

## Questions & Answers

September 2015

Thank you for taking part in our customer consultation research

### Who's who in the electricity industry?

There are many different types of companies and organisations involved in supplying you with electricity:

- **The National Grid** is responsible for operating the most powerful power lines in the UK and transmitting electricity from power stations around the country closer to homes and businesses. The National Grid is a little like the UK's motorway network.
- **Distribution network operators (DNOs)** maintain many of the UK's electricity power lines, cables and equipment up to 132,000 volts. There are 14 licensed DNOs in Britain and each is responsible for a regional distribution area. The 14 DNOs are owned by six different operators. Electricity North West is the DNO for North West England. The DNOs connect the National Grid's network to individual properties and private networks, a little like the UK's 'A' and 'B' roads and local roads.
- **Suppliers** are the final step in the process and send out bills for your electricity consumption. These companies include EON, British Gas, EDF and Npower. A proportion of your bill is passed to DNOs to cover their distribution costs.



**Above: Electricity North West's distribution region**

## What does Electricity North West do?

- Electricity North West manages and maintains the electricity distribution network in North West England.
- The network consists of overhead lines, underground cables, substations, transformers and other equipment.
- We are responsible for connecting homes and businesses to the electricity network, repairing the network when things go wrong and investing to replace worn out or old equipment.
- Electricity North West's network is 99.99% reliable. A property in the North West will typically experience a power cut once every three years and, on average, is without power for about an hour. These figures are averages – some properties will experience problems more often and others will never have problems with their power supply.
- Electricity North West was formerly part of United Utilities and before that we were known as Norweb.



### Investing in the North West

Electricity North West owns and operates the network in the North West of England. Any money we invest goes right back into the North West region.

**We are responsible for planning for the future and making sure the network can cope with any changes in how electricity is used.**

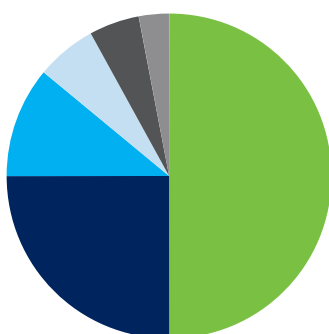
## Why have I never heard of Electricity North West?

In many ways, Electricity North West is a 'behind the scenes' company. We don't send you a bill for our services. Instead, your supplier passes on part of what you pay them to us.

**2.4 million**

We connect 2.4 million households (5 million people) to the National Grid.

### How a typical electricity bill is made up:



<span style="color: green;">■</span> Cost of buying electricity	50%
<span style="color: darkblue;">■</span> Delivering electricity to your home (Electricity North West charge)	25%
<span style="color: cyan;">■</span> Government environmental and social schemes	11%
<span style="color: lightblue;">■</span> Billing, customer service and IT systems	6%
<span style="color: grey;">■</span> VAT	5%
<span style="color: lightgrey;">■</span> Supply business profit	3%

## Why do we need the Respond project?

There are a number of issues and challenges facing Electricity North West.

Part of our role as a DNO is to plan for the future. In 2007 the UK government set challenging targets to protect the environment by making significant reductions in carbon emissions and reducing our reliance on fossil fuels like gas and oil. This means that demand for electricity in Great Britain is set to rise significantly.

It's our job to look at smarter ways of meeting the expected increase in electricity demand as we start to reduce our reliance on fossil fuels.

To help meet the unprecedented challenges of a low carbon future, the electricity industry regulator Ofgem has set up the £500 million Low Carbon Networks (LCN) Fund to provide vital backing for a series of innovative projects aimed at developing smarter and more efficient ways of managing electricity networks.

We have been awarded funding from the LCN Fund to launch the Respond project, which will deliver an intelligent approach to managing fault current – the instantaneous surge of energy which occurs under fault conditions.

An increase in demand for electricity will increase the potential fault current on the network, known as fault level. If fault level exceeds the current safety rating of network equipment, we need to replace it, which can be disruptive, lengthy and expensive.

Respond will explore new technical and commercial solutions to resolve the fault current problem without the need to invest in new expensive infrastructure. It will ensure customers continue to get the power they need and give them the flexibility to connect renewable energy sources.



## Why do we need your input into the Respond project?

Respond will deliver a 'Fault Level Assessment Tool' which calculates potential fault current. When the fault level approaches or rises above the fault level rating of network equipment, the Fault Level Assessment Tool will enable one of three innovative techniques designed to manage fault current.

One of the techniques is a commercial solution which provides a unique opportunity for large demand and generation customers to earn rewards by selling a Fault Current Limiting (FCL) service to Electricity North West through a managed service agreement.

When a fault occurs, all sources of generation connected to the electricity network contribute to fault current. Using new technology which will be trialled as part of the Respond project, your motor or generation source can be remotely turned off by Electricity North West for just a few minutes, so that it no longer contributes to the fault current.

This solution will enable industrial/commercial and demand/generation customers to earn financial rewards and will benefit all electricity customers in the long term by reducing reinforcement costs.

We are seeking input from industrial/commercial electricity customers from anywhere in Great Britain to take forward our customer engagement activities, one of which is an expert panel.

This expert panel will help shape future customer engagement materials and a survey of commercial customers to understand the appetite for an FCL service and how to structure appropriate contracts.

Once the findings from the survey are known, we will be signing up commercial customers to provide an FCL service under a managed service agreement for the duration of the 12-month trial, starting in May 2016 (Electricity North West area only).



[futurenetworks@enwl.co.uk](mailto:futurenetworks@enwl.co.uk) • [www.enwl.co.uk/respond](http://www.enwl.co.uk/respond)

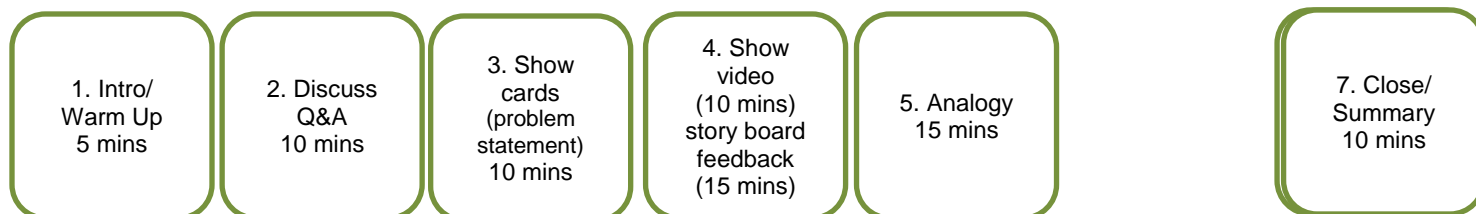
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## 373 ENW Respond ECP Discussion Guide

ECP Meeting 1	16 <sup>th</sup> September 2015, 7pm, Aspect Studio Manchester	Objective - Introduce FCL service, establish customer perceptions of the concept and feedback to communications materials
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### GROUP STRUCTURE (1½ HOURS):



#### 1 Moderator Introduction (2 – 3 minutes):

- Introduce yourself
- Explain that the research is being conducted on behalf of Electricity North West
- Explain purpose of discussion (*"To help Electricity North West communicate effectively to other commercial customers about a new approach to managing electricity fault current"*)
- Confidentiality is guaranteed, no right / wrong answers, interested in everybody's opinions, in as much detail as possible
- Explain moderator's role and set out 'rules' (speak loudly / clearly / not all together)
- Explain audio and video recording, one-way mirror and presence of observers
- Re-confirm the repeat nature of the ECP meetings - attendees will be expected to take part in one more group and complete a pilot survey online (*hand out a reminder card at the end of the session with the other confirmed ECP meeting date*).
- Any questions?

#### Warm-up

#### EACH RESPONDENT WILL BE ASKED TO INTRODUCE THEMSELVES TO THE GROUP IN TERMS OF:

- First name, company name and individual responsibilities within organization with regards to operating, managing, maintaining and/or financing electrical machinery, specifically large motors and CHP plant.

## 2 Respond Introduction Document (Q&A) – emailed in advance of discussion (10 minutes):

**Moderator Info** : This document contains:

- a) The structure of the UK electricity industry
- b) The role of Electricity North West versus that of a supplier.
- c) Introduction to the low carbon agenda and likely increases to future electricity demand
- d) Outline of the Respond project.**

*We anticipate attendees being familiar with a-c, but not d.*

### **ASK THE GROUP**

- Overall impressions and thoughts on the **Q&A sheet emailed to them**
  - Probe on:
    - Understanding and clarity of the subject matter
      - Clarity on the difference between Electricity North West vs. suppliers and National Grid
      - What does ‘**fault current**’ mean to them?
      - Reaction to “*Your motor or generation source can be remotely turned off by Electricity North West for just a few minutes, so that it no longer contributes to the fault current*”
      - Understanding of “**reducing reinforcement costs**”
  - Which information was most (and least) informative / relevant / **useful**?
  - Anything **missing**?
  - Anything **confusing** / or that they didn’t understand?

**MODERATOR PROMPT:** Disclose that we are planning to use the Q&A as a briefing document for customers that we recruit to take part in the online survey. Please check the suitability of the document for this purpose.

**PAUSE / BREAK – WRITE DOWN ANYTHING NOT UNDERSTOOD – IF HAVE ANY QUESTIONS, THROW OPEN TO THE GROUP TO SEE WHAT THEY THINK AND CORRECT IF NECESSARY. ENSURE ALL ARE ANSWERED BEFORE MOVING ON.**

## 3 Showcards - Problem statement (10 mins)

- **SHOWCARD:** *(to be shared during the meeting)*

**Moderator Info:** Designed to produce additional clarity on why there is a need to manage fault current.

### **ASK THE GROUP**

- **Overall impressions and thoughts**
  - Explore immediate reactions / thoughts / impressions / relevance to your business (spontaneous)
  - Ask for key take outs, understanding and any questions
  - **Probe on:**

- **Credibility** – to what extent does the ECP group buy into the anticipated higher demand on the electricity network and the need to make changes to prepare for the future?
- **Understanding** - of fault current/Fault Current Limiting service
- **Understanding**- Respond is one method being trialled on the network (specifically for fault management), however, there are other trials taking place across GB.

**PAUSE / BREAK – CHECK IF ANYONE HAS ANY QUESTIONS**

#### 4) Video (streaming) and video storyboard (*shared during the meeting*) (25 mins)

**Moderator Info:** Designed with an industry audience in mind to explain the benefits that the FCL service will have.

- Moderator to **play the video (8 MINUTES)** to establish gut reactions, likes, dislikes, understanding, credibility, confusion.
  - Moderator to use this opportunity to engage with the team viewing the groups and have any questions answered while the ECP are watching the video.

**PAUSE / BREAK – WRITE DOWN FIRST IMPRESSIONS**

- **TASK (DISTRIBUTE STORYBOARDS – 1 PER RESPONDENT):** Ask respondents to pick their favourite part of the video/still from the showcards, and then explain why they liked it/thought it explained Respond well.
- Moderator to use still visuals from the video in the form of a storyboard to prompt for feedback on specific elements of the video – the background - the Respond project - the FCL service and how to trial it
  - i. Any areas (/terminology) not understood?
  - ii. Did it help understanding of the Respond idea? What imagery or phrases particularly helped?
    - Check understanding of how fault level can lead to asset replacement/ investment
  - iii. Was it engaging, interesting?
    - Fault level assessment tool (slide 4-6); too much information? Do they want to know the 'how' as well as the 'what' and why?
  - iv. Anything that contradicted/conflicted with what they had understood so far?
  - v. What else do they want to know about Respond which is not covered in the video?
    - Slide 8- "could you be eligible to take part?" – It is important for us to understand any questions they have regarding taking part in the Trial.
  - vi. Any confusion at this stage between the FCL service and that of **load shedding**?

**Moderator:** load shedding is cutting off the electric current on certain lines when the demand becomes greater than the supply.

## 5 Analogy (*shared during the meeting*) ( 15 mins)

- **Moderator Info:** The water pump example is designed to illustrate how the FCL service will work

### SHOWCARD

- Moderator to prompt on the key question
  - What do they think of the example? Does this **resonate**? Is the comparison to water and reducing the 'pressure' helpful?
  - Do we need the current scenario vs. Respond scenario or can the analogy be used in isolation, how should we use this, on the website, in our survey briefing pack etc.
  - **IMPORTANT:** How do customers react to their equipment being "turned off by Electricity North West for just a few minutes"?
  - **IMPORTANT:** What impact would this have on their operations? How sensitive are they to how many minutes their equipment is turned off?
- **TASK:** In pairs ask the group to imagine they had to explain Respond to a friend or family member in 3 sentences or less, how would they do it? Give respondents 3-4 minutes to think about it, write it down and then share with the group.

## 6 Concept board (*shared during the meeting*) (15 mins)

**Moderator Info:** Designed to concisely and effectively convey the Respond concept. Explain that this is our (the research team) attempt at explaining the concept, but we need their help in improving it (before it is used in the survey pilot). Moderator to test the suitability of the terminology used, the clarity and ease of understanding and the general style of the communication piece.

- Probe on each section:
  - How is the **problem explained**? Anything new or different here? Which words help clarify the problem and which dilute the message or cause confusion?
  - What do they think of the **solution**?
  - Can they understand the "**how**"? Could they explain it to someone else?
  - What's **in it for them**? Do they agree? Anything else? Is it credible?
- **IMPORTANT Overall**, how do they feel about Respond?
  - Would they consider taking part in the Trial?



- What would the steps be in discussing a commercial contract in their organisation?

## 7 Summary (10 minutes)

- Overall, **which piece(s) of communication** has been the most useful in explaining Respond, and WHY?
- Reminder of date and time of next ECP and to expect an email with a link to the online survey
- Thank respondents & depart

# Problem Statement



- 1** The Climate Change Act 2008 asks the UK to reduce greenhouse gas emissions by 80% by 2050. This will mean that we have to **burn fewer fossil fuels**.
- 2** At the same time, the **demand** on electricity networks is likely to double because:
  - Homes are likely to be heated by electricity instead of gas; and
  - Cars will be electric rather than petrol fuelled.
- 3** If we (Electricity North West) continue to use our electricity network in the same way as we do now, in order to cope with the extra demand, we would need to invest nearly £9 billion in the North West to **expand the network**. The cost of expanding the network would have to be passed on to customers through increasing their bills.

# Fault Management



The **Department of Industry** wrote in 2005 that **active fault level management** will help distribution network operators to quickly connect customers' low carbon demand and generation and at a lower cost than traditional reinforcement.



In Electricity North West's **Fault Current Limiting service (FCL service)**, Industrial, commercial and generation customers can operate their equipment so they can offer fault level management services to DNOs using new technology which will be trialled under Respond.

# Possible Options



A

**Invest** heavily in new overhead lines, underground cables and substations to meet the increase in demand. This option will be costly, disruptive to society and carbon intensive. These extra costs would be passed onto customers.

B

Roll out the **RESPOND** FCL concept.

This commercial solution will enable customers to earn rewards and will benefit all distribution customers through reduced reinforcement costs.

C

Invest in **other** alternative low carbon technologies and strategies designed to use existing capacity more effectively. Other electricity companies are trialling their own initiatives.

D

Do a **combination** of the above options.