
- Price review period (RIIO-ED1)
 - Traditional reinforcement unaffordable
 - DG represents the most immediate challenge
- Challenge to identify 'smart' ways of efficiently meeting customers' future needs

UK Government Emission Targets
1990 base



Our Smart Grid Development



- Electricity North West is leading work on developing **smart solutions** to our future challenges
- Our strategy is to deliver additional value from existing assets, and we have been awarded approx. £30 million of funding from the LCN Fund for three flagship projects:

C₂C

Capacity to Customers

CLASS

Customer Load Active
System Services

Smart Street

- **C₂C** is our focus today and we need your assistance in unlocking the value that this project can bring to you and your business

Hugely significant period for Electricity North West
A new, **dynamic** and **innovative** company
A **rich** and **valuable** heritage



“We have supported our customers over the past
100 years, and will do so over the next **100** –
this underlines our commitment to customers
TODAY, TOMORROW and the **FUTURE**”



Capacity to Customers (C₂C)

Craig McNicol

Future Networks Programme Manager



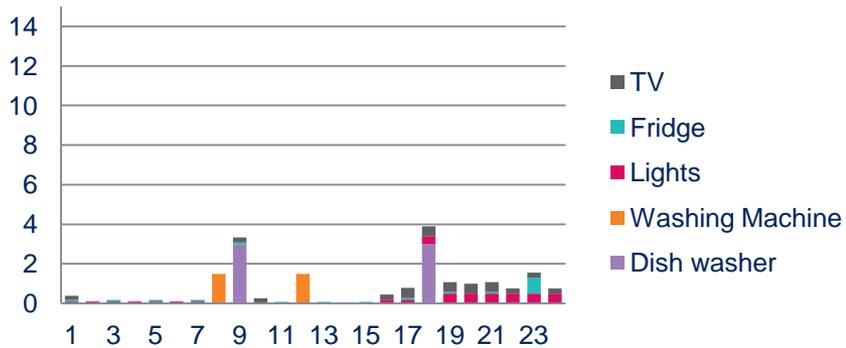
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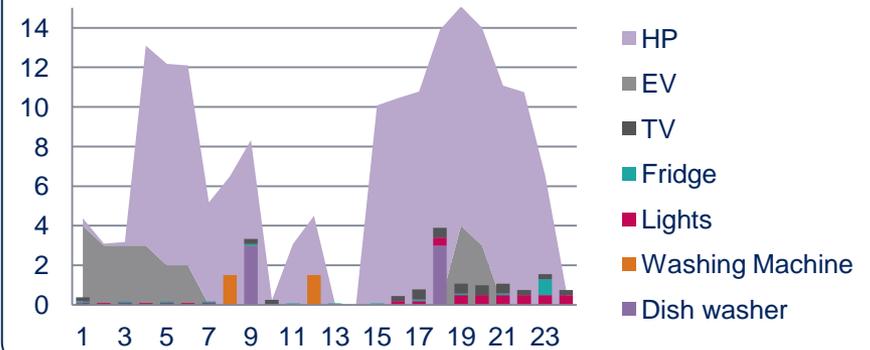
The Scale of the Challenge



Domestic demand profile 2012



Domestic demand profile 2025



A short film, introducing C₂C



A short film, introducing C₂C

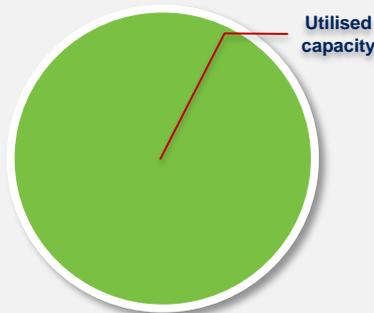


What is Capacity to Customers?



Capacity to Customers

Total available network capacity



Utilised capacity



Technical innovation

Total available network capacity



Current demand

Latent capacity



New Commercial Contracts



Combining proven technology and new commercial contracts

Allows ENWL to release significant network capacity back to customers

Facilitating connection of new demand and generation without reinforcement

Apply remote control equipment to the HV circuit and close the normal open point

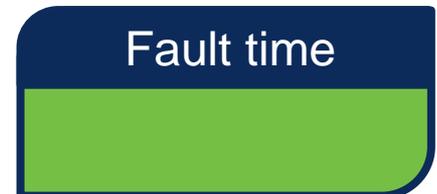
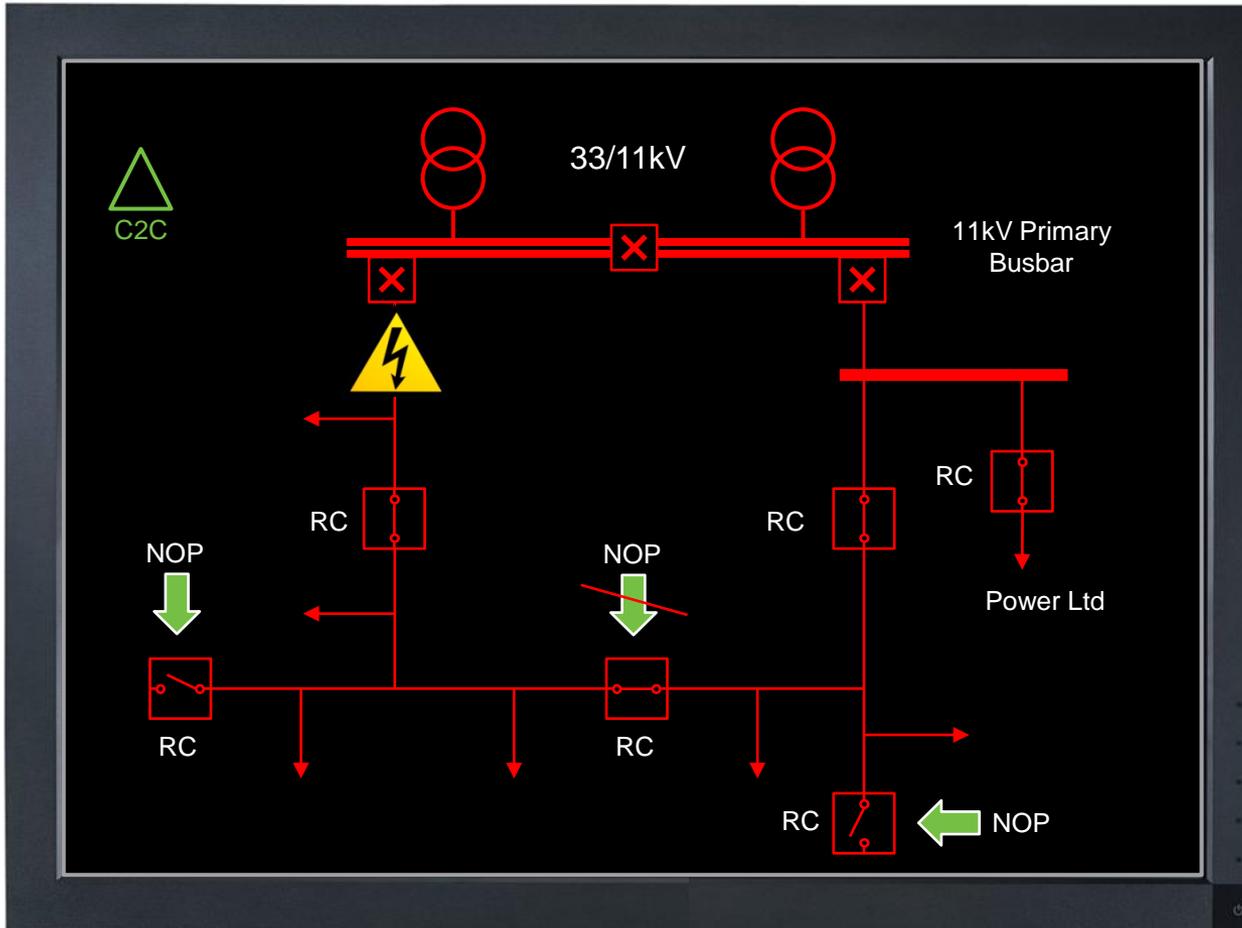
Enhance network management software

This effectively doubles the available capacity of the circuit negating the need for traditional reinforcement

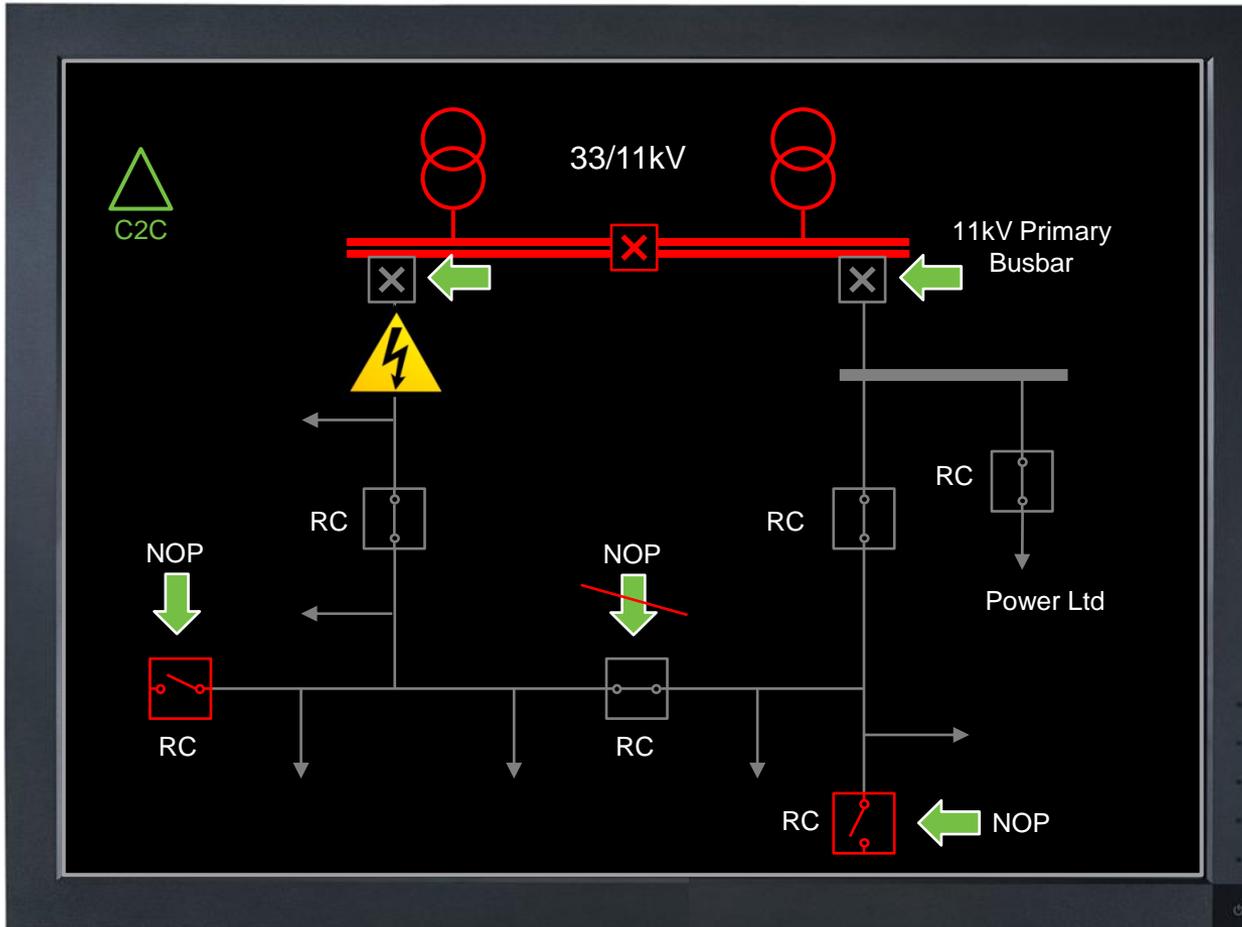
To retain customers' security of supply we will utilise innovative demand side response contracts

These contracts will allow ENWL to control the consumption of customers on a circuit at the time of fault

Our C₂C network management system

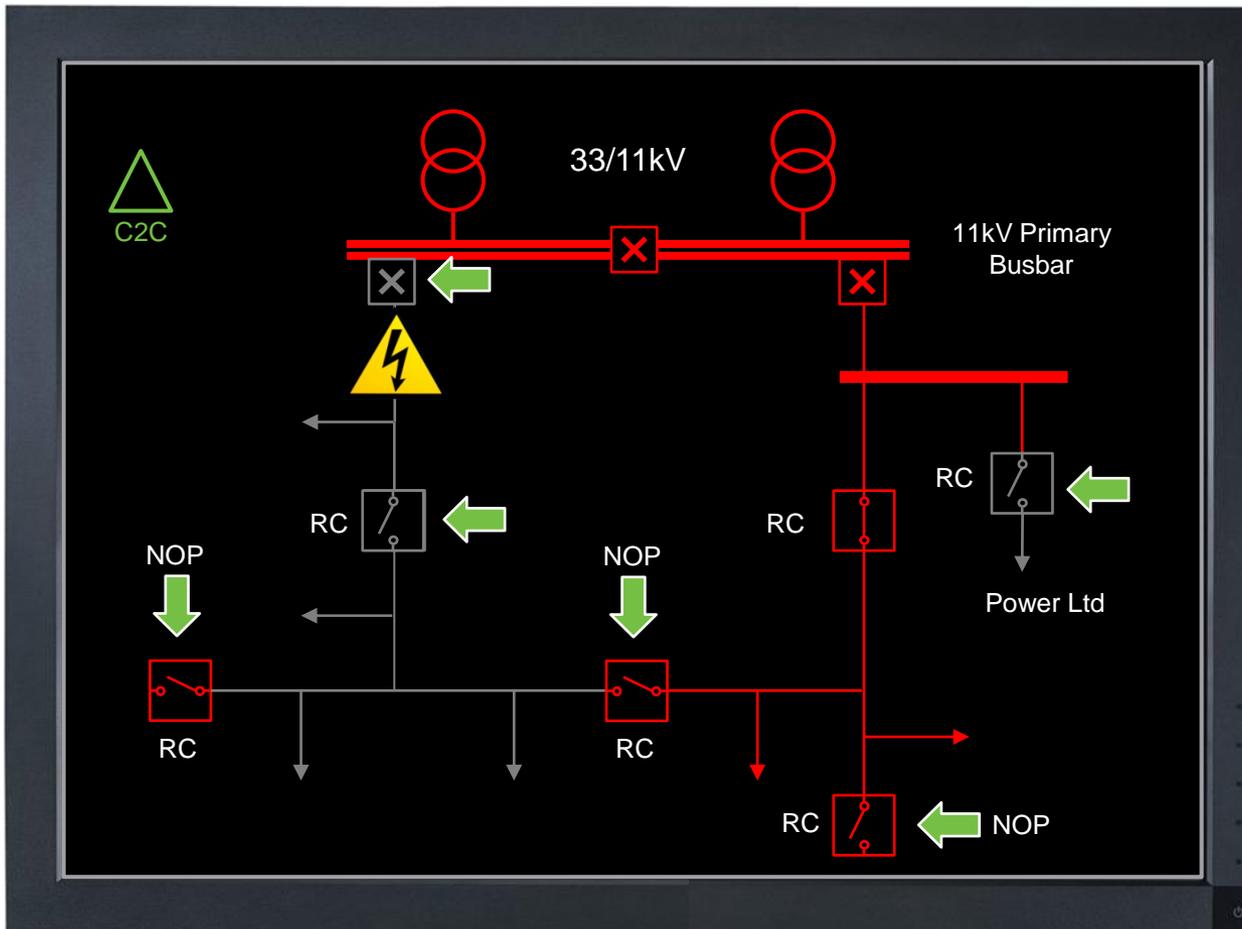


Our C₂C network management system



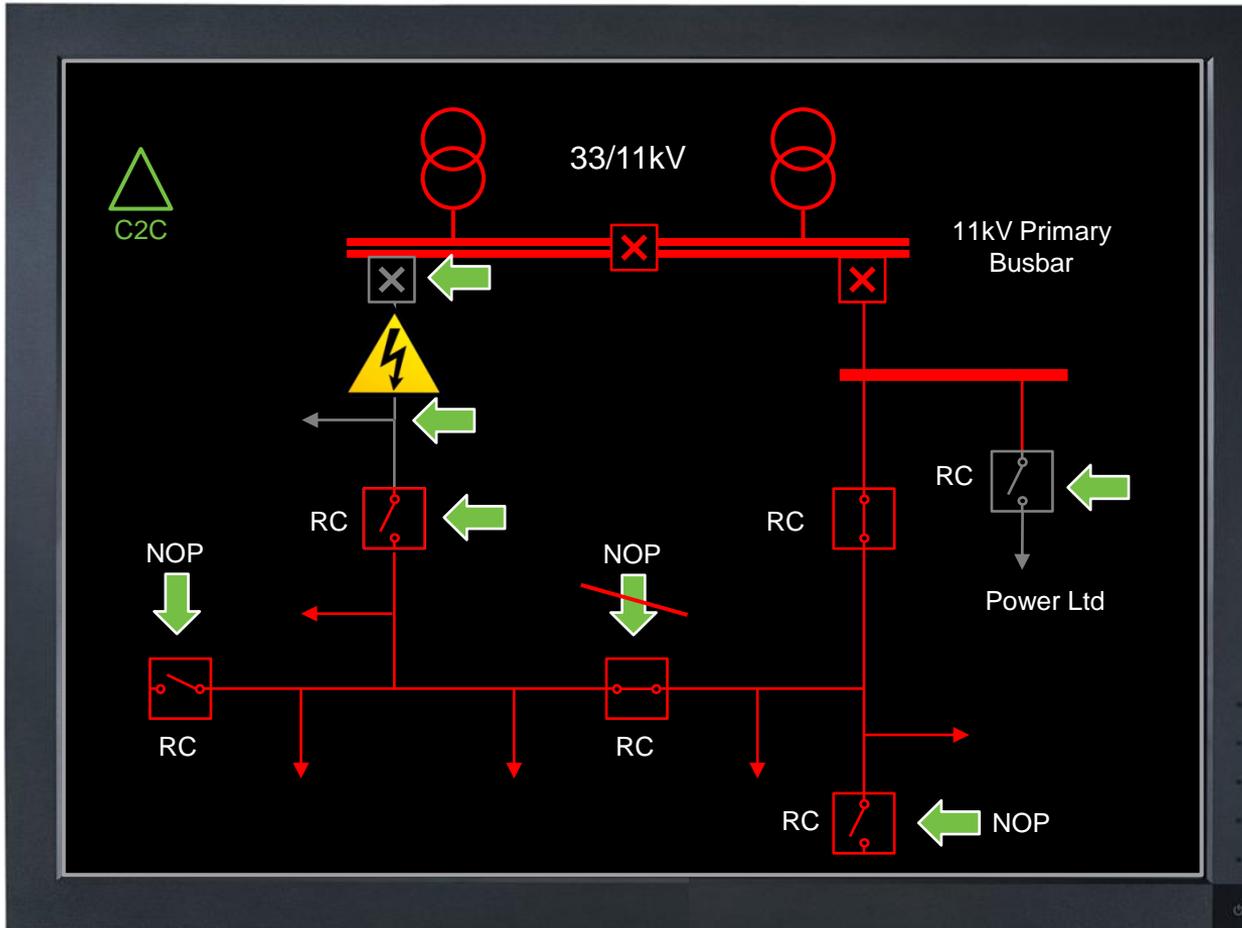
Fault time
 ≤ 1 minute

Our C₂C network management system



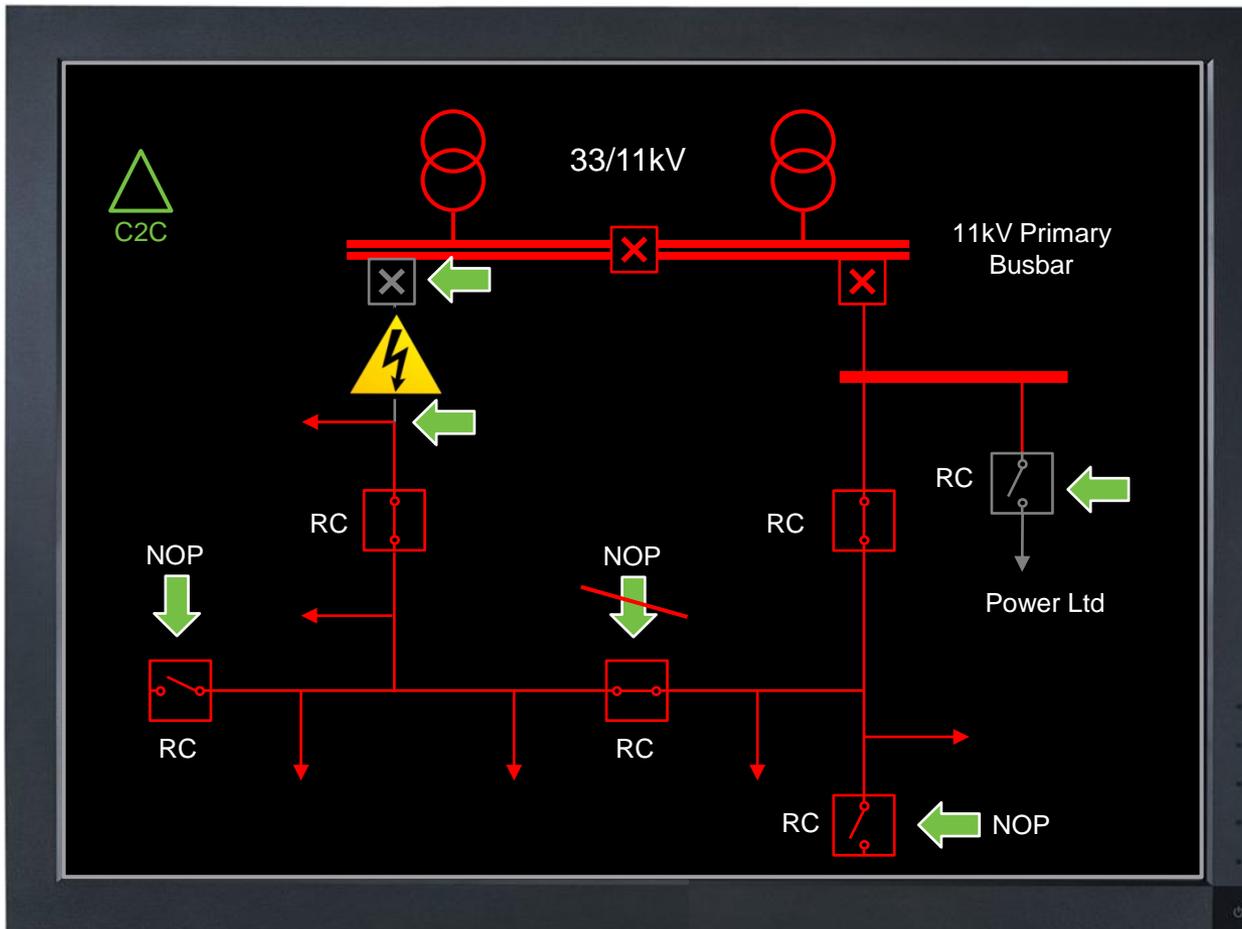
Fault time
1 minute

Our C₂C network management system



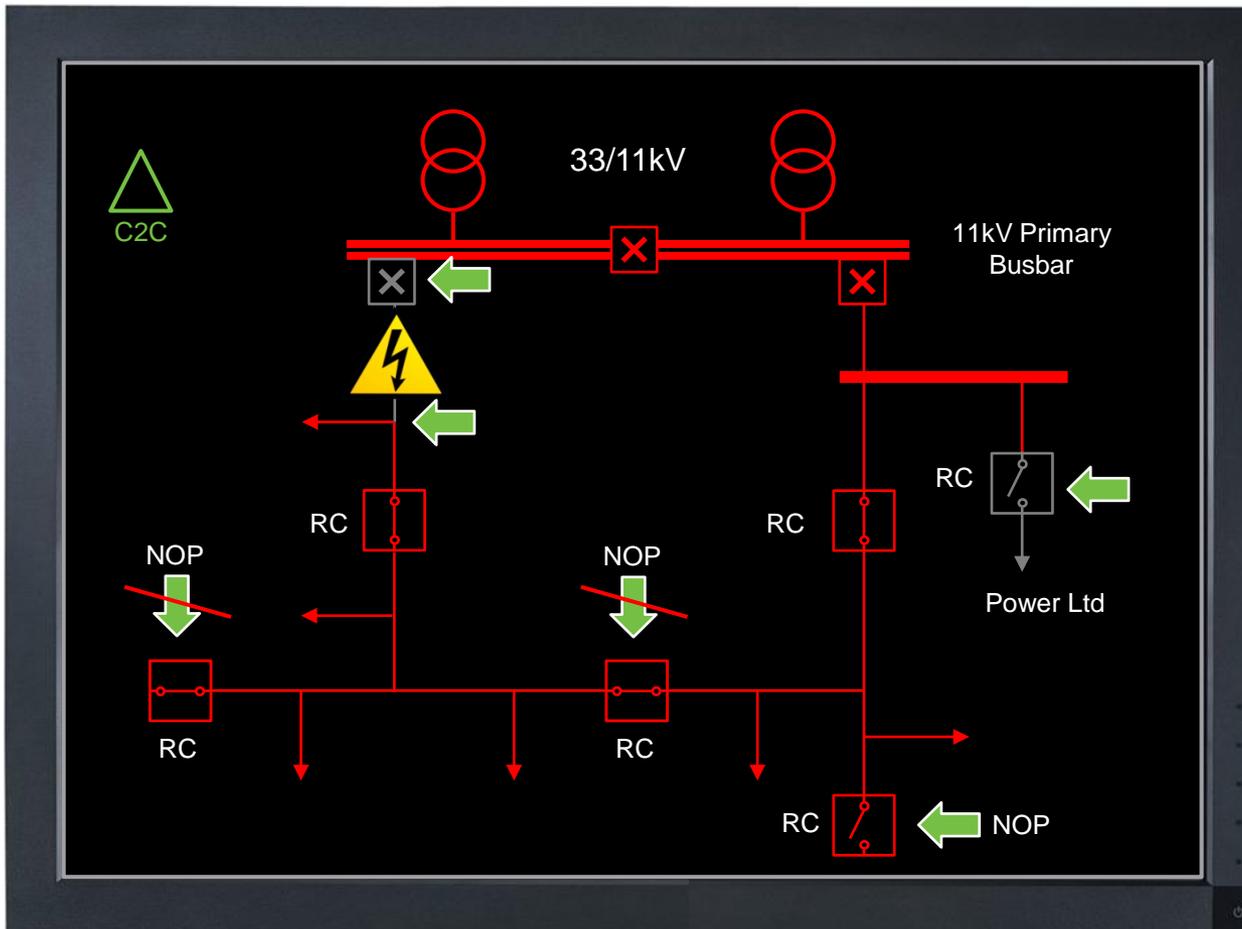
Fault time
45 minutes

Our C₂C network management system



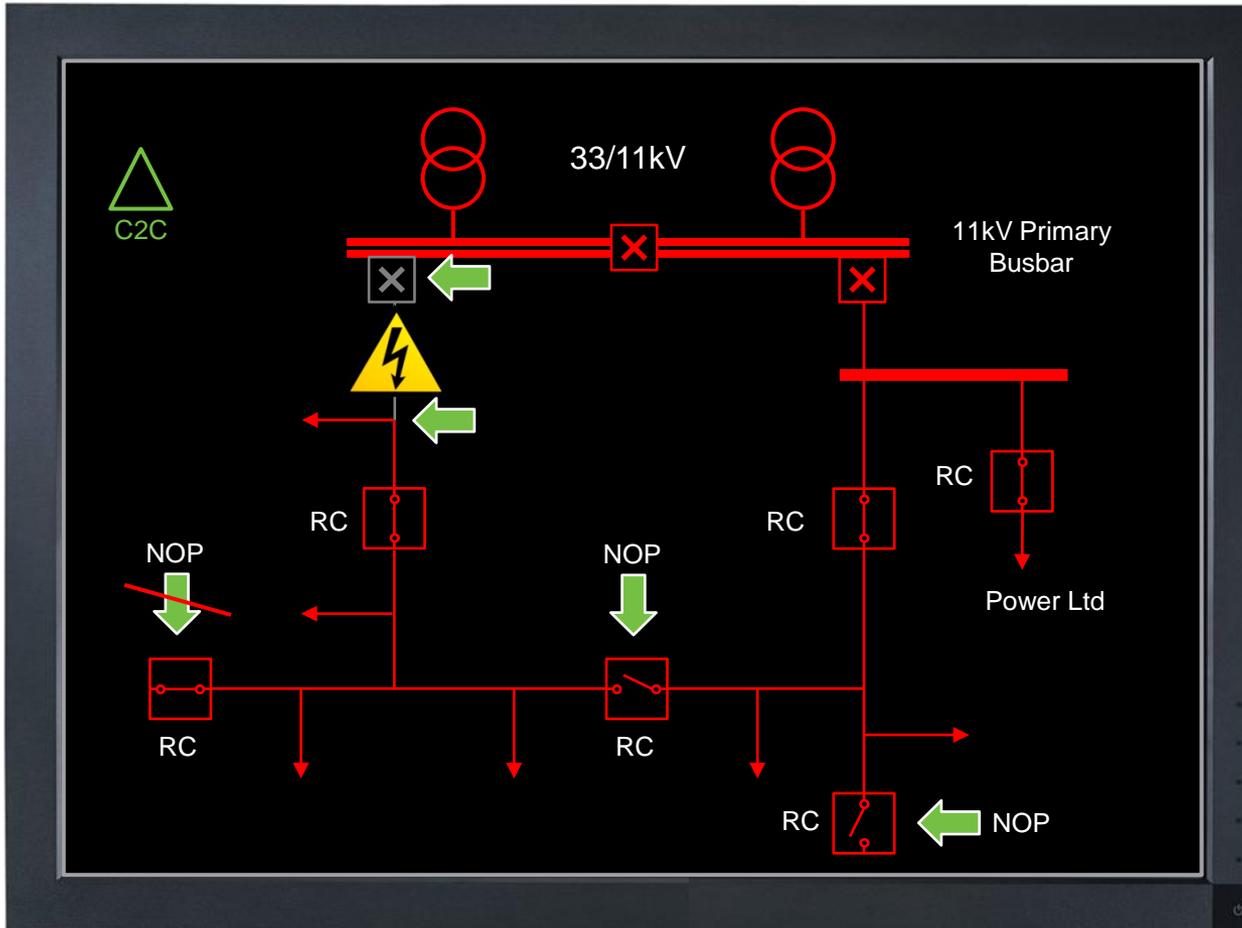
Fault time
47 minutes

Our C₂C network management system



Fault time
48 minutes

Our C₂C network management system



Fault time
50 minutes

Project Partners



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flexitricity
Unlocking smart grid revenue



The University of Manchester

Impact
Research

nationalgrid



Project Timeline



Design and build

- Customer engagement plan and surveys ✓
- Commercial templates and processes ✓
- Aggregator tender process ✓
- Circuit selection ✓
- P2/6 derogation and consultation ✓
- Enhanced network management software ✓
- Equipment installation and commissioning ✓

Live trials

- Trial 'go live' ✓
- Recruit trial participants
- Power quality and losses modelling
- Carbon and economic impact assessments
- Continuously engage stakeholders
- Continuously engage with customers

Closedown

- Closedown report
- Project closedowns

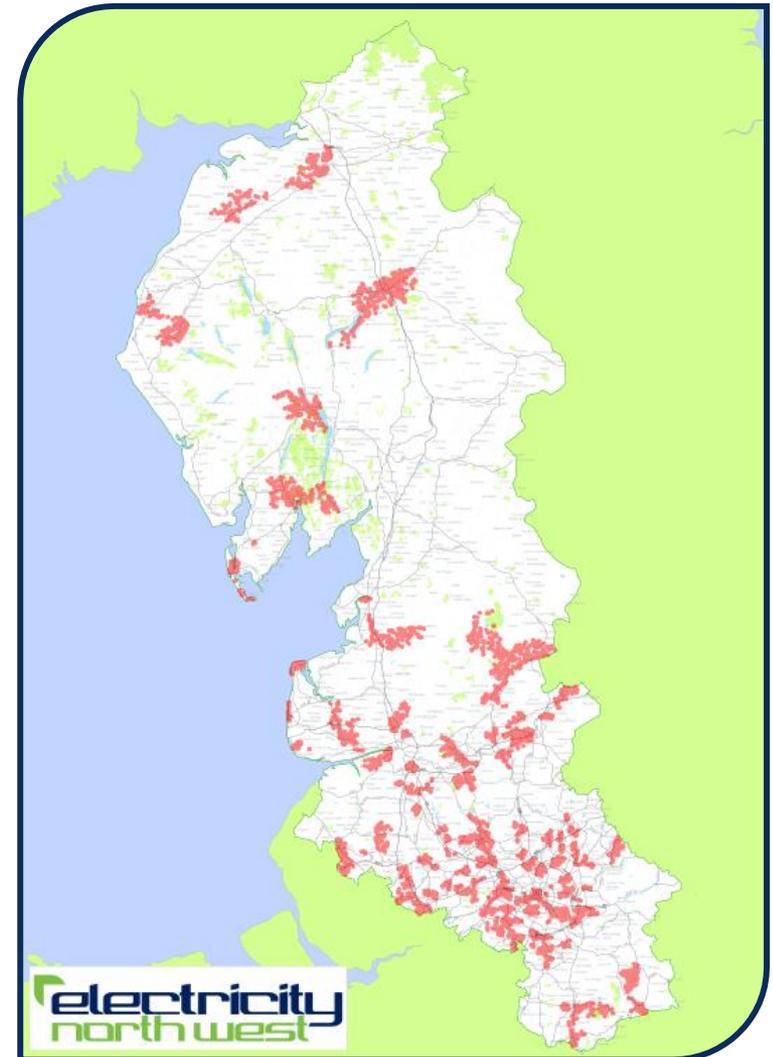


The C₂C Trial Area



- C₂C is a publicly funded **Research & Development** (R&D) project only available on a portion of our network
- The trial area is all our **132 & 33kV network** and approximately 10% of our HV network
- To find out if your location is included in our HV trial area, enter your postcode on our website

www.enwl.co.uk/c2c/are-you-affected



Benefits of participation



Lower cost new connection or additional load

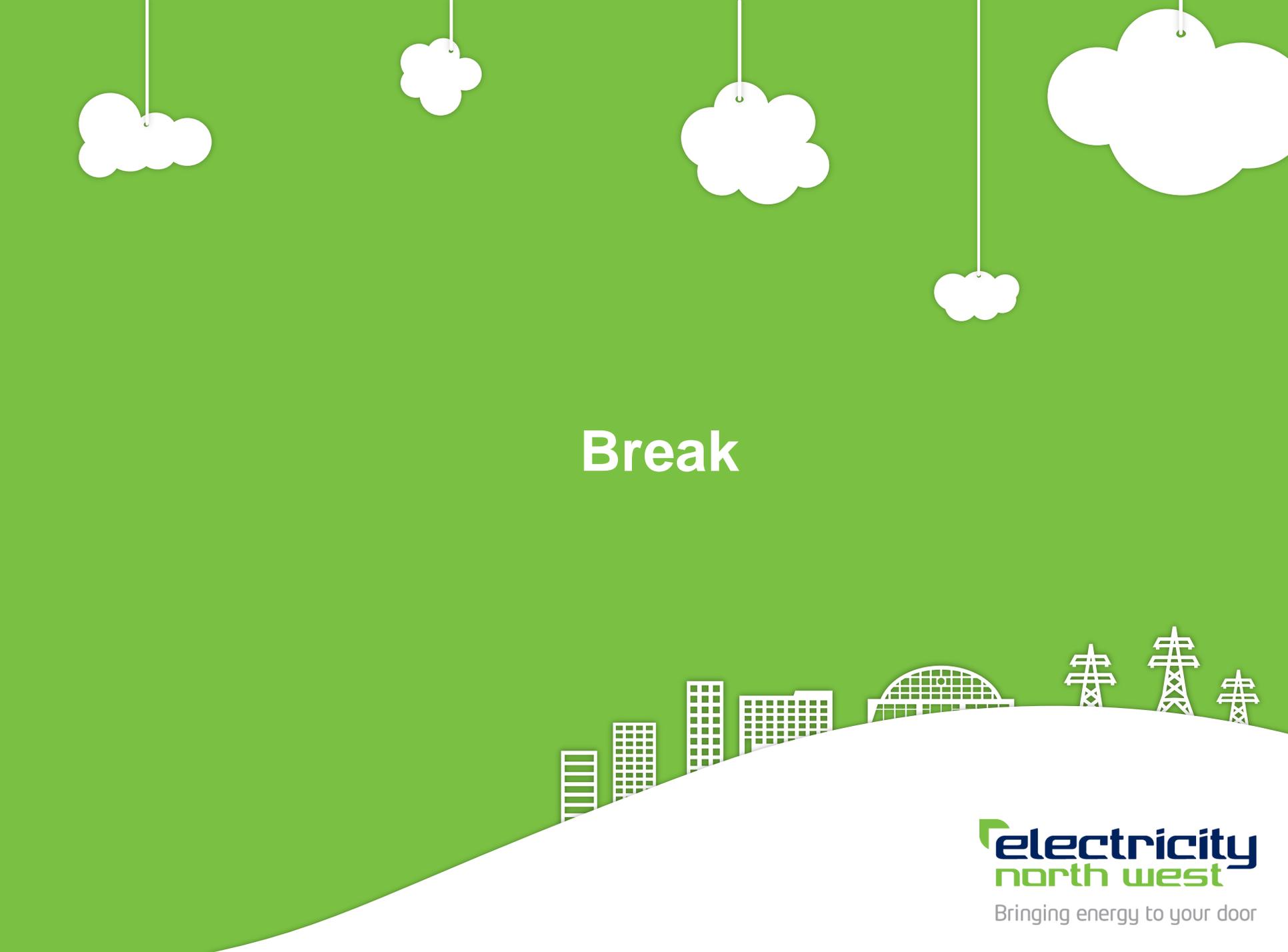


Potentially **quicker connection** due to reduction of cable laying activities



Enhancing your companies **green credentials**

After the trial, you can convert back to a standard Connection on a '**no worse off**' basis



Break



C₂C New Connections Process

Ged Flanagan

Project Administrator, Capacity to Customers



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Eligibility criteria

The C₂C connections process

Common C₂C solutions

The C₂C offer



- **Industrial and Commercial** customers
- Applying for a demand or generation connection with a total capacity **greater than 100kVA**
- On or near **trial circuit**
- Quotations for eligible C₂C managed **connections available** to all formal applications until Summer 2014
- Managed agreements **to be signed** by the end of September 2014

What is the Process?



- We have produced a **4 step** process document
- Published process on our website www.enwl.co.uk/c2c
- Copy in your seminar information pack



The C₂C Connections Process



1 Enquiry & Application

2 Design

3 Acceptance & Payment

4 Delivery

- **Submit your application** in line with our usual Connections process
- Initial check for **C₂C eligibility**

Application for an electricity connection

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Application details

Customer details

Site details

Declaration

Submit

The C₂C Connections Process



1 Enquiry & Application

2 Design

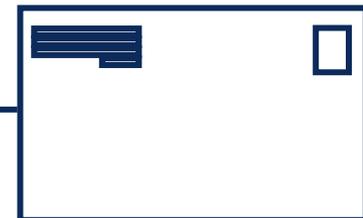
3 Acceptance & Payment

4 Delivery

- C₂C **eligibility confirmed**
- Standard offer and C₂C offer are **prepared in parallel**
- **Offers presented** to the customer by the Project team, where a detailed comparison between the two quotations is provided

Standard offer

C₂C offer



The C₂C Connections Process



- Preferred option is accepted
- Project team will meet with customer to sign C₂C agreement and take receipt of acceptance

Application for an electricity connection

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Application for an electricity connection

Customer details

Site details

Connection details

Agreement details

Notes



The C₂C Connections Process



- Your **connection will be undertaken** in line with our standard process
- Your **connection will be completed** in accordance with the Guaranteed Standards of Performance (GSoP)
- A possible **improvement** and no detriment on time taken to connect by accepting a C₂C offer



C₂C New Connections Process

John Lucas

Liaison to Connections, Capacity to Customers



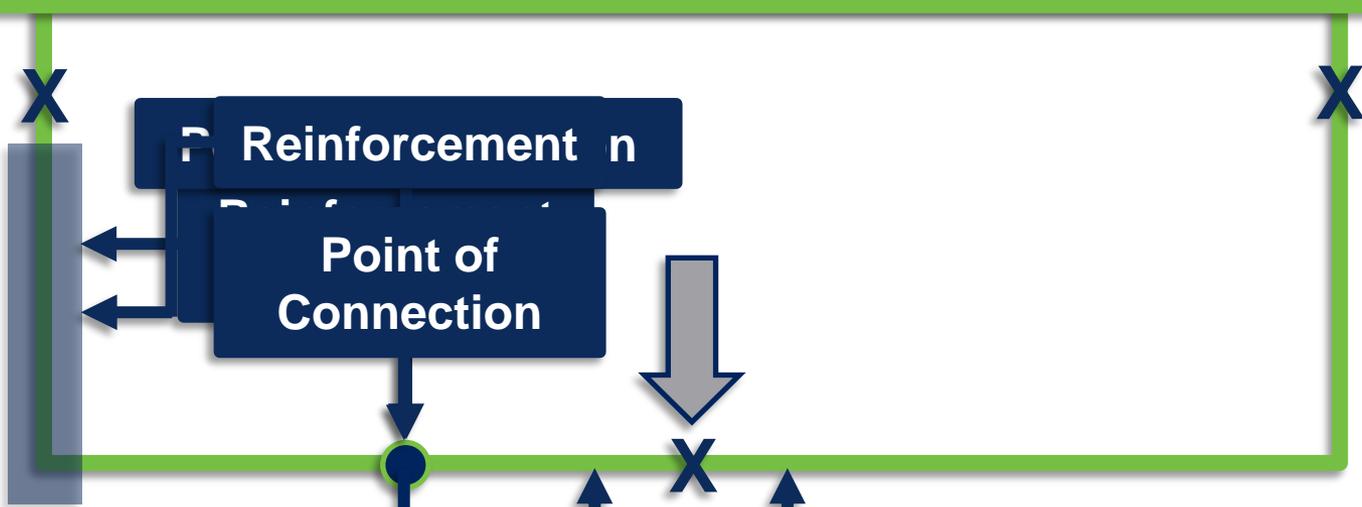


- How can opting for a C₂C managed connection save you money on your new connection?
 - **Reduced network reinforcement costs**
 - **Reduced connection asset costs**

Reduced Network Reinforcement



PRIMARY SUBSTATION



NEW CONNECTION

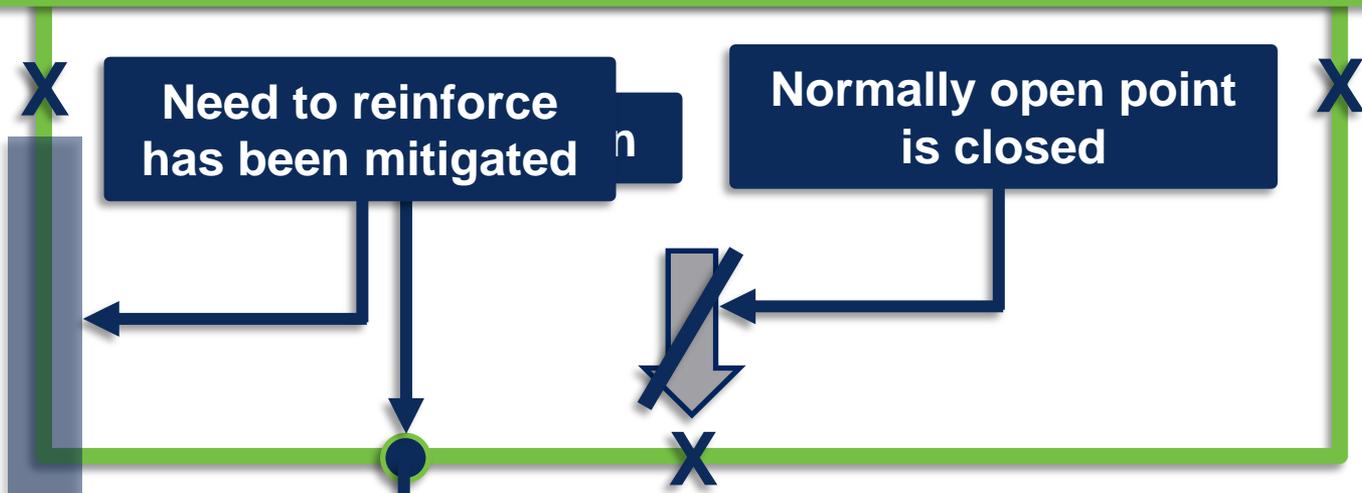


Standard solution

Reduced Network Reinforcement



PRIMARY SUBSTATION



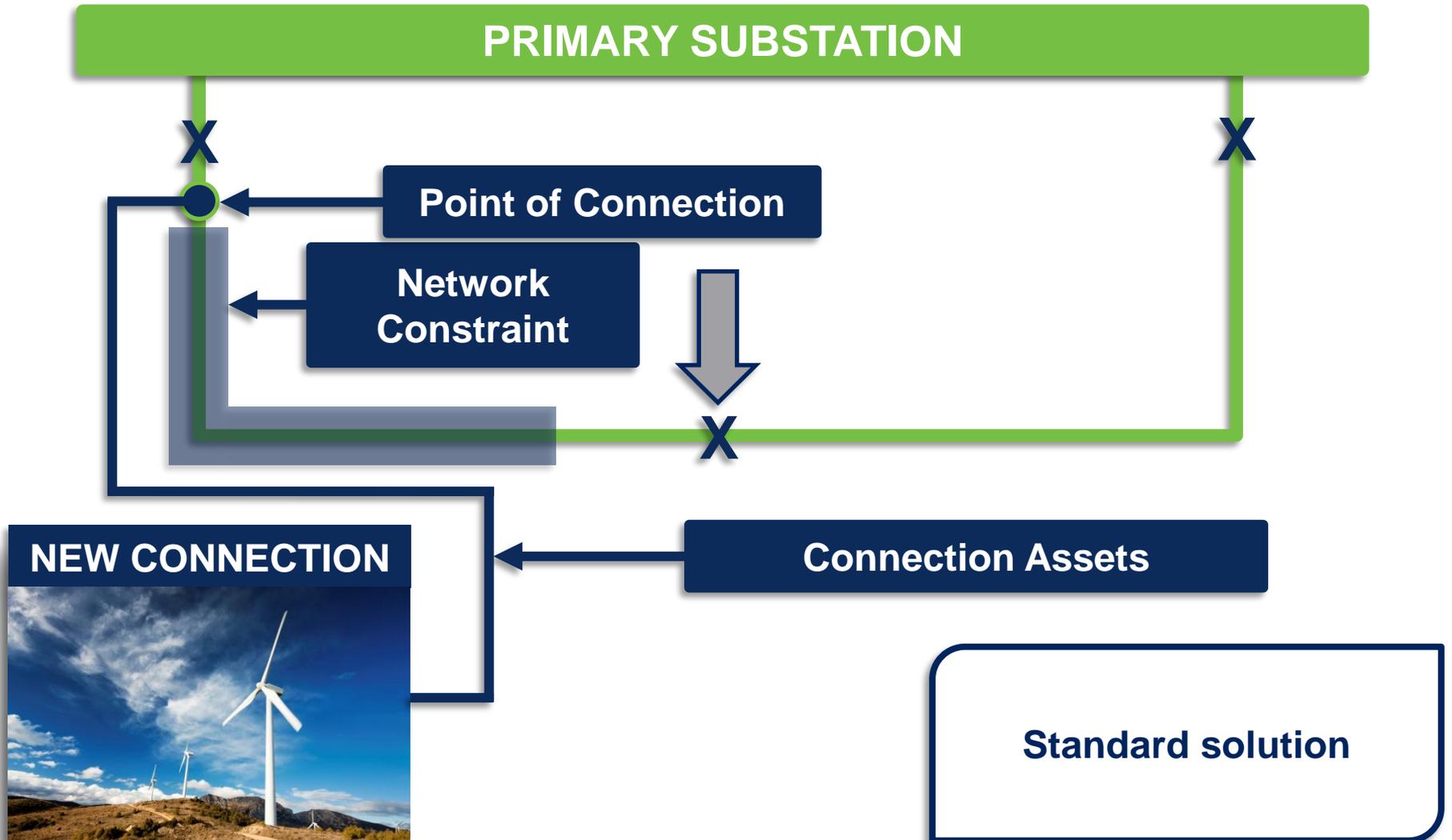
Connection Assets

C₂C solution

Reduced Connection Assets



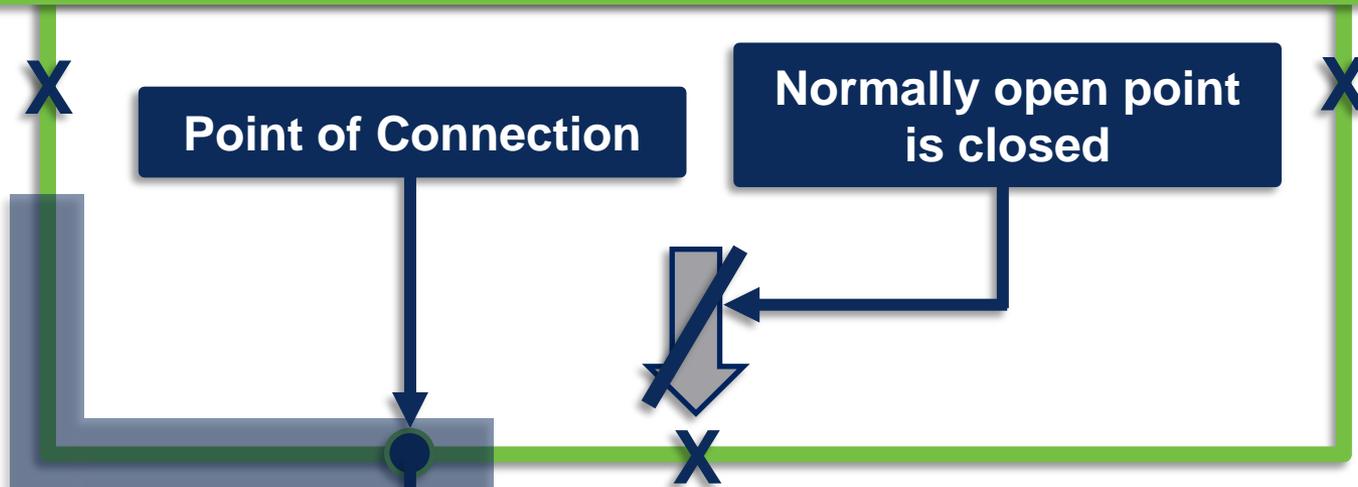
PRIMARY SUBSTATION



Reduced Connection Assets



PRIMARY SUBSTATION



NEW CONNECTION



Reduced Connection Assets

C₂C solution



- New C₂C managed connections are available to all eligible applicants

Statutory

ICP

IDNO

- The offer will consist of:
 - A standard quotation
 - A C₂C quotation accompanied by managed connection agreement
- Offer presented to the customer by the C₂C team to provide a detailed comparison between the two quotations
- A possible improvement and no detriment on time taken to connect



C₂C New Connections Process

Simon Brooke

Low Carbon Projects Manager



What this all means for you



- Accepting a managed supply contract may give you a **substantial saving** on a new connection
- As a trial participant your supply will be as **reliable as usual**
- The smart grid technology installed will allow us to restore supplies to customers **faster than we can today**

Summary of Contract Terms

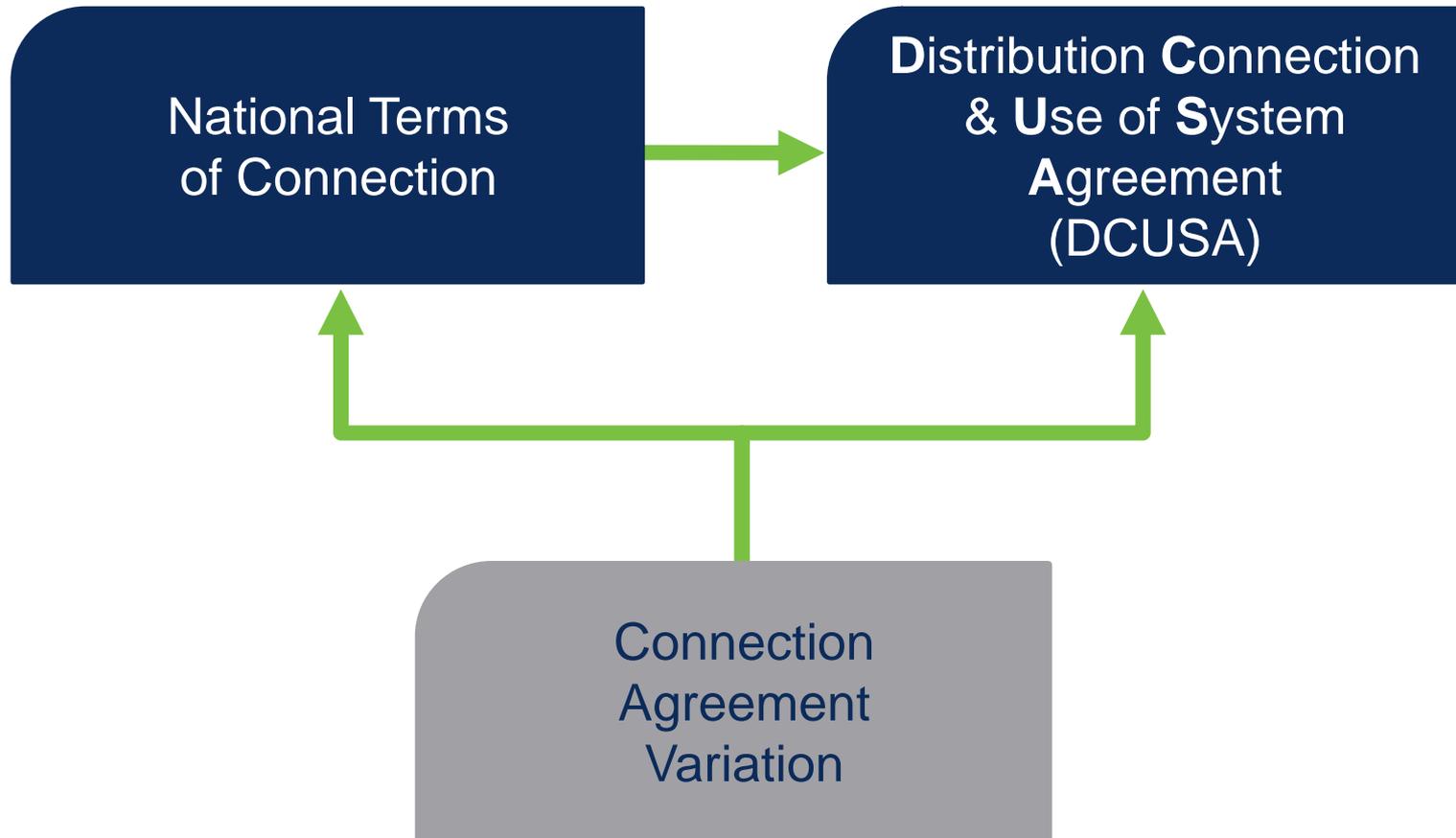


- The contract will be **permanent** with the following termination clauses in existence for both parties:
 - You can terminate the agreement post trial
 - We can terminate the agreement post trial
- Should you wish to enter into other **Demand Side Response (DSR)** activities with third parties, then you must obtain our permission before agreeing to these so that any potential conflicts in demand availability can be determined



- The C₂C managed demand may be implemented under fault circumstances
- Following a fault event where your supply is managed, you **will not suffer a delay in restoration** of its supply greater than the agreed time after its incoming supply is made live

Contract Structure





A C₂C managed customers power supply will be as **reliable as usual**

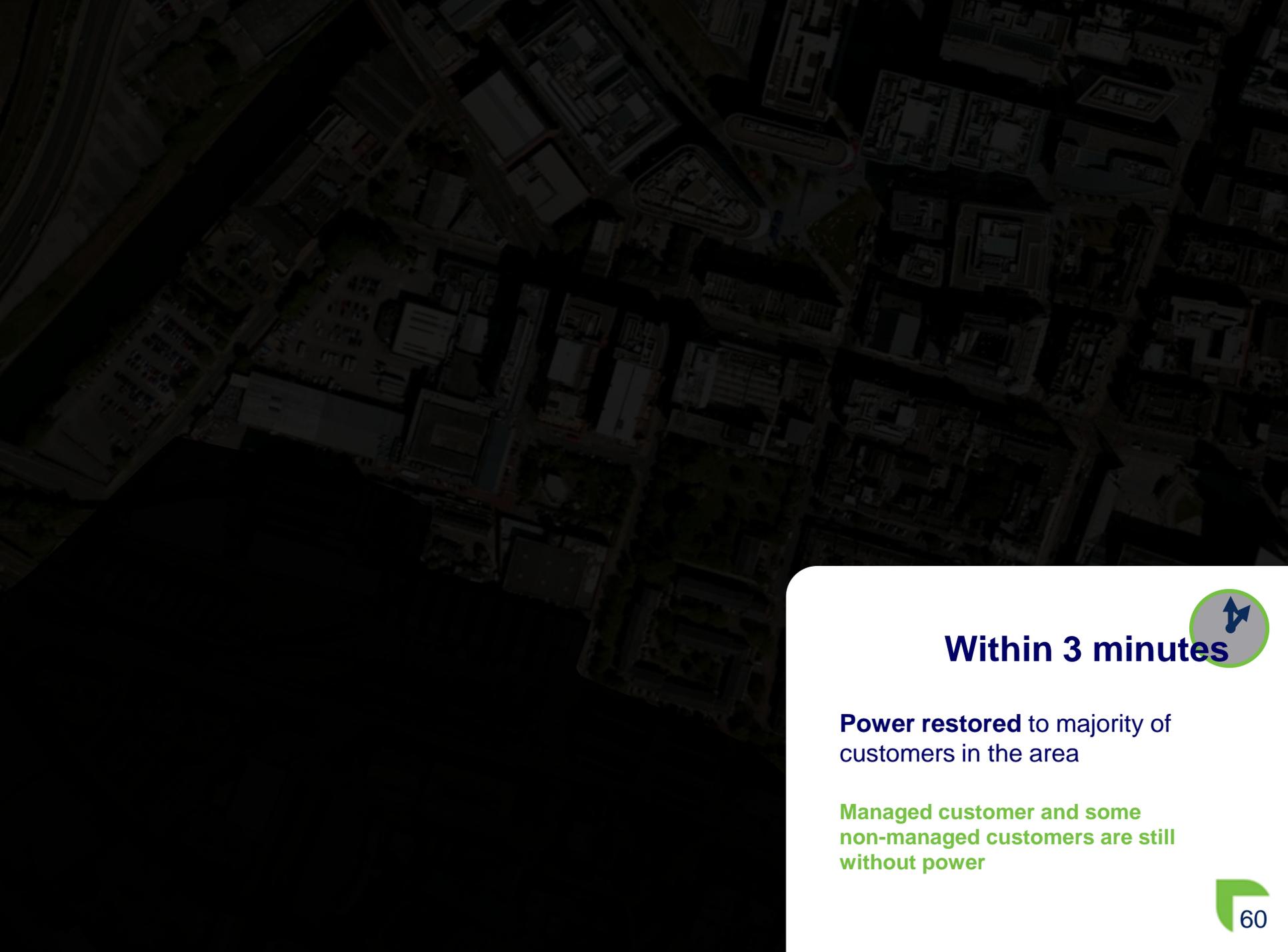
Power cuts or faults are infrequent, and may typically be experienced once every three years.

So, what will happen during a fault?



The **Museum of Science and Industry** is a C₂C managed customer in our example

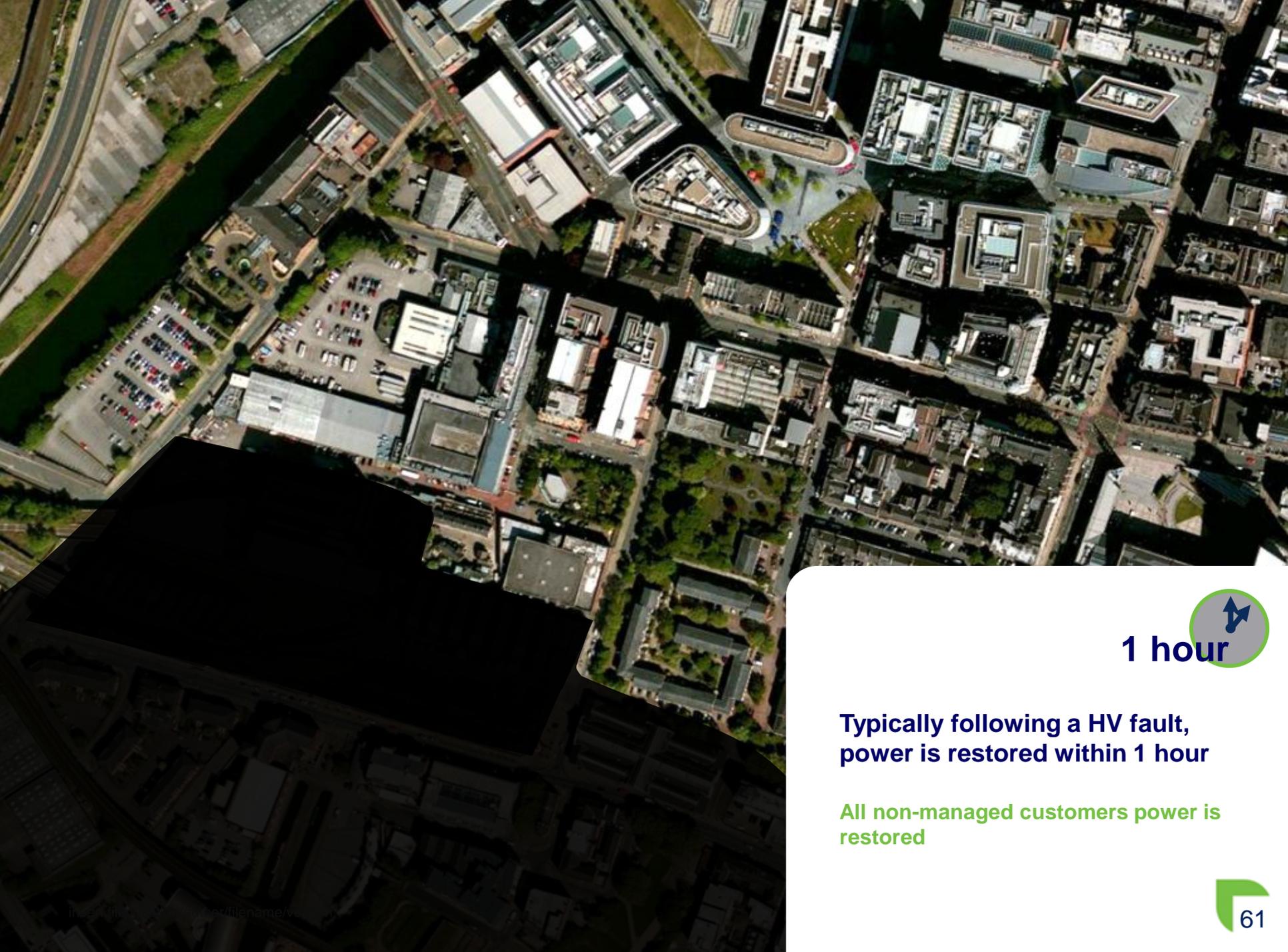
A power cut or fault is experienced in the area



Within 3 minutes

Power restored to majority of customers in the area

Managed customer and some non-managed customers are still without power




1 hour

**Typically following a HV fault,
power is restored within 1 hour**

**All non-managed customers power is
restored**



8 hours 

As a C₂C managed customer, the restoration of the non-essential power may be delayed up to a pre-agreed period of time

In this example all of MoSI's load is non-essential and it has been restored within 8 hours



C₂C In Practice – Case Studies





During this session we will show you two case studies that have been prepared, in line with our C₂C connections process

Part one Case Studies presented



Part two Round table discussion



Part three Group discussion



What are your views?



- 1. Following the earlier presentations, what gaps do you still have in your **understanding** of the new C₂C Connections Process?**
- 2. What do you think are remaining **barriers** to C₂C?**
- 3. What are your **motivations** to get involved in C₂C?**



C₂C Project Summary and Next Steps

Craig McNicol

Future Networks Programme Manager



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C₂C Project Summary and Next Steps



12/20

We have signed **12 out of 20** contracts

+8

We are keen to secure at least **8 more** new connections or additional load agreements

If you have an in flight application that is potentially eligible,
we will contact you

If you have any pending applications that you feel may be applicable and you wish to be considered, **do not hesitate to contact us**. We will be happy to discuss any queries you may have.



Questions & Answers



Want to know more?



If you want to know more, or speak to someone if you are interested in partaking in the Capacity to Customers C₂C initiative, you can contact us by:

 **0800 195 4141, option 3**

 **www.enwl.co.uk/c2c**

 **futurenetworks@enwl.co.uk**

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