

Environment and Energy Annual Report 2020.



October 2020

greateranglia



AT GREATER ANGLIA, WE ARE TRANSFORMING RAIL TRAVEL, TAKING EAST ANGLIA ON A JOURNEY TO A GREENER, CLEANER FUTURE

Research shows that trains are the most environmentally friendly form of transport after cycling and walking, with greenhouse gas emissions per kilometre by rail being far less than cars.

Because of this, we can help the communities we serve stay connected to jobs, education, family, friends and leisure opportunities in a way that helps to reduce everyone's carbon footprint.

We are also working to minimise our own carbon emissions and become more sustainable as an organization – introducing new more energy efficient trains, cutting waste, increasing recycling and working with our partners and communities on projects to improve sustainability and biodiversity at our stations.

We hope you will join us on our green journey. Together we can all do our bit to help tackle climate change.

In this report you will find details of what we are doing to become a more sustainable operator.

If you have further questions or feedback, please contact our Environment & Energy Manager, by emailing **sustainability@greateranglia.co.uk**



Where are we on the journey?

Last year (2018/19 – 2019/20)
our total carbon emissions
reduced by:

11%

This has prevented

13,570

tonnes
of CO₂

being
released
into the
atmosphere

224,000



tree seedlings
would need
to grow for
ten years to
remove this
much CO₂

The same amount of
CO₂ emitted by

2,297

household's
annual
electricity use



Much of the reduction was due to the National Grid using more renewable sources of energy to create the electricity that powers some of our trains and our stations. Energy-efficiency programmes at our stations have also helped and the replacement of all of our old diesel trains with brand new much greener trains will help us to continue to reduce our environmental impact.

Running the trains

Our traction carbon figure for the 2019/20 financial year including both direct emissions (from diesel fuel) and indirect emissions (from electricity consumption) was 95,489 tonnes of CO₂e from the energy used from running the trains.

This has reduced by 34% compared to 2016/17 with a reduction of 49,450 tonnes. This is likely to be a result of fleet improvements and decarbonisation of the national grid.

Overall Traction Carbon is approximately 94% of our total scope 2 emissions and therefore a small improvement in fleet energy efficiency or a move towards energy efficient driving can help us to reduce our overall carbon emissions.

All of our existing diesel trains in Norfolk, Suffolk and Cambridgeshire have been replaced with “bi-mode” trains which can switch between diesel and electric power. The diesel engine meets the latest, tighter, standards for emissions and is also quieter than existing diesel engines.

When the bi-mode trains are running underneath an electric line, they can switch to electric mode and take advantage of electric energy rather than diesel.

As with other modern electric trains, energy created when braking under an electric line is put back into the overhead wires to be used by other trains to accelerate – further helping to save energy.

Even in diesel mode, the trains can brake electrically by using a “brake resistor”, which means there are less brake pads used so less dust is produced and released into the environment.

When running in diesel mode, the engines generate electricity for the motors enabling the train to accelerate more powerfully and smoothly.

The train’s design is also future proof allowing possible upgrades to full electric operation or even use of battery storage.



We’re replacing all our electric trains too with brand new modern electric trains. We have already replaced all our old slam-door intercity trains with brand new trains made by Swiss manufacturer, Stadler on our Norwich–London Liverpool Street route. This model is also in passenger service on our Stansted Express London Liverpool Street to Stansted Airport service. The aerodynamic front and special lightweight construction improves efficiency when the train is travelling at 100mph. The trains do not need to run at full power to keep to the timetable, due to highly efficient and powerful motorisation – a great energy-saving feature.

The rest of our electric trains are also being replaced with new trains – made by UK manufacturer Bombardier. They are lighter than the trains they will be replacing and, in common with the Stadler trains, they feature regenerative braking which delivers energy back into the electrical supply network rather than it being as wasted as heat, as conventional brake systems do. The Stadler electric trains can actually generate more electricity when braking than they use while accelerating.

Domestic energy usage

We have been reviewing our non-traction energy consumption with the Carbon Trust and are working through opportunities where energy efficiency improvements could be made.

Wireless Energy Management Systems are now in place at 39 stations and 3 depots. We have also installed voltage optimisation equipment at 12 stations which means that voltage can be adjusted to help reduce overall energy use.

Between December 2017 and December 2018, we replaced all lighting in stations and car parks across the Greater Anglia network with more energy-efficient LED luminaires. We estimate that this has reduced lighting energy consumption by 40%. Now, whenever lights are replaced at Greater Anglia, LED bulbs are used.

Sub-meters are continuing to be implemented and solar powered lighting has also recently been installed at Norwich sidings.

Cambridge North, Greater Anglia's newest station, was constructed to include solar panels which now provide 20% of its energy needs.



Water usage

We are working to reduce our water consumption by at least 10% from a baseline figure of 262,444m³. To help us achieve this, our Asset Management team are working to detect and fix water leaks as soon as they are discovered to therefore reduce unnecessary water consumption. We are also working to encourage staff to report known leaks or faults to reduce them as much as possible.

15 water butts have also been installed at stations to encourage rainwater harvesting to support our station adopters and to help water our stations gardens.

Waste

Our waste performance has continued to improve from 2018/19 to 2019/20. Overall waste created has reduced by 11% from 2565 tonnes to 2273 tonnes. Overall weights of recycled waste have reduced however 6% more waste was recovered (for alternative use), 67% less went to landfill and total hazardous waste reduced by 50%.

Weight (tonnes)	2018/19	2019/20	% change
Total Waste	2565	2273	11% reduction
Total Recycling	1756	1476	16% reduction
Total Recovered	727	773	6% increase
Total Landfill	72	23.6	67% reduction
Total Hazardous Waste	76	38	50% reduction

We are continuing to identify opportunities for waste improvements to help us to recycle and/or recover as much waste as possible.

We've also installed free water fountains at some of our stations to reduce the use of single-use plastic bottles. As a result, we've since saved around 367,000 plastic bottles from going into landfill.

Biodiversity

We have enhanced biodiversity across many stations with the assistance of our station adopters who help to look after their local rail stations for the benefit of their local community.

Some stations across the GA network have been transformed into wildlife havens, following additional planting and maintenance, which has provided habitats for local wildlife, and others are working towards this. In total over 5700 square metres of gardens will be tended to this year – the equivalent of 29 tennis courts.



The gardens, some of which have been developed over many years, are becoming havens for local wildlife populations and with the railway increasingly being recognised by ecologists as a 'green corridor', they provide a sanctuary for many kinds of flora and fauna.

In a recent survey, Greater Anglia station adopters reported a wide range of biodiversity including a range of butterfly species, bees, slow-worms, bats, foxes, deer and various different types of birds.

Our commitment to sustainability

This year we worked with The Carbon Trust to quantify our environmental impact and better understand our carbon emissions, as part of an aim to become even greener and more sustainable.

In October, we passed an audit to retain our ISO 14001 and ISO 5001 certifications, demonstrating improving levels of environmental and energy management at Greater Anglia.