

Monitoring the effects of new electricity technology on customers

Electricity North West is trialling a new way of managing the electricity network to increase its capacity and keep customer bills down at the same time. Six months into the trial, the company is conducting a series of customer surveys as the next stage in its customer engagement cycle.

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Bringing energy to your door

C₂C

Electricity North West, the company who operates the electricity network in the North West of England, is conducting a trial known as Capacity to Customers (C₂C) as part of Ofgem's Low Carbon Networks Fund. C₂C is using new technology and innovative commercial contracts to increase the amount of energy that can be transmitted through the region's existing electricity network.

How it works

The existing electricity network is designed to keep the lights on when things go wrong by keeping some capacity for emergency use. This allows electricity to be re-routed following a power cut (fault). Typically, the majority of customers are affected by a fault once every three years. So for most of the time, only half of the total capacity is used with half reserved for emergencies. By reconfiguring the network, this extra emergency capacity can be released for everyday use to benefit customers.

Faults under C₂C conditions are generally shorter in duration than on circuits outside of C₂C.

This will be done by closing the 'normal opening point' (NOP) on the C₂C trial circuits. High voltage networks are often interconnected by an NOP which is only used in the event of a network fault or planned outage. Closing the NOP allows all customers affected by a fault to be re-supplied from the alternative circuit. By redesigning the network to allow the NOP to be run closed, the two circuits can be joined to release their full capacity.

This change in operating arrangements could potentially double the number of customers who experience an individual fault. But the faults experienced will be of much shorter duration than under normal operating arrangements.

Customers in the trial areas reported significantly fewer faults since the C₂C trial began.

The company is seeking to trial the technology, measure the benefits to customers and understand how changing the network will affect supplies.

Customer surveys

Now that the trial is live a series of surveys is being conducted by market research specialist, Impact Research, who are monitoring the effects of the trial on customers in two areas:

- Measuring customers' perceptions of their power quality/reliability (fault frequency, duration, dips and spikes) throughout the C₂C trial period
- Comparing the perceptions of those domestic customers who are not on C₂C circuits (control) compared to those that are (test).

At the time of writing, 212 telephone interviews have been completed, almost all of them with domestic customers. The results of these surveys have been weighted to ensure they are representative of the general customer profile.

Survey findings

- Customers in the trial areas reported significantly fewer faults since the C₂C trial began in April 2013, compared to customers in non-trial areas (8% v 18% of respondents).
- Customers in the trial areas reported significantly fewer dips or spikes in their supply compared to non-trial areas (14% v 28% of respondents).
- Three times as many respondents in the trial areas said that the frequency of faults had decreased (9% v 3%) and only a third as many said they had increased (2% v 6%).

These results suggest that for domestic customers, the introduction of C₂C improves perceptions of the occurrence of faults. Faults under C₂C conditions are generally shorter in duration than on circuits outside

of C₂C, so the question remains: are these lower levels of observation amongst customers on trial circuits a result of fewer faults actually taking place or as a result of customers finding them harder to detect, thus enhancing perception of power quality?

To answer this, Impact is looking at cross referencing internal fault data with customer perception. Where short duration faults are detected, there is an indication that they enhance levels of acceptability of fault length amongst customers, which is something that post-fault research seeks to validate.

Summary

The research conducted so far suggests that C₂C reduces the perceived number of service interruptions of any kind (faults, dips or spikes). This is a potential benefit of the initiative over and above the intrinsic benefits of the scheme such as deferred reinforcement costs.

Next steps

The survey will be repeated in February 2014 and again in August 2014 before the trial is completed. Further interviews will also be conducted with industrial and commercial customers to allow for qualitative analysis to be undertaken. This research will help gain further valuable insight from customers into the perception of being on a C₂C circuit and the impact of the trial on power quality and reliability. The key learning outputs will be published and shared on completion of the research.

To find out more about the project visit:

www.enwl.co.uk/c2c

To find out more about Ofgem's low carbon network fund visit: www.ofgem.gov.uk