Electricity north west

Bringing energy to your door

An introduction to Electricity North West

About this guide

This guide provides a short, easy to read introduction to Electricity North West and our role in managing the electricity distribution network.

The guide is aimed at anyone with an interest in the workings of the electricity distribution industry, including individuals and communities thinking about setting up their own local energy projects.

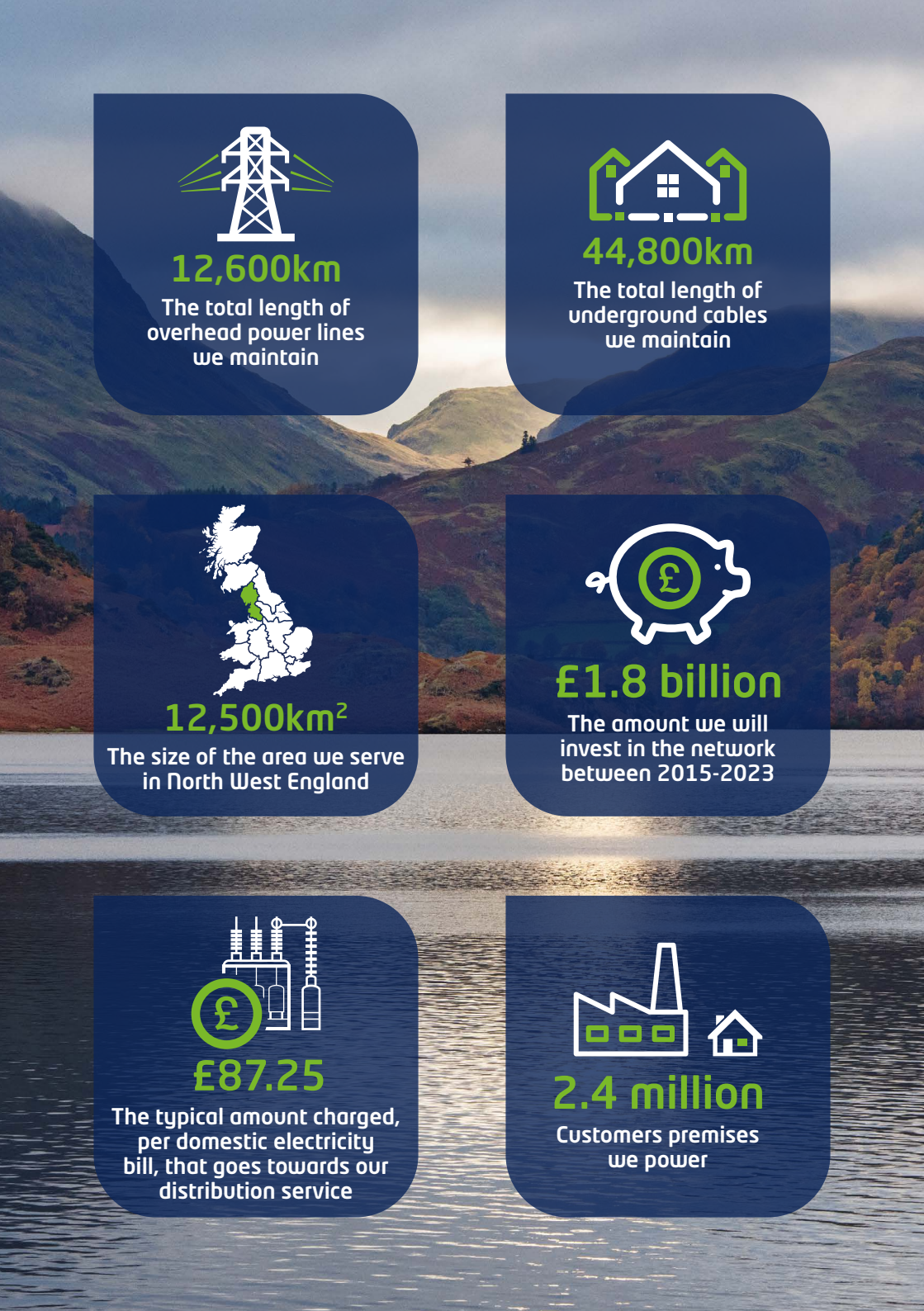
About Electricity North West

As a distribution network operator (DNO), Electricity North West owns and maintains the overhead lines, underground cables and equipment, such as switchgears and transformers, which are used to distribute electricity to customers' premises in the North West of England.

Unlike electricity suppliers, we don't buy or sell electricity. Neither do we install, operate or read electricity meters. Our role is to make sure you have the electricity you need to power your daily lives, as and when you need it. Although our name isn't on the top of your electricity bill, around 18% of your annual bill pays for the distribution service we provide.

We are a regulated business and Ofgem, the energy sector regulator, oversees and agrees what we can charge you for the services we provide. They decide the rules that we work within, and we engage with them alongside our customers and stakeholders to form our business plan; which outlines how your money is spent.

Our current business plan for 2015-2023 contains more than 40 performance targets that we must deliver within this period and our spending is closely controlled.



12,600km

The total length of overhead power lines we maintain

44,800km

The total length of underground cables we maintain

12,500km²

The size of the area we serve in North West England

£1.8 billion

The amount we will invest in the network between 2015-2023

£87.25

The typical amount charged, per domestic electricity bill, that goes towards our distribution service

2.4 million

Customers premises we power

How the grid works

The electricity distribution grid is the means by which electricity travels from a power generating plant to your home or business.

As we can't currently store large amounts of energy efficiently in the in Great Britain, the grid needs to be highly responsive – reacting in real-time to customer demand in order to generate and transport electricity to where it's needed.

Structure of the industry

Electricity Generation

Electricity is mainly generated by large power plants and, increasingly, by small scale and distributed generators such as wind farms and solar panels.

Transmission

Power from large power stations enters the transmission system which, in England, is operated by National Grid. They transport power throughout the country at 400,000 or 275,000 volts and are responsible for ensuring the country's transmission network is stable and secure.

Transmission System Operator

National Grid also have a separate company which acts as the transmission system operator and is responsible for balancing the transmission network by managing supply and demand in real time.

Distribution

Power is then stepped down in substations to lower voltages and transported by one of the local distribution networks such as Electricity North West so that it can be used safely in homes and businesses.

Electricity Usage

Your energy supplier buys electricity from the electricity market and sells it on to you. You pay your bill to your supply company who then pays for the generation, transmission, distribution and billing of your electricity.

A new electricity landscape

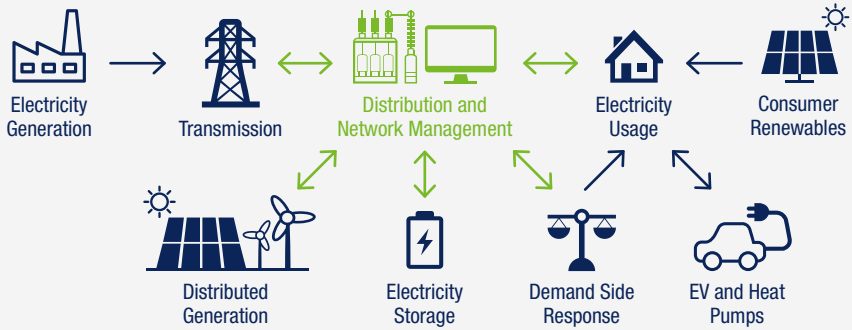
Great Britain is entering a period of unprecedented change in the way electricity is generated, stored, transported and traded.

The traditional 'top down' model, where electricity flows from large power plants, via the national transmission system to our distribution network and on to homes and businesses, is changing.

In its place, we are seeing the emergence of a decentralised model in which local producers generate energy and supply it to the communities on their doorsteps.

This has big implications for our role in the system - what used to be relatively simple...

...is becoming far more complex and multi-directional



The changing role of electricity distributors

As more local generation is connected to distribution networks across Great Britain, the role of 'distribution network operator' is changing. The following information details how Electricity North West is planning for and managing the change.

Meeting demand – now and in the future

With the UK committed to net zero carbon by 2050, we all need to reduce our reliance on fossil fuels and change to renewable sources of power.

The big challenge for our industry is how to meet the increased demand for renewable electricity, while keeping bills affordable and maintaining reliable supplies.

For electricity distributors such as Electricity North West, it is clear that we cannot simply build our way out of the problem by expanding our network as customer bills would rapidly become unsustainable.

Instead, we need a more imaginative approach to get even more from the existing network.

There are a number of ways in which we are preparing for the challenge that an increased amount of demand on our network will bring in the future.

Our approach

We are working hard to understand when demand is likely to increase, by how much and the impact it will have on our network.

In 2018, we completed our Network Innovation Allowance (NIA) funded ATLAS project in which we produced the five distribution future electricity scenarios that feed our demand forecasts. These scenarios represent views of the future, each driven by different economic and environmental factors.

We update the scenarios on an annual basis to help us to understand the range of potential changes on our network so that we can ensure we are making the best decisions for our customers, both now and in the future.

As part of this work, we publish our annual Distribution Future Electricity Scenarios (DFES) report which allows our stakeholders to understand what our expectations of the future are. A detailed data workbook is also published alongside the report which enables stakeholders to view the raw data associated with our scenarios on a much more local level to understand what they mean to them.

We have also started to prepare for the future by trialling, testing and implementing technology upgrades that our network will need and by developing new techniques.

These include:

New Network Management System: We are implementing a new Network Management System (NMS) which is purpose built for changing network requirements. It will provide us with a fully interactive electrical model of the network providing real time control and feedback and will integrate all low carbon technologies, including smart meters, to enable a smart network.

New technology devices: We are testing and implementing the latest innovations to allow us to get the most from the existing network and avoid unnecessary infrastructure upgrades. For example, we're using control devices at our network substations to make small reductions in voltage without impacting customers and using automation to stabilise voltage on the network in our Smart Streets project.

New commercial arrangements: We are developing our approach to flexible services, whereby we ask customers to change how and when they use or generate electricity, to reduce constraints on the network at critical times. In return for this service customers receive a payment from us in addition to seeing a reduction in their electricity bills. For more information on our approach see the Flexible Services section of our website.

Network reinforcement: Expanding our network will still be an essential part of our strategy. However, by developing more sophisticated relationships with customers, we can target this investment in a more strategic way.

Getting your project connected

A crucial part of the transition in our energy system will be individuals, households, communities, local organisations, schools, local authorities, businesses and others wanting to connect more distributed low carbon energy sources to our network.

Our heatmap tool can help during the early stages of planning your project by providing a high-level indication of the available capacity in your area. Our connections team will always work with you to find solutions to any network constraints and get your electricity generation project connected to our network.

We are on hand to help you from your first enquiry to final sign-off, providing you with support, knowledge and advice every step of the way. The more we know about your project, the more we can help.

You can find out more on the '**Get connected**' area of our website.

The changing role of electricity distributors

In the future there will need to be a role for balancing the grid at the distribution level, in a similar way that National Grid currently balance the transmission network. This is being talked about as a move for distribution network operators (DNOs) like us to become distribution system operation (DSO).

How this happens and who takes on what responsibilities is currently being discussed at an industry wide level through a project called Open Networks.

More information about the Open Networks projects can be found at the Electricity Network Association website

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