

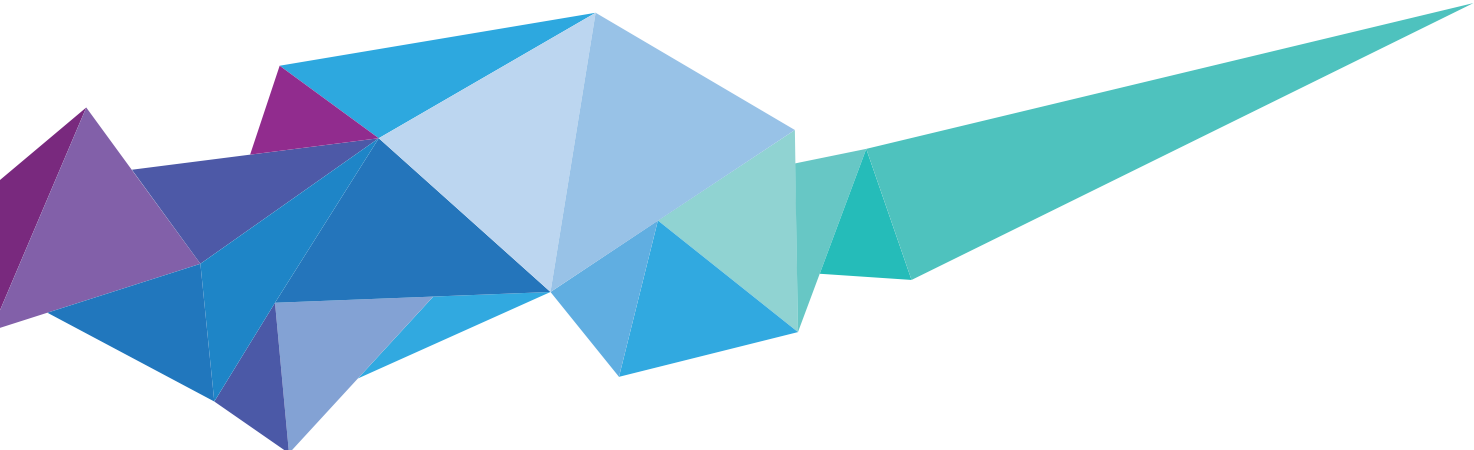
Leading the North West to net zero carbon

Progress report, May 2023



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Introduction

In 2019, in response to the climate emergency, the UK passed laws to end its contribution to global warming, committing to reduce carbon emissions and achieve net zero by 2050.

The rapid decarbonisation needed to meet this target will require a transformation of our electricity industry and the way we manage our networks.

Demand for electricity will increase significantly as our customers move away from fossil fuels and change to cleaner, greener sources of energy to power their vehicles and heat their homes and businesses.

As well as an increase in demand, more and more customers will connect their own sources of generation to our network which will have a dramatic effect on the existing electricity infrastructure.

As the region's network operator, it's our responsibility to enable this transition and provide a smart and flexible electricity distribution system which meets the changing needs of our customers and supports a low carbon economy.

In 2019 we set out our plans to lead the North West to net zero carbon and support our stakeholders' ambitions to deliver net zero even sooner than the UK target.

Our '[Leading the North West to zero carbon](#)' plan included a range of initiatives to help our region take a significant step on the road to rapid decarbonisation.

Since then we have launched our [£2 billion business plan](#) for 2023 – 2028 which reaffirms our commitment to net zero, innovation and efficiency. Our long-term vision is to achieve net zero for our own business by 2038, in line with the aims of our regional stakeholders.

Our business plan will ensure that the network is ready for the 630,000 electric vehicles expected on the region's roads by 2028 as well as a significant increase in the installation of electric heat pumps. It will also put the network in a strong position to move smoothly into the next decade as the net zero transition accelerates.

Since launching our first net zero plans in 2019 we have made significant progress in a number of areas. We're preparing our network to make sure it can meet the extra demand by increasing its capacity and flexibility, investing in digital technology and developing innovative solutions to deliver more efficient ways of working.

We are leading by example and reducing our own carbon footprint by making our buildings and substations more energy efficient, adopting low carbon technologies and switching to electric vehicles. We are also inspiring and enabling our stakeholders to take action by providing tailored advice and support.

In this report we provide a summary of the actions we have taken to reduce our operational carbon emissions and how we are inspiring our customers and stakeholders to do the same.

For a more detailed review of the actions we're taking to reduce the wider environmental impacts of our network activity and look after the environment, please see our [environmental action plan](#).

Steve Cox
Asset and Technology Director



Preparing our network

To make sure our network can meet the extra demand and to adapt to the unparalleled changes we expect to see, we are implementing plans now to ensure customers can continue to enjoy one of the most reliable electricity networks in the UK, at the lowest possible cost.

We are doing this in a number of ways:

- Increasing the capacity and flexibility of our network by investing in new substations and cables
- Investing in digital technology, installing new monitoring and control systems to transform our network into a smart grid
- Developing innovative solutions to deliver more efficient ways of working and make the best use of our existing assets.

By investing in our network now, we are enabling our customers to make the switch to low carbon technologies like electric vehicles, safe in the knowledge that our network will be able to meet the extra demand and continue to provide a safe and reliable electricity supply.

Since 2019 we have completed a number of projects and initiatives to prepare our network for net zero.

Samlesbury Enterprise Zone

This £7.5 million project will ensure that the electricity network can meet the demand from the new Samlesbury Enterprise Zone, near Preston.

A new low carbon substation and 22km of underground cable will guarantee the enterprise zone all the power it needs to drive clean growth and help it become a national centre of excellence for advanced engineering and manufacturing.

The new substation will be one of the first low carbon primary substations on our network, powered by clean energy generated from its own on-site solar panels.

[Find out more.](#)

South Manchester Enterprise Zone

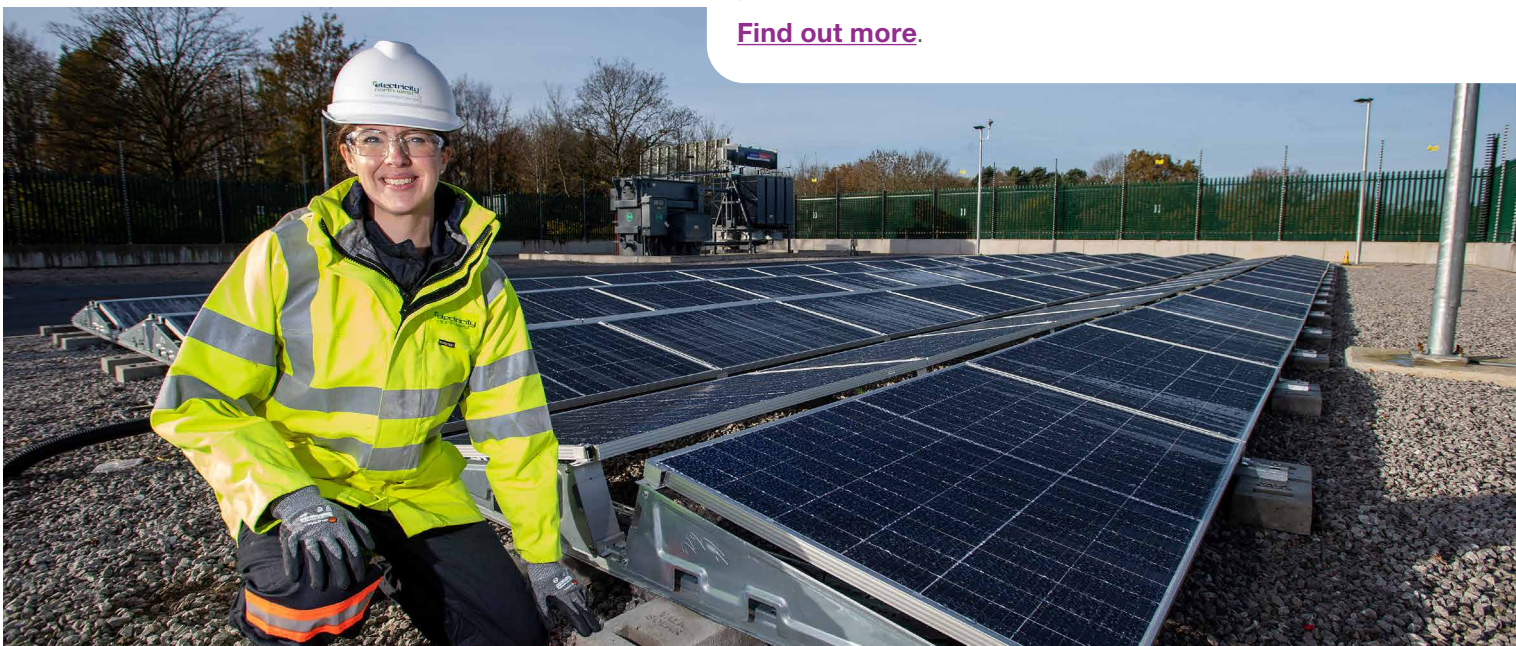
We have invested £7 million to upgrade the electricity network which will power the South Manchester Enterprise Zone and a new terminal at Manchester Airport.

The work includes a new low carbon primary substation and underground cables which has doubled the capacity of the local network.

The low carbon substation uses power from 128 solar panels installed on its roof and is the first of its kind in the North West.

The project will help prepare the area for the net zero carbon future by enabling the installation of thousands of electric vehicle charge points in the enterprise zone and the connection of sources of renewable generation such as solar panels.

[Find out more.](#)





We are committed to using flexible services as an alternative solution to network reinforcement

Flexible services

In 2018 we launched our first call for 'flexible services'. This is the term we use for paying a customer to reduce their electricity consumption or increase generation on request, due to a network constraint. A network constraint occurs when demand for electricity is greater than the amount the local network is able to provide safely.

Flexible services are procured by Electricity North West in response to a tender process conducted on the PicoFlex platform. A customer can respond to the tender if they are connected to the part of the network where we have identified a constraint and if they can vary the amount of energy they consume or generate at agreed times and dates.

Using this approach reduces the cost for customers and lowers carbon emissions while ensuring that the network remains resilient, reliable and meets our customers' needs.

We are committed to using flexible services as an alternative solution to network reinforcement, where cost-effective, and we aim to increase the accessibility and transparency of our opportunities every year.

Since 2018, we have issued 11 tenders in 46 different locations across the North West, totalling 3,400MW.

Over the next five years we expect flexibility services to help us meet our net zero target while reducing energy bills for customers by over £3.5 million per year.

[Find out more.](#)

Losses strategy

Network losses are the proportion of electricity that is lost from the network as it's transported from the power grid to customers' homes and businesses. They are a natural consequence of electricity distribution which can never be totally eliminated.

They occur for a number of reasons which are either technical or non-technical. Technical losses are usually lost in the form of heat from electrical cables, lines and transformers used to transport electricity. Non-technical losses relate to energy which cannot be accounted for because of errors in measuring or theft.

In 2021 we launched our new losses strategy which sets out our commitment to reduce losses on our network through a number of initiatives which fall into the following categories:

- Systems and processes – enhancing our internal systems and processes to more easily identify network equipment likely to have high technical losses.
- Network equipment – replacing network equipment with more efficient 'low loss' transformers and cables.
- Electricity theft – working with cross-industry stakeholders including the police, fire service, energy supply companies and local authorities to tackle the theft of electricity.
- Innovation and best practice – reviewing learning from across the industry to consider the full range of options for tackling losses.
- Knowledge sharing – sharing knowledge with other network operators on the best ways to reduce electrical losses.

[Find out more.](#)

Innovation

Innovation is an integral part of our business plan and is key to our success. We are developing ground-breaking, flexible solutions driven by the changing needs of our customers in a low carbon future.

Our innovation strategy describes how innovation will help to address the challenges of the energy system transition, while maintaining a safe and reliable network and ensuring that the most vulnerable in our communities can benefit from changes being made in the energy industry.

As part of our innovation programme, we have already developed two world-leading technologies. CLASS and Smart Street combine new technology and creative thinking to provide more capacity, reduce emissions and reduce costs for customers.

CLASS

The first of its kind, CLASS is a reliable low cost, low carbon solution which uses voltage control to reduce demand for electricity, without customers noticing a difference to their service.

Innovative voltage controllers installed in hundreds of primary substations across the North West are controlled centrally and can provide a 'demand response' in a matter of seconds.

This proven technology is already helping the National Grid reduce spikes in demand and balance the national electricity network on a daily basis. It provides the same benefit as using a generator powered by fossil fuels, but at lower cost and without creating harmful emissions.

Described by energy regulator Ofgem as 'exceptional', the benefits of CLASS include lower bills for customers, reduced emissions and the development of the low carbon energy sector.

Since it was first deployed in the North West in 2020, CLASS has reduced bills for customers by £7.3m. In December 2022, Ofgem published its decision to allow the system to be rolled out nationally which could save GB customers around £1 billion over the next 30 years.

[Find out more.](#)

Smart Street

Smart Street is another example of how we have successfully transferred an innovation project into business as usual and delivered significant financial and environmental benefits for our customers.

Smart Street combines intelligent software with innovative devices to help our low voltage network run more efficiently. This can reduce electricity bills, reduce carbon emissions and makes it easier to adopt low carbon technologies onto the electricity network – all without impacting power quality.

In 2019 we were awarded £18 million from Ofgem's Innovation Roll-out Mechanism to install Smart Street technology at 180 distribution substations between 2020-2023. This rollout will benefit 45,000 customers in areas with a high uptake of low carbon technologies and areas of fuel poverty, reducing electricity consumption by up to 8% per year.

Between 2023-2028 we will roll-out Smart Street to a further 250,000 customers which could save an average of £50 per year on their energy bills.

[Find out more.](#)



Leading by example

As well as preparing our network for net zero we are working to reduce our own carbon footprint. We are aiming to become a leader in the reduction of carbon emissions and achieve net zero by 2038. We want to lead by example to inspire our people, our customers and our other stakeholders to reduce their own carbon footprints.

Our aim is to achieve net zero carbon by transforming our estate to be as energy efficient as possible and by using on-site and off-site generation to meet our energy demand. We are also adopting electric vehicles and making it easier for colleagues to do the same with our [sustainable transport policy](#).

Renewable energy tariff

In October 2019, we changed our electricity supply to 100% renewable energy. Electricity for our operational substations and most of our offices and depots is generated from a mix of wind and hydro, which saved 5,492 tonnes of CO₂ equivalent in the first 12 months.

LED replacement

In 2018, we had a range of lighting systems that varied in age and efficiency across our non-operational sites. As lighting on our properties typically accounts for 20-50% of our overall energy use at each site, installing LED lighting across our offices and depots was an ideal step to reduce energy consumption and costs.

LED lights use much less energy than standard halogen light bulbs and benefit from a life span of up to 80,000 hours which reduces maintenance costs too. We completed the rollout at all sites in 2021.

We expect the investment of £360,000 to be repaid within three years and to save 107 tonnes CO₂ equivalent every year.



Installing LED lighting across our offices and depots was an ideal step to reduce energy consumption and costs

Net zero depots and substations

Starting with two depots, our training academy in Blackburn and our depot in Oldham, we are testing and demonstrating a number of low carbon technologies to assess their suitability and relative benefits.

Solar panels

We have installed hybrid roof-mounted solar PV system at our Blackburn depot at multiple locations, which together generate around 39,260 kWh of electricity and avoid 7.6 tonnes of CO₂ equivalent a year.

Our plan is to continue with our solar installation at Blackburn and the nearby training academy to include three additional roof-mounted systems and solar car ports to make the entire site net zero. Once complete we expect to generate 124,663kWh of electricity a year which will avoid 24.1 tonnes of CO₂ equivalent.

We have also installed 128 ground-mounted solar panels at our Thorley Lane primary substation at the south Manchester enterprise zone, the first self-sufficient low carbon substation in the North West. The panels can generate 35,396 kWh of electricity a year and save 6.8 tonnes of CO₂ equivalent. In 2023 we will complete a second low carbon substation at the Lancashire enterprise zone in Samlesbury.



Heat pumps


In October 2021, we installed a water-cooled ground source heat pump air conditioning system at our Oldham depot. Since then annual energy consumption has reduced from 186,030kWh to 140,000kWh – a 25% reduction and a saving of 8.9 tonnes of CO₂ equivalent.

In 2019 we carried out a survey of the ventilation, heating and cooling systems at our training academy. As a result of the survey findings we decided to retain the existing air source heat pump system to minimise embodied carbon emissions from new materials.

But the site survey also showed that there was a risk of some of the rooms being over-cooled. So in 2020 we installed window and motion sensors and a new control system to ensure that optimum temperatures are maintained throughout the building.

Combined with other energy efficiency measures, the upgrade has reduced the site's annual energy use by 31%, from 162,357kWh to 111,425kWh, and led to a saving of 9.8 tonnes of CO₂ equivalent.



Since the new heat pump was installed at our Oldham depot, the office is warm in the winter and cool in the summer. And we've seen a big reduction in our energy bills. 

Accommodation officer, Oldham depot

Electric vehicles and sustainable transport

The decarbonisation of the transport sector is a critical element on our journey to net zero. We started our transition to electric vehicles (EVs) in 2018 with the introduction of a number of Nissan Leaf pool cars. This was followed by the launch of our [EV strategy](#) in 2019 and our sustainable transport policy in 2020.

Our aim is to replace our fleet vehicles with lower emission alternatives and to support and enable our colleagues to transition to EVs and sustainable transport.

Electric vehicles and incentives

- In 2020 we increased our range of company vehicles from just one EV model to include a variety of EVs and hybrids.
- We offer enhanced car allowances to company car users – up to 43% for a full battery EV and 30% for a plug-in hybrid vehicle.
- Colleagues who do not have a company car can purchase an EV via an affinity scheme run by our car supplier.

Charge points

- We have installed 120 charge points across our offices and depots for colleagues and visitors.
- We offer interest free loans for the purchase of a home charger.
- We have also provided EV charging in seven accessible parking spaces.

Sustainable transport

- We offer interest-free loans for all colleagues to buy season tickets for public transport.
- We have enhanced our salary sacrifice cycle to work scheme by removing the £1,000 purchase cap to encourage the take-up of electric bikes.

60% of our company car users now have or have ordered an EV or plug-in hybrid.



74% of eligible colleagues selected EVs in the 2021 round of company car renewals.

Nearly 100 people currently use our 'cycle to work' scheme, an increase of 25% since we lifted the £1,000 limit.



Electric mini diggers

In 2019 Electricity North West became the region's first company to purchase four state-of-the-art electric mini diggers.

The first models to go into full production in the construction industry, the new JCB mini diggers are fully electric and have zero exhaust emissions.

As well as the environmental advantages associated with reduced carbon emissions, the electric diggers bring other benefits. They're five times quieter than traditional diesel vehicles which reduces noise disturbance for customers and allows for better communication between our engineers; this is safer for them and the public.

The diggers were more expensive than their traditional counterparts, but electricity running costs are significantly lower compared to diesel costs. Servicing costs are up to 70% lower and they can be fully charged in two hours making them ideal for our engineers who work 24 hours a day to maintain the electricity network.

Each vehicle will reduce our carbon emissions by 64 tonnes CO₂ equivalent a year.

[Find out more](#)



Carbon literacy

We became the world's first 'carbon literate' power network operator after receiving a bronze accreditation from The [Carbon Literacy Project](#) in 2019. This was followed by our silver accreditation in 2022.

The awards recognise our increased commitment to acting on climate change, supporting colleagues to take action and sharing knowledge and best practice.

We have already rolled out carbon literacy training to our leadership team and from March 2023 we will start to deliver training to a further 35% (750) of our colleagues on our journey to achieve gold accreditation.

In 2021 at the annual United Nations Climate Change Conference (COP26) we took part in the first ever 'carbon literacy day of action'.

Organised by the Carbon Literacy Project, we joined organisations across the world to deliver carbon literacy training. The goal was to reach the highest number of people trained in a single day. Over 760 people were trained on the day and we are proud to have played our part.

[Find out more](#)



We became the world's first 'carbon literate' power network operator

Measuring our progress

Race to net zero and science based targets

In 2021 we joined the [Race to Zero campaign](#), a UN-backed coalition of more than 11,000 global leading companies which are focused on addressing the climate emergency. At the same time we signed the 'Business Ambition for 1.5°C' commitment, to become one of the companies taking action on the [science-based targets initiative](#) (SBTi) and one of the list of leaders on the [UN Global Compact](#) website.

These targets are consistent with keeping global warming to 1.5°C above pre-industrial levels – a key element of the Paris Climate Agreement.

In 2023, our own science-based target, to reduce our emissions by 63% between 2020 and 2035, was validated against the latest SBTi criteria.

Emissions reductions

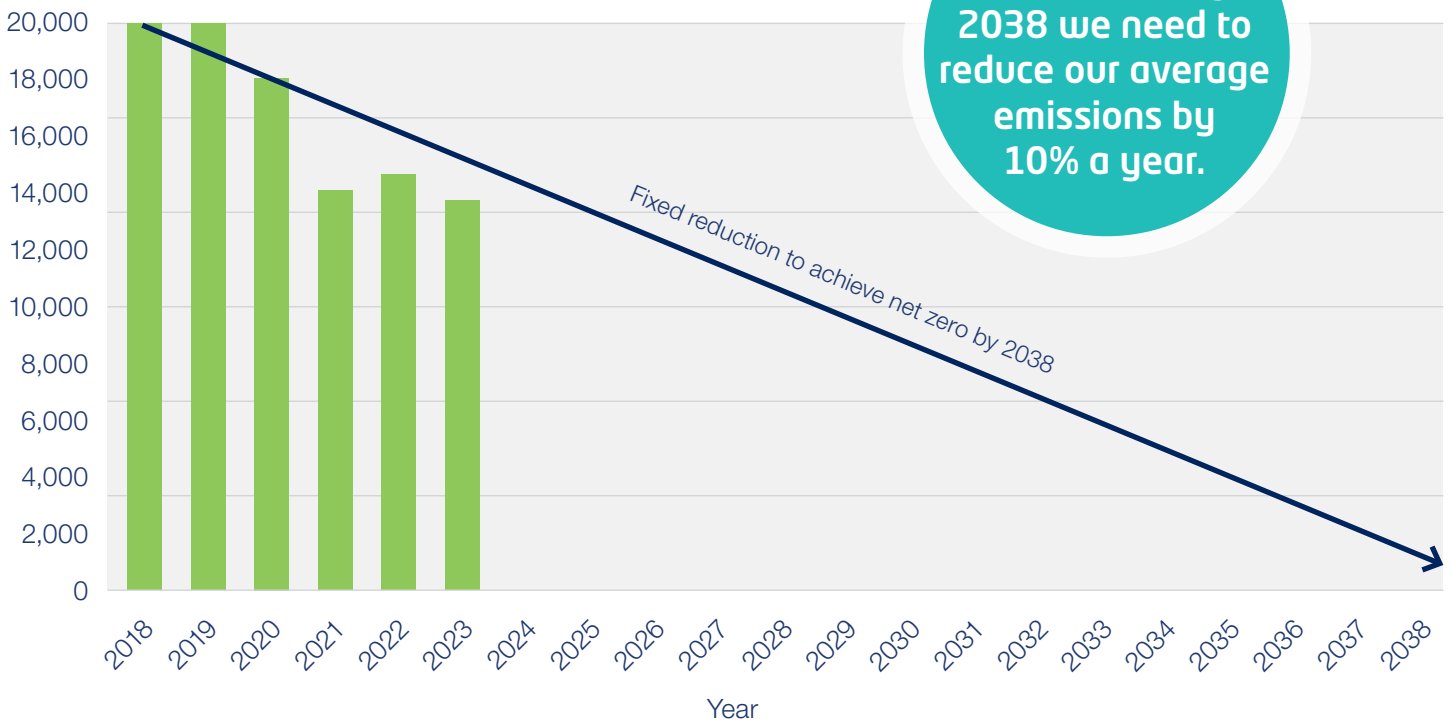
As a network operator, we monitor our operational carbon emissions carefully and report our performance annually in [our environment report](#).

Emissions arise from energy use in our depots and substations and fuel for transport, generators and business travel.

In 2017/18 our business carbon footprint (excluding electricity losses from the network) was 20,599 tonnes of CO₂ equivalent. To meet zero carbon by 2038 we need to reduce our average emissions by 10% a year.

At the end of March 2023, our estimated annual emissions were 13,703 tonnes of CO₂ equivalent against our target of 14,000, meaning we are on track to achieve our challenging target.

Our greenhouse gas emissions from 2018



Inspiring and enabling businesses

As the region's distribution network operator, one of our roles is to provide information, advice and guidance to customers and businesses to help them take action to reduce their energy bills and carbon emissions.

According to a [government report](#) in October 2022, businesses are estimated to produce 18% of the UK's total CO₂ emissions. They also contribute significantly to transport emissions which accounted for 31.5% of emissions in 2021.

Businesses are therefore a key audience for net zero advice and support, particularly smaller businesses (SMEs) who are responsible for around half of total emissions from UK businesses.

Over the last year two years, we have been developing and deploying a communications and engagement programme to inspire businesses to take action and raise awareness of net zero and low carbon technologies. Our approach is to work with partners across the North West to signpost businesses to free practical, specialist help and support provided by our own teams, installers and other partners.

Our role is also to reassure businesses that the network is fit for the future and update them about key projects that will support the uptake of low carbon technologies and rollout of EV charging infrastructure.

Strategic partnerships

We have formed a number of strategic partnerships with key net zero stakeholders across the North West and locally in Cumbria, Lancashire and Greater Manchester.

The purpose of these partnerships is to support businesses by working together and sharing our collective knowledge and expertise to deliver joint campaigns, events and digital content.

Greater Manchester

We are a strategic partner of [Bee Net Zero](#), which brings together networks, organisations and support programmes from across Greater Manchester. The partnership aims 'to make Greater Manchester the easiest place in the UK to become a net zero business by supporting the transition to a zero carbon economy and helping businesses to reduce energy costs'.

Lancashire

We are working with a number of organisations across Lancashire such as the local chambers and BOOST where work is under way to set a net zero target for the county. A number of support programmes are in already place to help local businesses to decarbonise.

Cumbria

Cumbria has a target to reach net zero by 2037 and is working to set up support programmes across the county to help local businesses decarbonise. We are working with a number of organisations in the area such as the local chamber, Cumbria EV Charging Partnership and Cumbria Tourism.

National partners

We are a founding partner of the [Zero Carbon Business Partnership](#), a national platform for advice on net zero for SMEs. The partnership is a coalition of the UK's main business organisations, energy networks, high street banks and professional bodies.

The partnership aims to understand the decarbonisation needs, barriers and opportunities for SMEs; prioritise shared investment in and coordinate the development of content and tools that meet SME needs; and develop a shared strategy for engaging with SMEs.

[Find out more.](#)



Net zero business events

Over the last two years we have held a number of large scale net zero events for businesses, collaborating with industry leaders and our partners to share our expertise and experience.

The events offer practical advice and guidance in key areas such as switching to electric vehicles, energy efficiency and low carbon technologies.

Delegates are able to find out what help and support is available from ourselves, partners and local suppliers, test drive a range of electric vehicles and have the chance to network with other businesses and suppliers.

Headline events over the last 12 months include:

- GM electric vehicles experience, Media City, July 2022
- Lancashire electric vehicles experience, Blackburn, October 2022
- Cumbria 'leading the charge' electric vehicles experience, March 2023

All of these events have attracted a wide audience including businesses, local authorities, education, LCT suppliers and key net zero partners such as local chambers and local enterprise partnerships.

[Find out more.](#)



In the last 12 months we have led or supported 43 events to help raise awareness of net zero with local businesses attended by 2,430 delegates



It's great to see Electricity North West leading the way and doing so much to support decarbonisation in Cumbria. I look forward to the upcoming Electrifying Travel event in Keswick.

Zero Carbon Cumbria



Great event - really showcased the Manchester take on EV infrastructure. Electricity North West is ahead of the game as usual!

Media City EV event delegate



Go net zero hub and materials

Our dedicated web portal was developed in 2020 after carrying out extensive research with our stakeholders to ensure the information it provides is informative and easy to find. In 2022 we updated the portal to focus on two key areas which businesses told us they needed – [‘Net zero for business’](#) and [‘Take action’](#).

The portal includes a wealth of information on net zero, energy efficiency, low carbon technologies, grants and incentives, events and signposting to further information. It also includes factsheets, case studies, videos and frequently asked questions.

Combined website traffic to the ‘Net zero for business’ and ‘Take action’ areas of the website has increased to nearly 50% between 2021/22 and 2022/23.

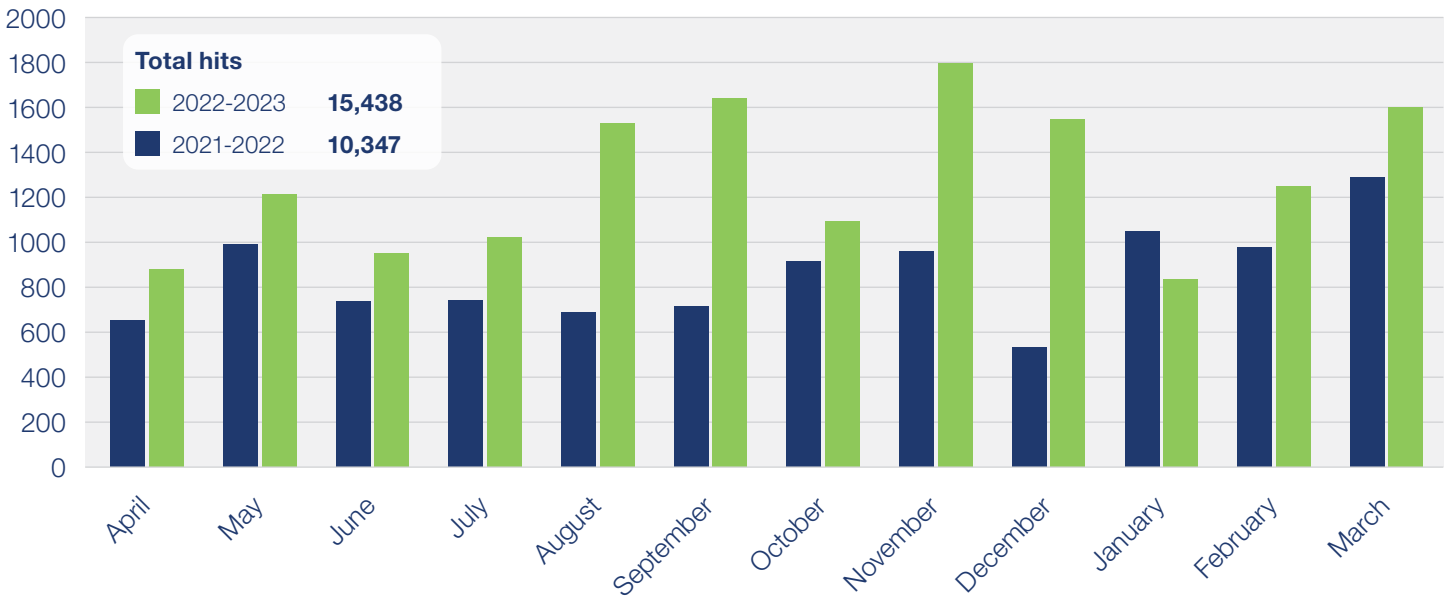


If I had no knowledge and need to find out about becoming more energy efficient, this is a fantastic tool to start at ...



Survey respondent

Combined website hits for the two business areas of the net zero portal 2021/22 vs 2022/23



Research and insight

To understand the challenges, barriers and needs of our audience we have used market research to develop the support we offer to businesses. Research has helped us to develop our website and to better understand their needs and expectations.

In 2020, we worked with the Tyndall Centre for Climate Change Research, to carry out detailed research and to produce [tailored information](#) for different types of business on the kinds of steps to take to reduce energy bills.

In 2022 we joined forces with DJS Research to carry out a large scale survey of businesses in the North West.

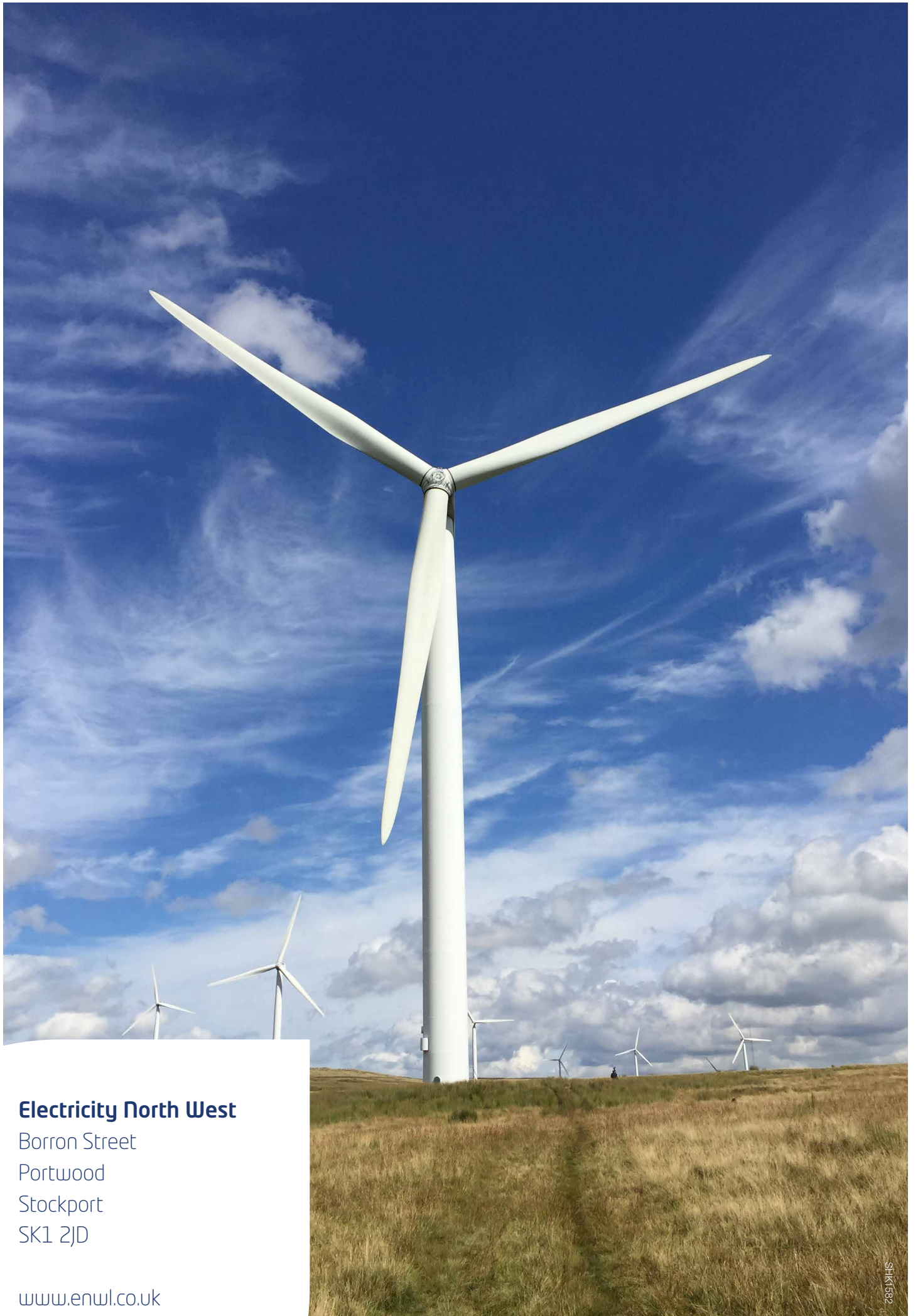
The aim of the research was to ‘ensure we understand the latest progress by businesses, the barriers to further action and the help they need from us and our partners to remove them’.

Get in touch

 For more information, please refer to the [net zero pages](#) of our website and our [environmental action plan](#).

 Or drop us a line at [gonetzzero@enwl.co.uk](mailto:gonetzero@enwl.co.uk).

Stay connected...     



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