

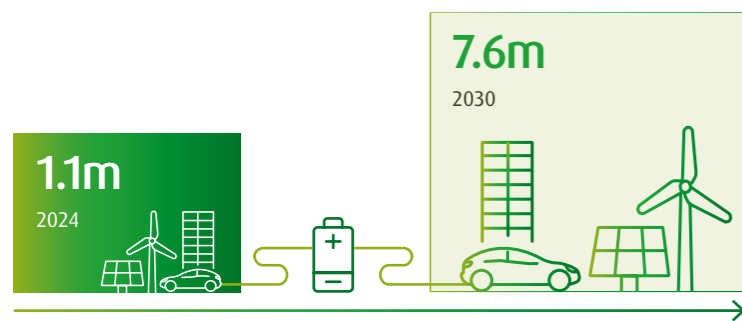
Innovation and the path to Net Zero

We never forget that we have a responsibility to provide value for money for our customers. This principle underpins every decision we make in the business. It is the reason, for example, that we structured our Distribution System Operator (DSO) in a way that has the best interests of our customers at heart.

Our performance highlights

Low-carbon technologies predicted growth

By 2030, 7.6m LCT¹ are expected to be connected to our network.



¹ LCT includes EVs, heat pumps, district heating connections and homes with solar panels.



Innovation is vital for the future of our network. It helps us keep at the forefront of developments in our field, keep costs down for customers, and helps ensure we are ready to facilitate a fair transition to a low-carbon economy.

Many innovative projects we work on are technical engineering solutions that both enhance and inform the way we manage our network. These may include digitising traditionally analogue systems to give network operators greater visibility of our network, or helping more green technologies to connect on our journey to Net Zero. Some of our innovations are rooted in our approach to data collection and management, others relate to the way we manage our customer service or our relationships with partners of all kinds.

This regulatory year we became the first ever network operator in the UK to establish a legally-independent Distribution System Operator, which further underlined our bold approach to innovation. Led by a director, the DSO is scrutinised by an independent Supervisory Board that is tasked with ensuring our investments provide value for customers.

Our approach to planning the future of our network is to put flexibility first. In other words, we look for ways to get the most from our network before building new infrastructure. That helps to ensure that when we do build new infrastructure it's the right capacity in the right place at the right time.

Ambitious and groundbreaking innovations

The ambition of Net Zero continues to drive our innovations and is a recurring theme in the many advances we saw in 2023/24.

Day-ahead flexibility

In March 2024, we were the first network to offer a day-ahead flexibility product at a distribution level. Daily mini tenders are held to secure services for the next day, in addition to the traditional twice-yearly flexibility tenders. These mini-tenders enable flexibility providers to give a more accurate picture of their availability, creating new business opportunities and allowing them to coordinate their services in other areas, such as wholesale markets and ancillary services. This new product helps flexibility providers manage supply and demand peaks more effectively, by allowing them to commit to changes in their operations one day in advance.

On this page you will see how we have performed against the following Sustainable Development Goals:



How we are...

Putting Net Zero within everyone's reach

OUR INNOVATION STRATEGY



Powercast – putting EV drivers in charge

We are always looking for ways to encourage EV driving. In March 2024, we helped ev.energy launch an innovative feature on their charging app, helping EV owners stay charged in the event of a planned power cut. The app provides alerts to EV drivers about both planned and unplanned power cuts, so people can plan ahead and charge their cars before the outage starts.

Known as 'Powercast', the free feature works by linking ev.energy's system with UK Power Networks' live power cut data, which shares real-time information. ev.energy passes the key facts on to the driver and provides advice on alternative charging methods so they can make an informed decision of what to do.

Neat Heat: Trial opens the door to low-carbon heating

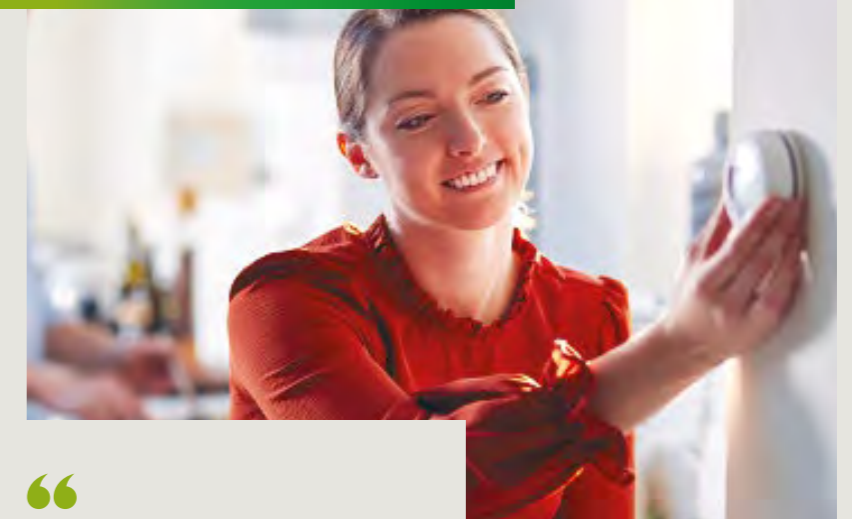
Decarbonising heating is a vital part of the path to Net Zero and in 2022 we launched a trial to test how we can move heat demand away from peak electricity hours. By installing suitable zero-emission, smart heating systems in homes which might have trouble installing traditional heat pumps, and by taking advantage of an innovative 'type-of-use' tariff developed by OVO, we proved the ability to shift electricity demand for heating outside peak hours by over 90%. The groundbreaking Neat Heat project could enable millions of small households to cut their carbon emissions significantly.

During the trial, the Zero Emission Boiler® (ZEB) 'charged' when electricity was cheaper or greener based on OVO's price signals. With a high-density storage core, the ZEB makes the most of off-peak tariffs to charge up overnight or during the day, efficiently storing this energy and releasing it when the thermostat calls for heat or hot water.

Support for Local Authorities planning for Net Zero

Around 100 of the 133 Local Authorities (LAs) in the UK Power Networks region have declared a climate emergency, and over 300 across the UK have done the same. LAs need help to produce and deploy an effective Local Area Energy Plan (LAEP) and UK Power Networks has developed an innovative approach to do that.

We have built a web-based geospatial tool, called 'Your Local Net Zero Hub' that enables Local Energy Planners to use extensive, sophisticated data sets to analyse and design ways to decarbonise their area and produce effective LAEPs that will help plan energy use for decades to come.



“Power-ups are good for the grid and good for the planet – a win for everyone. This is yet another arrow in the quiver of 'demand flexibility' and it's great to work with an innovator like UK Power Networks.”

Alex Schoch
Head of Flexibility at Octopus Energy Group

Spotlight

Not all our innovation is designed to cut carbon emissions directly. We also put our creative minds to addressing vulnerability and the inequalities that can trigger. The Spotlight project uses data modelling and machine learning to identify customers who may need more support with greater accuracy. It pulls together a huge range of data sources into a useable, comprehensive resource which allows us to understand our vulnerable customers with a degree of granularity that we have not seen before. The information it provides means we can shape our services and communicate with customers in ways that we know will be relevant for the needs we have identified. See page 28 for more detail.

POWER-UPS – GREEN POWER FOR FREE

Working with Octopus Energy, we launched an innovative offer for customers with a smart meter to use spare green electricity at no cost. The service reduces the excess generation that can occur when the wind is blowing and the sun is shining. Until now it would have been wasted. Customers are alerted by email, usually the day before, and they need to opt in for each Power-up session, which typically lasts for an hour or two. For that period, they can use as much electricity as they like at no cost, to charge EVs, run the dishwasher or whatever they want.

What this means for our customers

During Power-up sessions, customers can use as much electricity as they want and it will all be free. It's a perfect time to do the hoovering, run your heat pump or immersion heater, run the dishwasher or washing machine, make dinner, you name it. This initiative increased opportunities for domestic customers to benefit from taking part in flexibility services. 24,000 households taking part in Octopus's Power-ups received over £1.3m worth of free electricity.