

# IMP498 Electricity North West Celsius ECP 1 Discussion Guide

<b>Focus group #1</b>	<b>4<sup>th</sup> July 2016</b>	<i>Objective- to optimise communication materials for use in the quant survey in order to evaluate customer perception of concept and test the hypothesis “Customers who are educated on the need for and benefits of Celsius are significantly more likely to find it acceptable”.</i>
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**ECP 1 (4<sup>th</sup> July) Objective:** To test the general Celsius proposition, its description, barriers, etc and how this might be best communicated to the customers in the trial areas as part of the survey.

**ECP 2 (11<sup>th</sup> July) Objective:** Evaluate and refine the customer information to be shared with those ‘educated’ about Celsius.

**GROUP STRUCTURE (1½ - 2 HOURS):**

(1) Introduction / Warm Up	10 minutes	7.10pm
(2) Introduction to ENW (establish receipt of materials sent prior to session and understanding)	20 minutes	7.30pm
(3) Introduction to project Overview of what substations are and do		
(4) Low carbon challenge	10 minutes	7.40pm
(5) Base case scenario	10 minutes	7.50pm
(6) Alternative technologies	60 minutes	8.50pm
(7) Summary	5 minutes	8:55pm
(8) Thank and close	1 minute	9:00pm

**1 Moderator Introduction (10 minutes)**

- Introduce yourselves and your role in tonight’s discussion
- 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 and presence of observers

- Re-confirm the repeat nature of the ECP meetings- attendees will be expected to take part in **BOTH** focus group meetings, the second of which will be held on on 11<sup>th</sup> July 2017.
- Any questions?

### **Warm-up**

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

- First name
- Who lives in their household
- Are they aware of where their nearest substation is, and were they aware of where this was before we approached them to take part in the research (To assess if the actual approach has caused them to investigate/take an interest)?

### **2 Introduction to Electricity North West (10 minutes)**

#### **ENSURE RESPONDENTS HAVE A COPY OF Q&A AND CONFIRM THEY READ IT EITHER IN FOYER OR PRIOR TO COMING TO GROUP**

Run through showcards (PACK A) encouraging the group to work together to categorise into true and false statements for Electricity North West.

#### ***MODERATOR TO CHECK BEFORE PROCEEDING***

- Clarity on the structure of the UK electricity industry – have they heard of a DNO before and do they understand the difference between Electricity North West vs. their (and other) suppliers and the National Grid (transmission)
- Clarity as to what Electricity North West does (*does the panel understand they need to contact the DNO in the event of a power cut or an issue with a substation etc ?*)
- Clarity on electricity bill charges (*DNO vs. supplier*)
- Anything **confusing** / or that they didn't understand?

### **3 Introducing Celsius and substations (10 mins)**

Introduce and discover participant's current knowledge of substations

#### ***Moderator to probe to following***

- Do they understand from the material what substations are?
- What do they do?
- What do they look like/?
- Do they have one close to them?
- What does their nearest substation look like?
- Did they know they were difference in appearance – perceptions on why that might be?
- Have they ever had any cause to consider the any substation near to their home, place of work or one they regularly pass ie any aspect of its visual appearance, maintenance, noise, vegetation, engineers working in or around it etc
- Has the substation they are thinking about or the one located closest to them changed in recent years, if so, how?
- Hypothetically, do they think they would notice if it changed in the future?
- What would make them notice?
- Is there other street furniture around? Do they understand what we mean by street furniture? Can they distinguish between them and a substation - why?

### **4 Low Carbon Challenge (10 minutes)**

- **SHOWCARD A: Climate Change Act 2008** (*to be shared during the meeting*)
  - **Moderator Info:** Designed to produce additional clarity on the driving force behind the anticipated increase in electricity demand
  - **Overall impressions and thoughts on SHOWCARD A (Climate change act)**
    - Explore immediate reactions / thoughts / impressions / relevance to your family / business (spontaneous)
    - **Probe on:**
      - Credibility – to what extent does the ECP group **buy into** the Low Carbon Act and the need to make changes to prepare for the future?
      - Understanding- of **why** demand for electricity will double

- **Problem statement SHOWCARD B** (*greater demand on the network*)
  - **Overall impressions and thoughts on SHOWCARD B**
  - **Probe on:**
    - Credibility – to what extent does the ECP believe this level of impact will occur as a result of increased usage of electricity?
    - Understanding – **How** this will impact the network
- **Solution CELSIUS SHOWCARD AND SHOW CELSIUS VIDEO** (*Celsius project overview, how to reduce temperatures*)  
<https://www.youtube.com/watch?v=HreRMqHna8M> run time: 3:46
  - **Moderator Info:** Designed to introduce **CELSIUS** as an alternative to simply expanding the infrastructure (traditional reinforcement), and is one possible solution. Stress that they may not understand all the technical details but will hopefully give them a better idea of the possible solution to the increased demand
  - **Overall impressions and thoughts on VIDEO**
  - **Probe on:**
    - Ask on their impressions on the Celsius project and the substation material provided prior to the groups.
    - Overall impressions and thoughts about the information
    - Understanding – do they understand what Celsius is aiming to achieve?
    - Did it explain why we want you to take part in the research?
    - Was anything missing or not explained fully/ confusing or was there too much detail?
    - Was it helpful to see the video as well as the info card? Which did a better job at explaining Celsius?

Then discuss their part in this research. **Moderator Info:** Understand any concerns about new technology, possible impact it will have on them, how they think it compares to the current technology. This will feed into a larger quant survey where half the respondents will be educated on why they are making these changes and half will not. Next week will develop the literature for those being educated.

## **5 Base Case Scenario (10 minutes)**

**MODERATOR:** At present Electricity North West uses traditional reinforcement to expand the network to futureproof the network and this means investing in new assets. Use the concept board to explain what reinforcement entails, the cost and impact to the customer currently, how this would be more common in the future if no alternative methods were implemented.

Probe on each section:

- Does this clearly explain what is meant by the term 'network reinforcement'?
- Would they find it acceptable for these measures to occur at in the vicinity of their local substation?
- Do they understand why Electricity North West wants to reduce the amount of traditional reinforcement they conduct?

## **6 Reviewing the alternative concepts (up to 60 minutes (10 mins per technique))**

**MODERATOR:** Go through the concept boards one by one. Each represents a different proposed technology which would reduce the temperature of assets within substations, which would release latent capacity and allow them to cope with an increased demand. This would potentially defer/negate the need for traditional reinforcement and therefore reduce disruption and cost to the consumers. At present Electricity North West uses traditional reinforcement to expand the network and replace assets. The cost of reinforcement varies significantly, dependant on a range of factors. Likewise the cost of the various thermal mitigation techniques vary; albeit, these are substantially lower than network reinforcement costs. For the purpose of this research, the only costs that need to be considered is the overall saving to all GB customers from deferring or avoiding the costs of traditional reinforcement.

Other notes;

- Most retrofit pole mounted and ground mounted interventions will be installed in one day.
- Only the pmt solutions would require planned supply interruptions.
- All other solutions would be conducted without the need to temporarily interrupt supply and therefore, cause minimal customer disruption

Go through the concepts one by one as below:

### **1) Shading**

**MODERATOR:** SHOW CONCEPT A

#### **Shading substations to protect them from the heat generated by direct sunlight**

An awning or cover will be attached above the pole mounted substation, this shading will be made of a perforated material, which would shade the substation and reduce the heat caused by the sun.

Probe on each section:

- Does this clearly explain what it is?
- Do they find this an appealing method?
- Would they prefer this over traditional reinforcement
- Do they think it is a credible solution?
- Any concerns with the possible impacts?
- **SPECIFIC TO CONCEPT A (SHADING):** Ask the panel if they have an opinion on a similar type shading structure over a transformer located in an outdoor compound?
  - Do they think it would be visually unattractive?
  - Are there any other shading techniques that might be preferable (ie a shading awning/sail type structure?
  - Any other concerns? (Prompt only if no concerns raised e.g dirt, deterioration/vandalism maintenance over the long term etc
  - Do you think you are only likely to have this/these concerns if you look out onto the substation from your home?
  - Would you be concerned if you lived next to the substation but didn't actually look out at it from any point ie from any window?
  - Would you be concerned if you lived in the immediate vicinity but could not see the substation.
  - Would your view be different about a substation next to your place of work?

## **2) Heat Exchange and Air Conditioning type solutions**

MODERATOR: SHOW CONCEPT B

### **Using heat exchange and air conditioning to create airflow through the substation**

There will be an air conditioning or heat exchange outside the substation which will either cool the building or remove the heat. These solutions will also require additional vents in the housing structure, which will be in the form of louvers. Dependent on the air flow study, these could be additional louvers higher in the door, or more likely, placed higher in the wall, to facilitate air flow within the structure.

Some of these solutions include the use of fans, which may have a slight audible impact.

However, the noise generated is likely to be minimal, so use the comparison of a desk fan in an adjacent room.

Probe on each section:

- Does this clearly explain what it is?
- Do they find this an appealing method?
- Would they prefer this over traditional reinforcement
- Do they think it is a credible solution?
- Any concerns re possible impacts?
  - **SPECIFIC TO CONCEPT B:** Are the concerned about the noise?
  - Do you think you are only likely to have this/these concerns if you look out onto the substation from your home?
  - Would you be concerned if you lived next to the substation but didn't actually look out at it from any point ie from any window?
  - Would you be concerned if you lived in the immediate vicinity but could not see the substation.
  - Would your view be different about a substation next to your place of work?

### **3) Solar reflective paint**

MODERATOR: SHOW CONCEPT C

Solar reflective paint will involve painting either the lid (more often the case) or the whole of a pole mounted substation with special paint which will reflect the heat from the sun. It may also be that the roof, or the whole, of ground substations could be painted white or light grey.

Currently ground mounted substations are green or grey, while pole mounted are grey.

Probe on each section:

- Does this clearly explain what it is?
- Do they find this an appealing method?
- **SPECIFIC TO CONCEPT C (SOLAR REFLECTIVE PAINT):** is there an opinion on changing the colour of a transformer located in an outdoor compound that has traditionally been dark green in could with light reflective paint?

- Any concerns of vandalism or dirt? Agree that it's prudent to ask with this particular intervention
- Do they think it would be visually unattractive?
- What if a clear solar reflective paint was available?
- Would they prefer this over traditional reinforcement?
- Do they think it is a credible solution?
- Any concerns re possible impacts?
  - Do you think you are only likely to have this/these concerns if you look out onto the substation from your home?
  - Would you be concerned if you lived next to the substation but didn't actually look out at it from any point ie from any window?
  - Would you be concerned if you lived in the immediate vicinity but could not see the substation.
  - Would your view be different about a substation next to your place of work?

#### **4) Other solar reflective materials or grating**

MODERATOR: SHOW CONCEPT D

#### **Solar reflective materials or grating**

Like the solar reflective paint this would be attached to the roof of substations to reflect heat from the sun and therefore reduce the temperature of the substation during the day. This intervention would be placed on top of a ground mounted substation and it would have minimal impact from the ground but would be visible from the upper story of buildings.

Probe on each section:

- Does this clearly explain what it is?
- Do they find this an appealing method?
- Would they prefer this over traditional reinforcement
- Do they think it is a credible solution?
- Any concerns re possible impacts?



- **SPECIFIC TO CONCEPT D (SOLAR REFLECTIVE MATERIALS):**  
Are they concerned about glare?
- Do you think you are only likely to have this/these concerns if you look out onto the substation from your home?
- Would you be concerned if you lived next to the substation but didn't actually look out at it from any point ie from any window?
- Would you be concerned if you lived in the immediate vicinity but could not see the substation.
- Would your view be different about a substation next to your place of work?

### **5) Cable backfill**

MODERATOR: SHOW CONCEPT E

This technique involves digging a trench around the cable and filling it with a material which would absorb the heat from the cables. There would be not visual or audio impact from this concept after it was installed, but it would involve excavation works around cables near to the substation for a day while this was implemented.

Probe on each section:

- Does this clearly explain what it is?
- Do they find this an appealing method?
- **SPECIFIC TO CONCEPT 5 (CABLE BACKFILL): Probe on disruption that this could cause and effects of residents in local vicinity**
- How would you feel if the excavation work lasted longer than a day
- Would they prefer this over traditional reinforcement?
- Do they think it is a credible solution?
- Any concerns re the possible impacts?
  - Do you think you are only likely to have this/these concerns if you look out onto the substation from your home?
  - Would you be concerned if you lived next to the substation but didn't actually look out at it from any point ie from any window?

- Would you be concerned if you lived in the immediate vicinity but could not see the substation.
- Would your view be different about a substation next to your place of work?

## **6) Solar panels installed on the roof**

MODERATOR: SHOW CONCEPT F

### **Solar panels installed on roof**

Solar panels placed on the top of substations to absorb and reflect the sun to prevent the building/housing and the equipment inside from overheating, while generating electricity.

Probe on each section:

- Does this clearly explain what it is?
- Do they find this an appealing method?
  - **SPECIFIC TO CONCEPT D (SOLAR PANELS):** Are they concerned about glare?
  - Any queries about the use of the energy which will be generated?
  - Do they worry about vandalism?
- Would they prefer this over traditional reinforcement?
- Do they think it is a credible solution?
- Any concerns re the possible impacts?
  - Do you think you are only likely to have this/these concerns if you look out onto the substation from your home?
  - Would you be concerned if you lived next to the substation but didn't actually look out at it from any point ie from any window?
  - Would you be concerned if you lived in the immediate vicinity but could not see the substation.
  - Would your view be different about a substation next to your place of work?

**MODERATOR:** If there is time then probe on their feelings about retrofitting technology in this way in order to utilise existing assets.

Have they ever considered the carbon impact of major civil works such as traditional reinforcement, and now having taken part in this research, what are their thoughts about the environmental benefits or carbon reduction through the use of these technologies over reinforcement as well as the financial savings?

## **7 Summarise (5 minutes)**

Summarise what has been discussed – understanding of the Electricity North West and Celsius project, traditional reinforcement and the alternate technologies.

- Any stand out technologies that they have concerns about or think that would be preferable?

Next week we will focus on developing the literature further and we will ask you to review any changes we have made based on your feedback.

## **8 Thank and Close (1 minutes)**

Remind about attendance, same place, same time on the 11<sup>th</sup> July