



## Value of Lost Load

### The cost of power cuts to customers

Electricity supply interruptions have financial and social impacts on customers, which vary by season, time of day, customer load and customer type. Understanding the value of lost load (VoLL) is important in determining network planning and investment and will become increasingly important as customers become more reliant on electricity in the low carbon future.

Through a programme of engagement with a comprehensive range of domestic customers and small to medium enterprises (SMEs), this project, which is funded Ofgem's Network Innovation Allowance, will deliver a greater understanding of VoLL by customer segment. The biggest challenge of this research is to understand how we need to measure the likely changes in this value in the future, with increased adoption of LCTs and greater dependency on electricity. The project runs from October 2015 until March 2017.

#### Background

Electricity North West invests millions of pounds in advanced systems and innovative technologies every year. This ensures that customers' homes and businesses continue to receive a safe and reliable electricity supply now and in the future. Despite this, power cuts can still happen, largely due to circumstances beyond our control, such as severe weather, damaged equipment and vandalism.

Power cuts can be extremely disruptive and can affect different customers in different ways. Loss of electricity supply is always inconvenient and can be costly for businesses and domestic customers. They can also be distressing, particularly for elderly and vulnerable customers who may need additional support during a power cut.

The impact of a power cut can differ, depending when it occurs. For example, loss of electricity on a summer afternoon is likely to be less disruptive to domestic customers than when it occurs on a cold, dark, winter evening. The same scenario might affect a small business very differently, disrupting production on a busy summer afternoon but having little or no impact during the evening when the business is closed.



#### The problem

In the future, power cuts may have more of an impact as the way we use electricity continues to change. Customers are expected to take up low carbon technologies, such as solar panels, heat pumps and electric vehicles. This increased dependency on electricity is likely to raise customers' expectations and make the reliability of their supply even more critical than it is today.

The electricity industry uses a financial model to calculate the cost and impact of power cuts which guides many important decisions. The model is used by Ofgem to impose penalties and incentives on distribution network operators (DNOs) like Electricity North West to drive down the frequency and duration of power cuts. It is also used by DNOs in their investment decisions to ensure funds are properly targeted in the right areas.

Although the electricity industry understands that power cuts affect customers differently, the model values one customer's power cut the same as another. For example, the impact of a power cut affecting the home of a working couple is valued the same as a nursing home with 100 residents.



## What is Electricity North West doing?

We are conducting an extensive piece of research which will lead to a better understanding of the unique impact of power cuts on a diverse range of domestic and business customers.

This research will help us develop a revised financial model that more accurately reflects specific customer segments. This will ensure that future investments are targeted at the areas of our network which will benefit our customers the most. The proposed new model will be subject to the scrutiny of our key stakeholders but will ultimately lead to fundamental changes in the way the electricity industry assesses the value of power cuts to customers. The revised model will be used by other DNOs to ensure that all GB networks meet the future needs of customers.

The findings may also influence changes in the way customers are compensated after a power cut and the penalties imposed on DNOs to improve the reliability of electricity supplies.

The project is called 'Value of Lost Load' or 'VoLL'.



## Progress to date

Since the project began in October 2015 we have carried out a number of key activities:

- Following a comprehensive literature review of published work relating to the measurement of VoLL globally; optimal methods of VoLL calculations were evaluated. These have been incorporated into a comprehensive research approach and documented into a [methodology statement](#).
- A peer review of the VoLL methodology was undertaken by Professor Ken Willis of Newcastle University, and slight modifications have been incorporated into our proposed methodology in response to his recommendations, ensuring the approach and outcomes of the research are robust.
- We have carried out interviews with key stakeholders, DECC and Citizen's Advice, to understand their views on the proposed approach. This feedback was also used to refine the approach and update the methodology statement.
- In February 2016 we submitted two key documents to Ofgem:
  - Our [customer engagement plan](#) sets out our approach and activities to engage customers and stakeholders throughout the VoLL project.
  - The [data privacy statement](#) describes how personal data will be managed and summarises the steps that will be taken to comply with the Data Protection Act.
- In April 2016 we convened four customer focus groups to help us develop our research and communication materials, each representing a key customer segment: urban domestic; rural domestic; worst served customers and SMEs from industries heavily reliant on electricity.



## What's next?

Over the next few months we will be focusing on the following key activities:

- Interviews – in addition to the customer focus groups, we will carry out ten detailed interviews with difficult-to-reach customers and stakeholders that represent organisations likely to be in contact with customers during a power cut. These will be conducted in May 2016. Work is currently ongoing to design the communications materials required for these interviews
- Key stakeholder interview with Ofgem
- Share the project aims and the methodology statement with other DNOs
- Develop our research materials utilising our findings from our customer focus groups and interviews with customers and other key stakeholders.



Find out more about VoLL on our project [website](#)

If you have a general enquiry about VoLL: [email](#) us phone us on 0800 195 4141