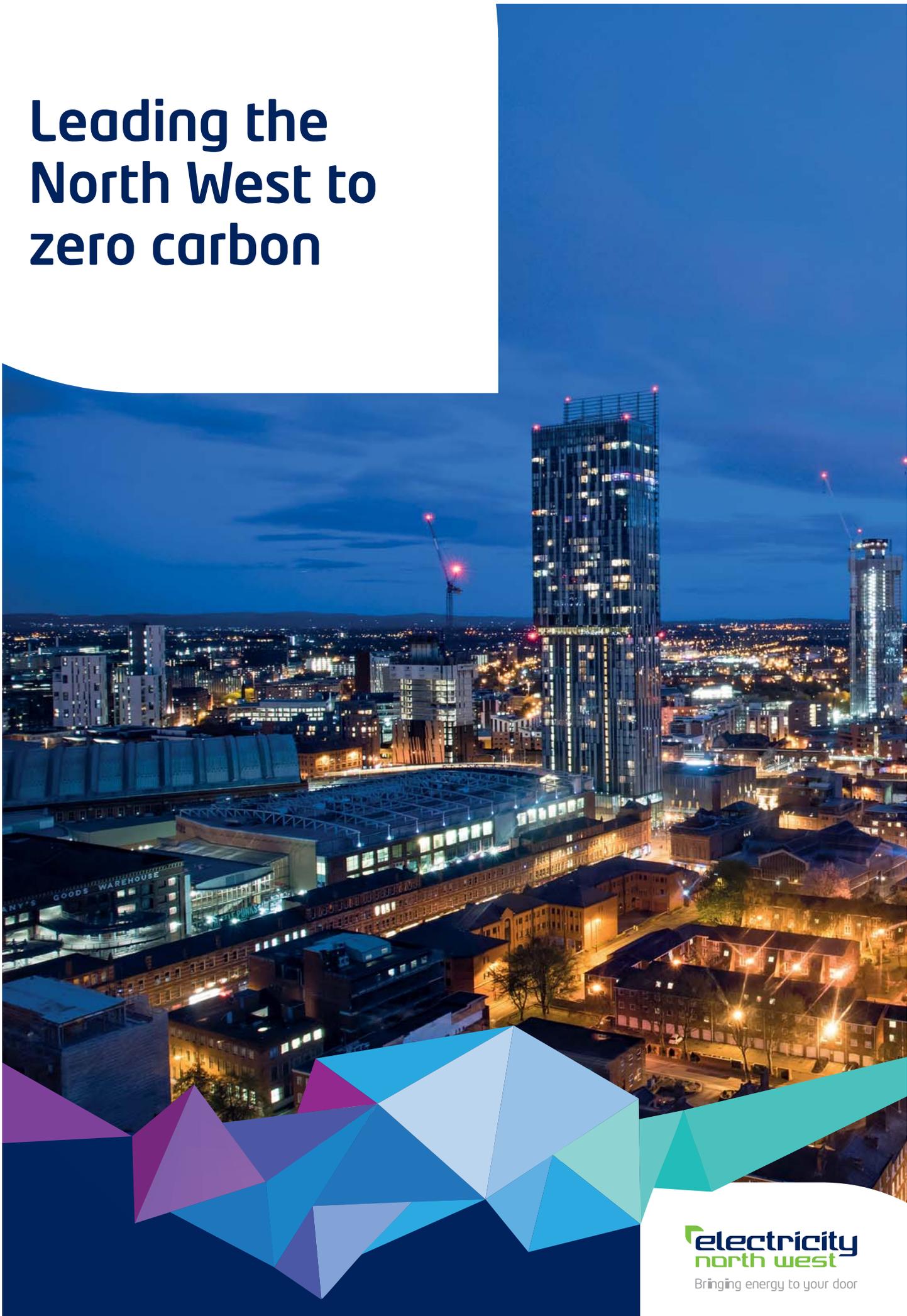
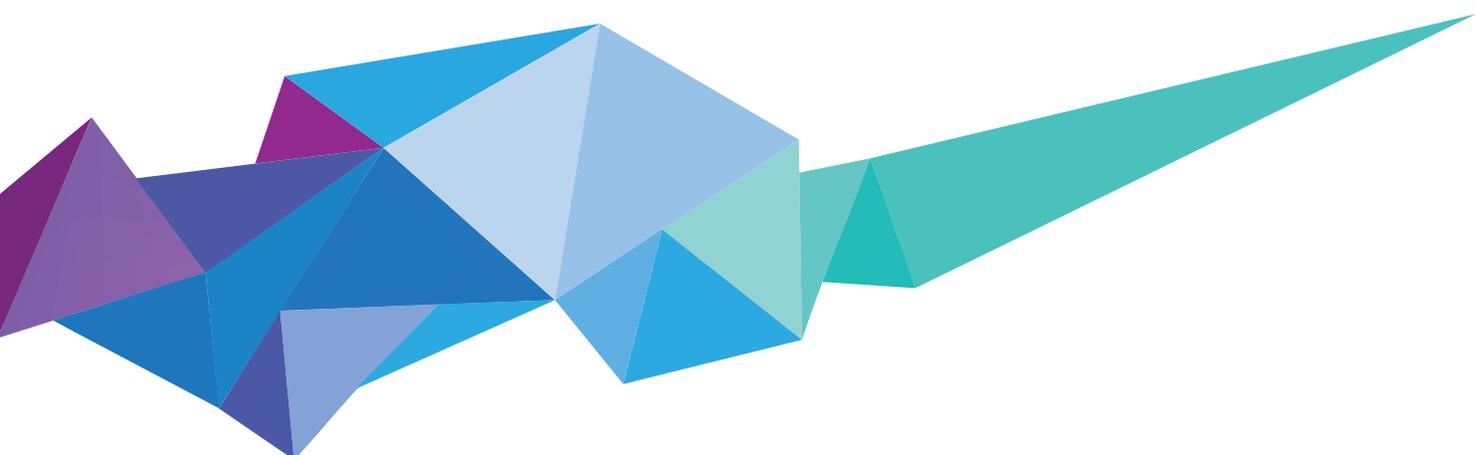


Leading the North West to zero carbon



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Our ambition

The UK is on a transformative journey to decarbonise. Global leaders established the Paris Climate Change Agreement in 2015, which agreed that rapid decarbonisation is critical if we are to limit global warming. A significant part of this journey is the revolution of our electricity industry – the way energy is generated, stored, transported and traded. Here in the North West, our ambitions to reduce carbon emissions are even bolder.

We recognise our critical role as the North West's network operator and will demonstrate how businesses and consumers can mitigate their impact on the climate. We will lead this transformation and encourage the growth of local renewable generation and storage across the region and expect that electric vehicles and the electrification of heat will provide a challenge and an opportunity for the electricity network. We are investing to ensure that the potential that this technology offers to the North West can be maximised.

Our plan: Leading the North West to zero carbon, outlines our ambition to meet the region's carbon emissions target and sets out the range of initiatives and investments which will ensure we take a significant step on the road to achieving rapid decarbonisation.

With regional stakeholders and political leaders looking to organisations to show leadership on the road to decarbonisation,

it is our responsibility to help our customers by taking a lead role in transitioning to a low carbon future.

Our vision is to create and manage a dynamic and interactive electricity network. We have the energy and commitment to transform our communities and to show how serious we are, we are investing an extra £63.5m over the next four years to help businesses, our customers and our colleagues to decarbonise.

Greater Manchester's Mayor, Andy Burnham, has publicly stated that the region will be a pioneer and accelerate efforts to reduce carbon emissions to near-zero by 2038. Electricity North West is committed to becoming one of the leading organisations helping the whole of the North West to achieve this goal, not just Greater Manchester.

This is the next phase of the journey to decarbonise at a rate never seen before. It is critical that we continue to talk and engage with stakeholders as our plans develop. We welcome your input to help shape our plans and priorities. If you have any comments, please get in touch.



Peter Emery
Chief Executive Officer



Introduction

There is no doubt that organisations and individual consumers collectively need to act now in tackling global warming. This can and will be achieved by moving to clean energy and sustainable lifestyles to reduce carbon emissions. With demand for electricity set to double by 2050, urgent change is now required in terms of the way we, as North West residents and businesses, manage our energy needs. We have a key role in ensuring we are leading and supporting our communities to achieve true sustainability.

Our role, as a distribution network operator is two-fold. We have a key responsibility to reduce our own organisational carbon footprint, but secondly, we are in a unique position as the electricity network provider to lead and help other organisations transition to a low carbon economy. This plan sets out our commitment.

We have taken a carbon budget approach to reducing our emissions with the aim of reaching zero carbon by 2038. This will support our stakeholders' aspirations, including Greater Manchester's target of carbon neutrality by 2038 and the activities of the Lake District National Park Climate Change partnership to create a low carbon Lake District.

This plan not only explains our role in transitioning to a zero carbon economy, but also how we will meet our responsible business framework commitments of:

Driving down our carbon emissions

Helping our colleagues and customers to drive down their carbon emissions





Our leadership role

As the region's distribution network operator (DNO), we own and operate the network infrastructure that transports electricity from the national grid to people's homes and businesses. In simple terms, we power the North West network and keep people's homes, businesses and lives running.

How do we achieve that?

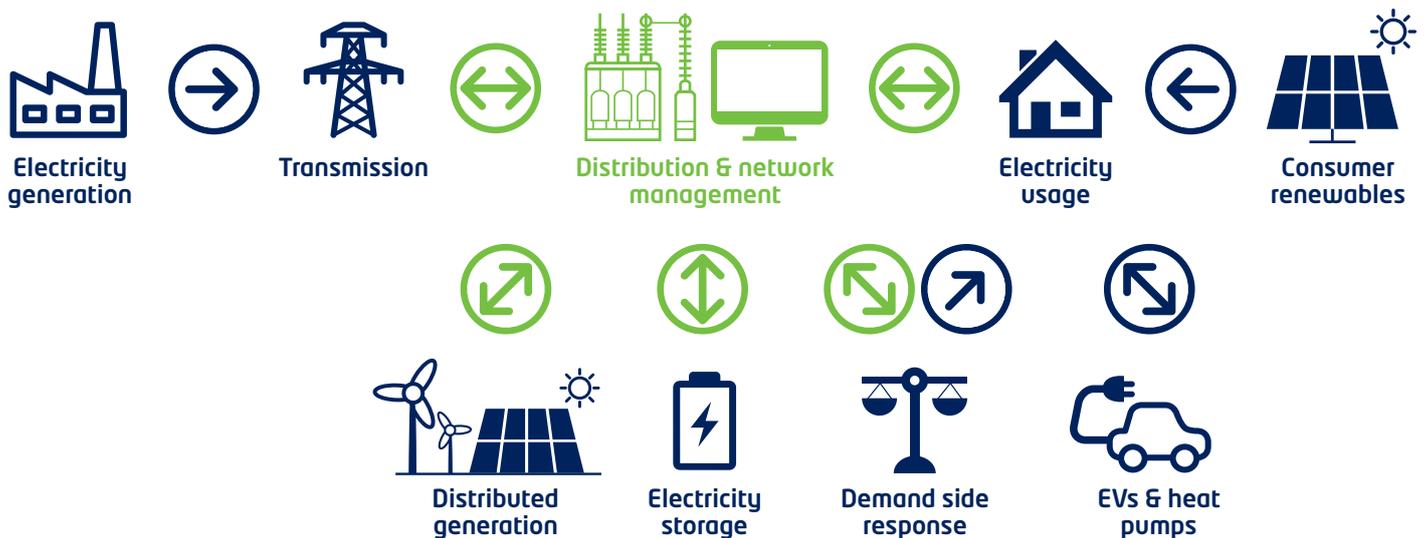
- Our network is made up of overhead lines, underground cables and other equipment used to distribute electricity to customers' premises. This network is paid for by customers through their electricity supply bills.

- We invest £1m a day in the North West.
- We deliver over 25 terawatt hours of electricity through the network each year to around 2.4 million customers across an area of 12,500 square kilometres. We are responsible for the maintenance and upkeep of the network ensuring it's fit for future changes.
- We encourage the growth of renewable generation and storage across the region and expect that electric vehicles and the electrification of heat will provide both a challenge and an opportunity for the electricity network. We are investing in the network to ensure that the potential that this technology offers to the North West can be maximised.

What used to be relatively simple...



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





Addressing our own carbon emissions

A smart energy network fit for the future

We are responsible for ensuring that enough power can be provided where needed at an affordable price and in an environmentally-sustainable way.

We're at the forefront of energy innovation and our focus is working with local communities, stakeholders and expert partners to ensure everyone has the power they need, when they need it. We are constantly researching and modelling the network capacity that will be required, and in 2018 we published our first Distribution Future Electricity Scenarios and Regional Insights report. This report, which we will publish annually, shows how demand for electricity is likely to develop over time and helps inform planning to ensure the grid can meet demand.

As part of an industry-wide shift that will transform the role of network operators to system operators, in 2018 we launched our first call for flexibility services. This is where organisations or individuals capable of adjusting how much electricity they consume or generate are asked to support the local distribution network by being flexible in return for payment from us when the network is becoming constrained. We will use this flexibility to support how we operate our local networks and as an alternative to reinforcing it with more infrastructure. This reduces the cost for customers while ensuring that the network remains resilient, reliable and meets our customers' needs.

Our role in transitioning to a zero carbon economy

As a network operator, we have several roles to play in the transition to a zero carbon economy:

1. Supporting our customers

The North West region is seeing huge economic growth. This coupled with decarbonisation is driving an increased demand for electricity as an energy source. Customers are relying more and more on power for all elements of their lives, from smart technology in homes, to electric vehicles. We are supporting our customers to transition to a zero carbon economy by encouraging and connecting technologies, such as renewable energy, heat pumps and electric vehicles to the grid.

2. Managing our emissions

We also have a responsibility to manage our operational emissions that arise from our onsite energy use at our depots and substations, and from transport. As network operator, it is critical we take a proactive role in managing our carbon footprint. We report annually on our carbon emissions in our environment report¹ and in 2017/18 our business carbon footprint (excluding electricity losses from the network) was 20,599 tonnes. These emissions arise from energy use in our depots and substations, fuel use for transport and generators we use during power cuts, and from business travel.

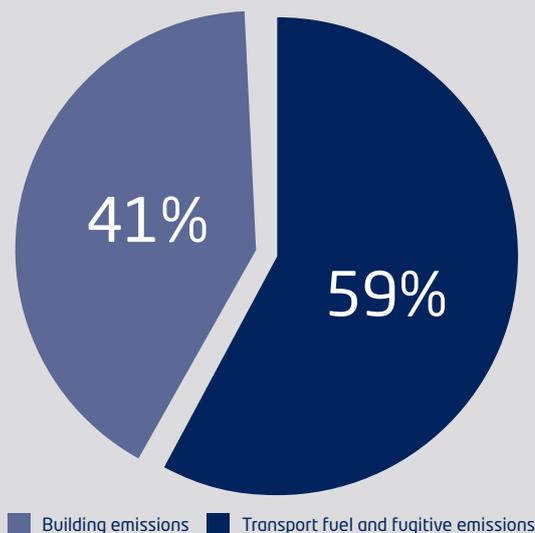
3. Supporting our employees

As an employer of 2,000 people and with a company purpose to 'transform our communities', we take our role seriously in supporting our colleagues and customers to drive down their carbon emissions. This includes taking the lead on practical steps towards zero carbon for our region and showing how customers can benefit from these changes. Reducing carbon emissions and being more energy efficient also means better air quality, reduced fuel bills and more comfort in homes.

This plan sets out activities in all of these areas and how we will budget for the carbon emissions we are responsible for to ensure we reach zero carbon by 2038.

Sources of Electricity North West business carbon emissions:

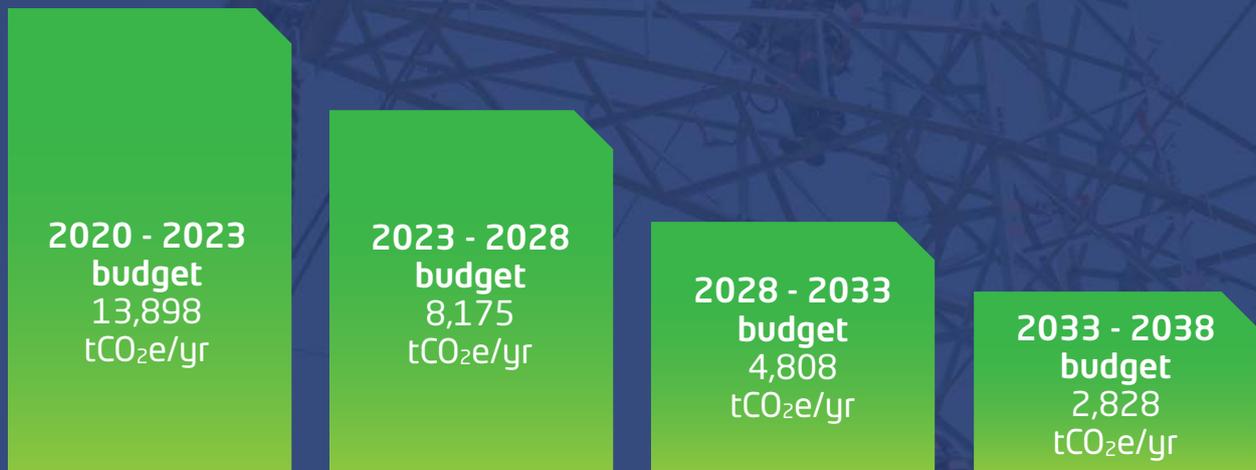
Total carbon



¹ Our environment report is available on our website <https://www.enwl.co.uk/about-us/regulatory-information/environment-report/>

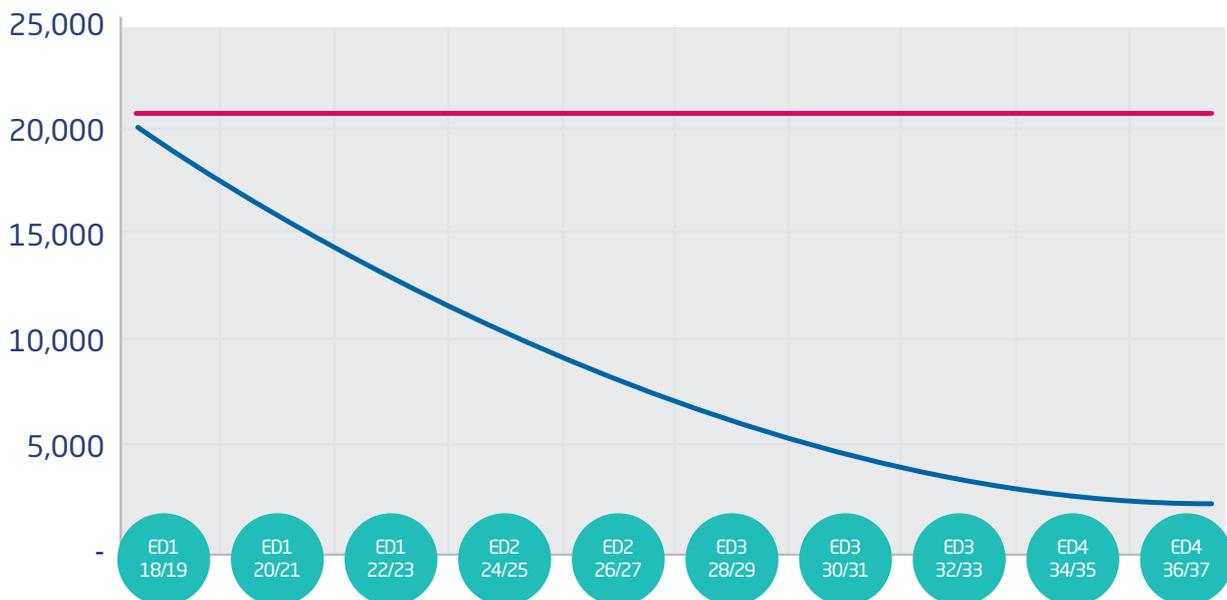
How we are managing our investment in operational carbon reduction

- Our industry operates in price control periods for which we produce a business plan, approved by Ofgem. To help us manage the investment required to deliver this level of carbon reduction we have divided our carbon budget between the price control periods from now until 2038.
- To meet zero carbon by 2038 we have a carbon budget of 148,550 tCO₂e, which gives us an average annual budget of 7,400 tCO₂e compared with 21,000 tonnes today.
- To meet this budget, we've set ourselves a challenging 10% year-on-year annual reduction target. Ahead of this, we will start to accelerate our emissions reductions activities, undertaking research and making the investments required to be able to hit the ground running in 2020.



The graph shows our emissions reduction pathway based on a 10% year-on-year annual reduction, which we will be constantly managing and re-budgeting. We will report our progress annually and will share our learning to enable our stakeholders to take action too.

Annual operational emissions budgets CO₂e, tonnes



Helping others to follow our path

As an organisation committed to helping businesses, colleagues and customers to decarbonise, we are investing an additional £63.5m in zero carbon over the next four years. Our 'Leading the North West to zero carbon plan' sets out how we will do that.

- We will decrease our emissions by 10% year-on-year in order to become zero carbon by 2038.
- We have become the first Carbon Literate distribution network operator in Great Britain. We have been accredited by The Carbon Literacy project as having a substantial commitment to developing and delivering low carbon behaviour.
- We are developing a new losses strategy which will set out how carbon emissions from network losses can be reduced as far as practicably possible by 2038. See page 12 for more information on network losses.
- We are developing a new programme of initiatives to support carbon reduction activity in our communities.
- We encourage and enable our customers to connect low carbon technology to our network at an affordable rate.

10% year-on-year decrease in emissions

We are investing £63.5m over the next four years

Arkholme, Lancashire



Between
now and
2023

We know we
need to identify
emissions
reductions savings
of 27,800 tCO_{2e}

Equivalent
to:

3,700 cars
off the road
per year*

Driving
116 million
miles**

*Based upon a diesel Ford Focus car driving 7,800 miles per year

**Based upon a diesel Ford Focus car

Operational carbon emissions



We have already identified measures that will deliver emissions reductions of 27,400 tCO₂e

Taking action on our own carbon emissions is a key priority for us. We are developing an investment pipeline to meet the emissions reductions required in this price control period, as well as planning the investment pipelines required in future price control business plans.

We know we need to identify emissions reductions savings of 27,842 tCO₂e between now and 2023. We have already identified measures that will deliver a reduction of 27,400 tCO₂e and are confident we will be able to identify the remaining 442 tCO₂e.

We will target onsite energy use at our depots and substations. We can achieve an immediate reduction by switching our energy supply to a certified zero carbon source as soon as our current contract allows. This is a positive first step in the journey to delivering real action to our depots and substations.

Our strategy for reducing emissions from our depots and substations is:

- **Quick wins:** Making sure we have LEDs at all appropriate locations and optimising our energy management systems to make sure we are using our energy as efficiently as possible.
- **Zero carbon depots:** Starting with two exemplar depots this year, we will transform our estate to have onsite generation and storage to meet as much of our own energy demand as possible. We will use these as exemplars to help other businesses understand what is achievable.
- **Zero carbon substations:** We are working with Salford University on a research project to design a zero carbon substation for the onsite energy used. Once developed, we will use this for all our new substations and roll it out to the rest of the network.

Reducing our transport fuel emissions is also a focus for us. We will:

- Encourage and support more efficient use of vehicles to reduce overall travel, for example, by improving our infrastructure and cultural approach to walking and cycling to work.
- We will develop a timetable to transfer our fleet over to electric vehicles. As some of our fleet vehicles are used to attend power cuts, access to charging points and length of time between charges will need consideration. It will also require our colleagues to change their vehicles and we will invest in charging infrastructure to support and encourage colleagues who want to make this choice.

Network losses

Carbon emissions from network losses in 2017/18 were 532,891 tCO₂e and they dwarf those emissions from our own operations.

Network losses are the proportion of electricity that is lost from the network as it is transported from the power grid to people's homes and businesses. They are a natural consequence of electricity distribution which can never be totally eliminated. Network losses have carbon emissions associated with them calculated from the carbon intensity of the electricity distributed. These emissions are dependant on the type of generation feeding the system. If all generation was low carbon there wouldn't be any carbon emissions from network losses.

However, carbon is not the only reason to reduce network losses; the cost of these losses is paid for by all customers so reducing network losses also reduces customers' bills.

We will develop a new strategy to investigate emissions reduction pathways to 2038 and research non-traditional ways of reducing or off-setting network losses that will help to achieve zero carbon by 2038.

Helping our colleagues and customers drive down their carbon emissions

Leadership in our communities

We will encourage the adoption of low carbon technologies to help our colleagues and customers drive down their carbon emissions and will develop this part of our plan with stakeholders.

- We will consult with our sustainability panel on the scope and delivery model for our £1m community leadership fund.
- We will consult with a new colleague engagement committee to develop our support package for colleagues looking to develop low carbon lifestyles.
- We will provide practical advice and action provided through our Big Energy Conversation website.

Energy efficiency

It is important that we encourage energy efficiency as it can reduce the need for investment in the network. Energy efficiency can be improved by using a more efficient appliance or light bulb or by not using energy in the first place. Energy efficiency not only reduces demand on the network, but also saves consumers money on their bill. We've created the Big Energy Conversation website at www.enwl.co.uk/bigenergyconversation to provide tips for households and key stakeholders to reduce energy consumption.

Energy efficiency is also important for reducing carbon emissions. Our Smart Street innovation project has demonstrated how investment in the network can help customers save energy and money.



Smart Street

By combining innovative technology with existing assets, Smart Street makes networks and customers' appliances perform more efficiently and makes it easier to adopt low carbon technologies onto the electricity network.

Using new controllable switching devices, called the Weezap and Lynx, integrated into our network management system, Smart Street stabilises voltage and avoids it falling outside of statutory limits.

We can then reduce the supply voltage to our customers to an optimum level so that our networks and our customers' appliances work more efficiently, a technique known as conservation voltage reduction.

Smart Street has proven that controlling voltage on our low voltage network brings a number of benefits to customers.

It can reduce electricity bills by up to £70 a year, which is around 80% of what our customers pay for our service, reducing carbon emissions and providing more flexible solutions to help us connect low carbon technologies to the network – all without impacting power quality.

www.enwl.co.uk/smartstreet



It can reduce electricity bills by up to £70 a year

Enabling low carbon technologies

Achieving zero carbon by 2038 is a bold ambition and will only be achieved if communities and organisations are engaged and committed to changing the way electricity is generated and consumed. We also need to see an increase in low carbon technologies and the transition to electric vehicles.

Our Distribution Future Electricity Scenarios and Regional Insights report predicts that:

There will be up to
2.5 million vehicles
in the
North West

Renewable energy
connected to the
network could triple to
7.9 GW

The North West's
electricity demand
could grow from
**4.4 GW
to 7.7 GW**

by 2050



Carbon Literacy

To maximise the impact of our activities, we will be rolling out carbon literacy training to our colleagues. In March 2019 we became the first carbon literate electricity distribution network operator in the UK and we are ready to roll out training to our colleagues.



The North West is facing significant environmental challenges and it's imperative that we act now to ensure the region plays its part to meet the Paris Climate Agreement requirements. Achieving this will be challenging, but Electricity North West is committed to leading by example and is investing now to enable the region's decarbonisation journey.

If you have any comments on our 'Leading the North West to zero carbon' plan or would like to get involved please contact us at zerocarbon@enwl.co.uk

Find out more and join in at; www.enwl.co.uk/zerocarbonNW



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