



LNER

LONDON NORTH EASTERN RAILWAY

AUTUMN 2021

ENVIRONMENT REPORT

Our approach to environmental sustainability

What we're doing to reach net zero carbon by 2045

Air quality, Biodiversity, Catering, Waste

We're committed to reducing our impact on our planet

Maintaining a responsible approach through Covid-19

An enhanced cleaning regime across our stations and onboard our trains



WELCOME TO THE **LNER** ENVIRONMENTAL SUSTAINABILITY REPORT

LNER is committed to being a responsible business and this is underpinned by our respect for the environment and a determination to minimise our impact on the planet. Climate change is a threat to our way of life, and at LNER we are at the forefront of the decarbonisation challenge.

Rail is the most environmentally friendly way of transporting large numbers of people, long distance, at speed. It is intrinsically a low carbon form of transport, with our electric and bi-mode Azuma trains able to accommodate more than 500 people, the equivalent to nearly 300 cars taken off the road or three short-haul flights taken out of our skies.

However, we do not rest on our laurels and are ambitious about the future, focused on doing even more to reduce, reuse and recycle across our entire business. The UK government has targets in place to decarbonise the rail network by 2050 and remove diesel-only trains by 2040. We want to not only meet these targets but achieve them much earlier, with the aim of reaching net zero carbon by 2045. Our new fleet of Azuma trains mean that we have already been able to retire our diesel only High Speed Trains (HSTs), beating the government's timescales by 21 years.

This LNER Environmental Sustainability Report focuses on our business, what we have already achieved and, most importantly, how we plan to meet our future environmental targets.

However, it is important to note that these actions are combined with the role we play in wider society, investing in environmental initiatives and encouraging and enabling the growth of active travel.

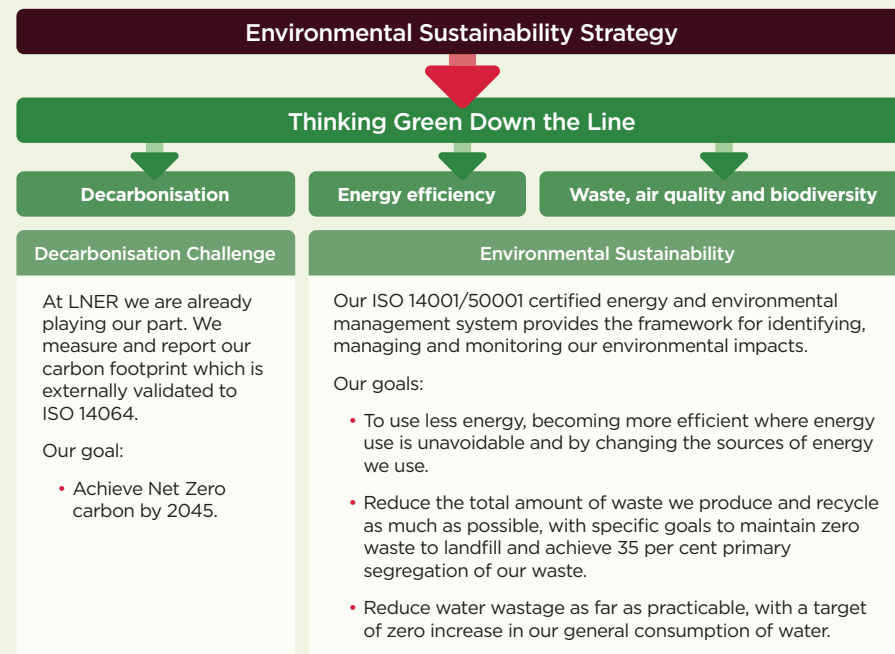
Encouraging as many people as possible to travel by train over other more carbon intensive forms of transport is the most powerful thing we can do when it comes to having a positive impact on the planet. Championing the benefits and green credentials of rail through reports such as this and through high impact campaigns is a key part of achieving greater use of rail.

Together, through investment, innovation and collaboration, LNER will deliver an even more sustainable railway for the future.

David Horne, Managing Director

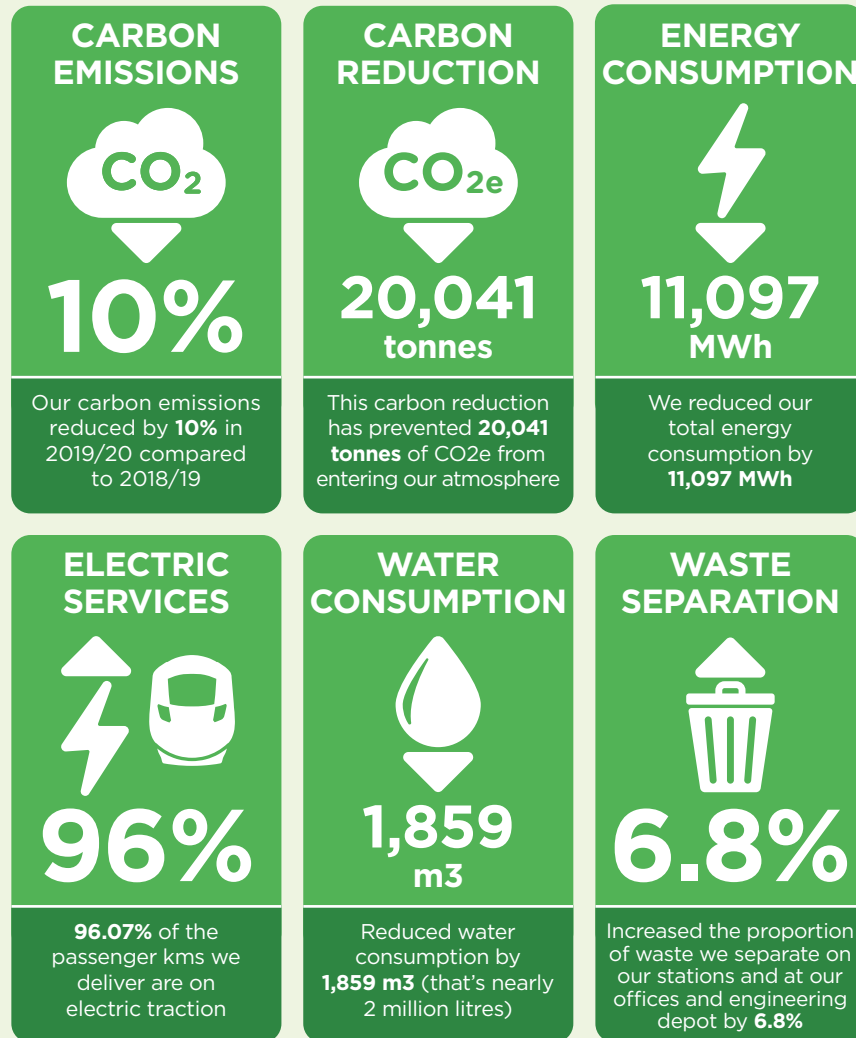
OUR APPROACH TO ENVIRONMENTAL SUSTAINABILITY

Responsible stewardship of the environment has never been more important, and at LNER environmental sustainability is fundamental to our operation. From minimising and recycling our waste, to embracing the rail decarbonisation challenge, we are committed to managing and reducing our impact on our planet.



OUR PROGRESS

Data for 2020/21 is excluded due to the Coronavirus pandemic significantly reducing passenger numbers.



Carbon emission reductions are due to a combination of LNER energy efficiency actions and grid decarbonisation.

TRACTION DECARBONISATION

Moving a 432 tonne train at 125mph uses a lot of energy. This is why the energy it takes to power our trains is the biggest contributor to our carbon footprint. This consumption is described as 'traction energy' and refers to the electricity or diesel consumed to power our trains.

In 2020 we completed the introduction of our fleet of Azuma trains into service with the last of our diesel HSTs withdrawn in December 2019. This move, to a fully electric and bi-mode fleet, meant that our diesel fuel consumption reduced by more than 9 million litres in 2019/20 (compared to the previous year), and we achieved the government target of removing all diesel only trains from the network 21 years early.

Another feature of our Azuma trains is regenerative braking which harnesses the energy created during the braking process and puts it back into the power supply for use by other trains. In 2019/20, more than 6.5 million kWh was returned through the braking action of the Azuma trains. Our Azuma trains are equipped with an Automatic Power Changeover system that ensures we optimise running in electric mode when operating on the electrified parts of the railway network.

Work continues to ensure we operate our trains as efficiently as possible. As part of the East Coast Digital Programme we are working on the development of a new signalling system working alongside a Traffic

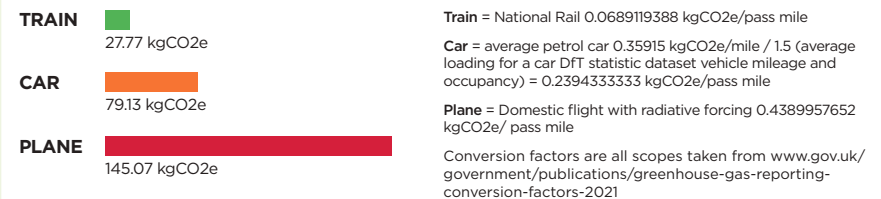
Management System and a connected Driver Advisory Systems (DAS). This will help a driver monitor the timetabled path of a train to determine whether it will reach its next timing point on schedule and any potential conflicts with other trains that would mean the trains being slowed or stopped. It will advise the driver of a target speed that optimises with timetable schedule and junction conflicts many miles ahead. This minimises fuel and energy consumption while at the same time improving performance and reducing wear on running gear.

We acknowledge that we cannot decouple carbon from delivering our services on our own. We are collaborating with Network Rail to plan electrification for the parts of our route that are not already part of the electrified network and examine the generation source of the energy we use, seeking out opportunities to use sustainable supplies. We are also looking at the potential to replace the diesel generator units in our bi-mode Azuma trains with battery storage to enable us to bridge gaps in the electrified network.

As customers become increasingly conscious of the need to reduce the impact that they have on the environment, we have made it easier to understand the difference we can all make by choosing train travel over other modes of transport, by providing a carbon calculator on our website:

[LNER.co.uk/carbon-calculator](https://lner.co.uk/carbon-calculator)

A journey with us between London King's Cross and Edinburgh saves:



NON-TRACTION DECARBONISATION

When we talk about non-traction we mean the parts of our business which are separate from our fleet of trains. This includes our eleven managed stations, offices across the route and engineering depot at Aberdeen Clayhills. We use electricity and gas to light, heat and power our estate, so it is this consumption we need to address in order to further reduce our non-traction carbon emissions.

We have joined with the wider industry to pledge to make our stations more sustainable by implementing the recommendations of the Rail Delivery Group Sustainable Stations Guide.

We have been making great progress with this area of our business. When we remodel, refurbish and build new infrastructure, including car parks, waiting rooms and other facilities as well as increasing the number and diversity of shops and outlets in our stations, we always consider introducing more energy efficient equipment and low energy lighting. As a stepping stone to net zero carbon we have committed to making two of our stations carbon neutral by 2025. We will do this by implementing the recommendations of bespoke energy assessment reports, commissioned specifically for the purpose of helping us identify opportunities to help us reduce our carbon emissions.

Durham Station's external lighting was upgraded in July 2021, replacing existing luminaries with LED equivalents. These lights have the benefit of being more energy efficient which results in an annual reduction of 1 tonne CO₂e. These lights also have a longer life span and require less maintenance, thereby further reducing waste.

At our Clayhills Service Delivery Depot in Aberdeen we have installed inflatable doors

to retain heat in the maintenance shed. This 'weather seal for train' solution closes tightly around an entire vehicle using fans that fill the seals with hot air for insulation against the cold. What was once an open-ended shed now provides a comfortable working environment for our people and reduces energy consumption.

Our depot team is passionate about reducing LNER's environmental footprint and have recently upgraded the washroom facilities with efficient alternatives including shower and low flush toilets. Sub meters have been installed to monitor energy consumption across the depot.

Earlier this year we completed business-wide energy surveys which have helped us identify further opportunities to reduce consumption and increase efficiency. Recommendations include small changes such as optimising building controls to large investments in on site renewables and replacement of gas-powered heating systems.

We are reviewing the results of the survey and plan to deliver a number of projects over the next few years in order to reduce our consumption or replace it with generation of our own.

In the meantime, all of the electricity and gas that we purchase directly is from renewable sources.

WASTE

Our waste comes from a wide range of sources. Our customers can bring anything onto our trains and dispose of it in our bins. We also receive waste from other train operators, our tenants and we generate our own waste through our catering, back office and engineering and administration activities.

This variability of waste presents a challenge for segregation and recycling, but we like a challenge.

To help our customers find the correct bin for their rubbish we have refreshed the signage on our platform bins with Recycle Now icons to standardise communications with other public places.

Behind the scenes at Newcastle Station, we have created a waste sorting hub to improve segregation of waste from our own facilities, customers, tenants and other train companies. The waste is sorted by hand to remove all the recyclable material. This has improved the recycling performance at Newcastle Station by more than 20 per cent and will continue to develop as we finesse the sorting hub even further.

We are not stopping at one. Plans are already in action to duplicate the success of this facility with another two at Doncaster and Peterborough stations.

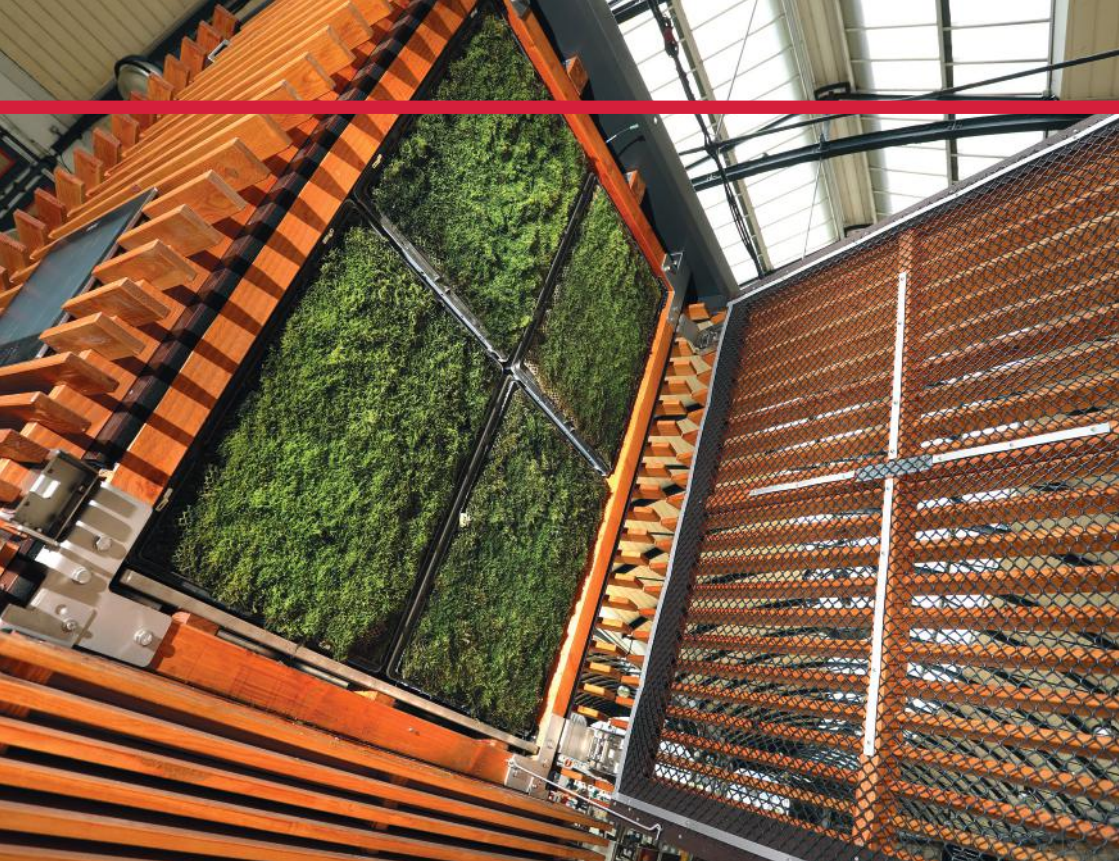
Rest assured that the waste that can't be recycled does not find its way into landfill as we are a zero waste to landfill company. Everything we can't recycle from our directly managed waste is sent for energy recovery.

Coffee cup recycling points are also being introduced at more and more of our stations, giving customers the option to recycle when on the move. It's a phased roll out as we work to

identify waste companies across our route that can take the cups away for recycling. We have disposable cup recycling bins at York, Doncaster and Wakefield Westgate where so far this year we have collected 19,500 cups for recycling.

We know single use plastics are a major problem, so to help combat this and help our customers stay hydrated, we've either restored existing water fountains or installed water refill points at LNER stations enabling customers to reuse their own bottle. You can find the full list of our locations on the Refill app.





AIR QUALITY

Since the phasing out of our diesel High Speed Train fleet in 2019 the air quality within our stations has improved. We are committed to further improving the air quality within our stations which is why we are supporting a project across the rail network. This will see monitoring equipment installed on eight of our eleven stations. This is the first step in understanding more about whether air quality is a specific issue that we need to address.

We're also thinking outside of the box. A recent innovation project at Newcastle Station trialled a moss powered air filter. The CityTree is an advanced natural air filter, combining nature with digital technology. Various species of moss grow within CityTree and can absorb and metabolise up to 82 per cent of fine dust, remove moisture from the air and produce clean oxygen.

Our Azuma trains have significantly reduced engine idling where overhead electrical wires are provided, helping to reduce localised emissions, air pollution and noise.

CATERING

Customer experience is at the forefront of everything we do and this includes the food and drink that we provide to thousands of customers every day. This is therefore an important area of our strategy to make our customers experience with us a sustainable one.

When it comes to selecting products and suppliers to work with, reducing waste and plastic consumption is integral. We have recently started working with a new third party logistics provider, Gate Gourmet, that share our vision and goals and will be a valuable asset in our war to protect the environment

Where possible, we are keen to work with suppliers on our route, not only to support the local economies that we serve but also to reduce food miles and the impact that a food and beverage operation of our size can have. As we find new opportunities and suppliers, we act swiftly to deliver the benefits to our customers and the environment.

We also consider our colleagues and have issued reusable cups, made in the UK, to our frontline customer experience teams to eliminate the need for single use cups.

During the height of the Covid-19 pandemic, we continued to support our communities and local suppliers, whilst minimising food waste. As a result of onboard catering being temporarily withdrawn during lockdown, we had a large number of fresh sandwiches and ingredients that were destined to go to waste. In coordination with our LNER Reserves, a voluntary force made up of colleagues from across the business, we donated this food to FareShare, a national network of charitable food redistributors.

BIODIVERSITY

This summer we started a planter project with local station teams to encourage local biodiversity and wellbeing.

Our station at Berwick-upon-Tweed was awarded a gold award in the 2021 Northumbria in Bloom recognising the team's work in enhancing the local environment. The team introduced a new bug spotting area, a pick your own herbs garden and refreshed multiple planters. A new partnership with Samaritans was also announced with the unveiling of new plants at the station which volunteers are helping to manage.

Looking to the future, we will enlist the help of an ecologist to map our habitats in and around our stations and depot to identify what we can do to support local wildlife, plants and insects.





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For more information on our wider Responsible Business Strategy, please visit [LNER.co.uk/about-us/responsible-business](https://www.lner.co.uk/about-us/responsible-business)

If you have anything to share, we'd genuinely love to hear from you.
Email us: [customers@LNER.co.uk](mailto:customers@lner.co.uk)

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