## **SIEMENS**

**SIEMENS MOBILITY LIMITED** 

## Carbon Reduction Plan Financial Year 2024





## **Executive Summary**

At Siemens Mobility Limited, our commitment to sustainability is not just a goal; it is a cornerstone of our business strategy. It is also fully aligned with the ambitions of the Sustainable Rail Blueprint, the industry-wide approach for realising sustainable rail in the UK.

We are committed to achieving Net Zero emissions across our value chain by 2050 and we are supporting our customers' decarbonisation efforts by offering low-carbon rail solutions. In the last year, we launched our innovative Track and Train solution, which aims to support Britain's railways to eliminate diesel-only trains by 2040. We have also released our climate statement which highlights our commitment to climate action.

This Carbon Reduction Plan outlines our strategic approach to reducing greenhouse gas emissions, enhancing environmental sustainability, and driving innovation within our operations and supply chain. It highlights many of the carbon saving initiatives we have undertaken during the last financial year, including:

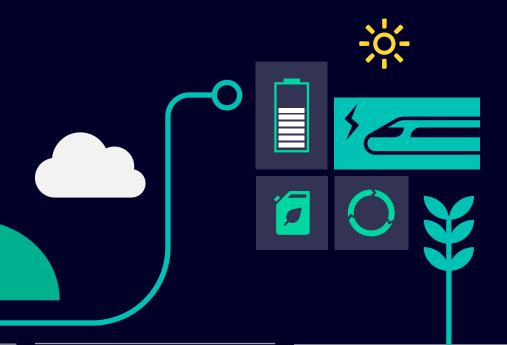
- Installing solar panels at two of our sites to generate on-site renewable power
- Officially opening the Goole Rail Village, our most energy efficient production facility to date
- Replacing 84% of the diesel used at Rail Infrastructure project sites with HVO
- Optimising the transportation of new bogies from Graz to Goole using a multi-modal transport solution
- Developing Tier II Environmental Product Declarations for several of our signalling products

As we move forward, we remain dedicated to transparency, accountability, and continuous improvement. This document serves as a testament to our ongoing efforts and our determination to create a sustainable future for generations to come.

Rob Morris, Marko Feulner and Sambit Banerjee

Joint CEO, CFO/Chair of the Board, Joint CEO

# Our decarbonisation in action



#### **New technology**

Introduced clean gas 11kV technology to UK rail

#### **Solar energy**

Installed 1021.25 kW solar panel array across two sites

#### **Award-winning**

Developed a site-based green power solution using solar-hybrid generators

#### **Efficient estate**

Opened Goole Rail Village, our most energy-efficient production facility

#### **Green Plant**

Replaced 84% of diesel at project sites with HVO

#### **Low carbon logistics**

Reduced carbon emissions by ~70% for bogie transportation from Graz to Goole

#### **Carbon Web Assessments**

Assessed 29% of our suppliers' CO<sub>2</sub> emissions

#### Circularity

Embedded circularity into component overhaul

#### **Electric vehicles**

63% of our company car fleet is fully electric

#### Supplier engagement

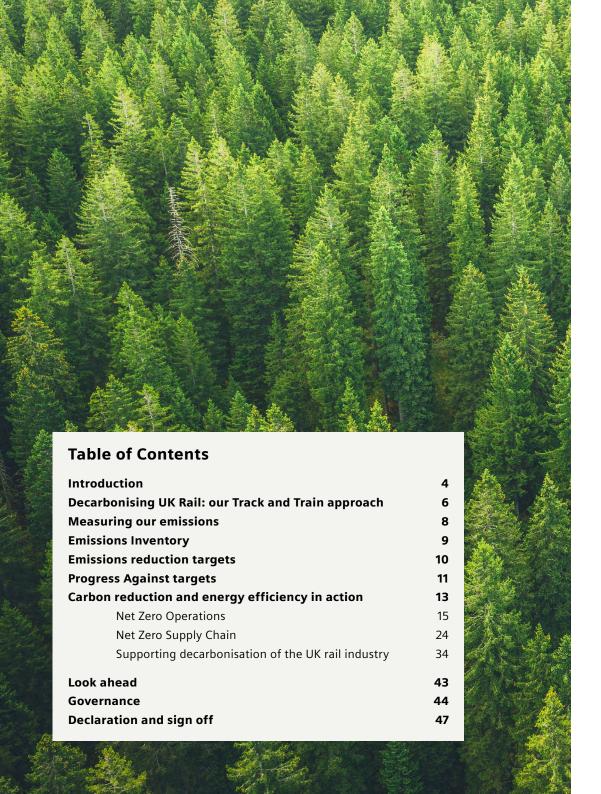
Engaged top suppliers in sustainability improvements

#### Product transparency

Improved product transparency by creating EPDs

#### **Innovation**

New Desiro Verve trains expected to save 12 million tCO<sub>3</sub>e over 35 years



## Introduction

#### **About us**

Siemens Mobility has more than 175 years of history in the UK and we build and maintain trains and rail infrastructure across 30 permanent sites nationwide.

Siemens Mobility Limited is a UK legal entity, owned by Siemens Mobility GmbH with ultimate parent company Siemens AG. Sustainability is an integral part of the Siemens business.

We are taking our ESG commitment to the next level with our DEGREE sustainability framework. The framework provides a 360-degree approach to our core sustainability values. All data and case studies within this report are for financial year 2024 (FY24), from 1st October 2023 to 30th September 2024.





## Siemens Mobility Climate Statement

The climate is changing. The effects of extreme temperatures and weather events will only increase in prevalence in the coming years. At Siemens Mobility, we recognise the urgency of climate protection. It is our priority to contribute to the objectives set out in the Paris Agreement, namely the limitation of global warming to 1.5°C above pre-industrial levels. Without ambitious and dedicated action, the consequences will harm not only our environment, but also our people, our infrastructure, and the communities that we work in.

We are committed to minimising the environmental impact of our business practices and products to protect our value chain, local communities, and wider society from the negative effects of climate change.

We are supporting our customers' decarbonisation efforts by offering low-carbon rail solutions, including our innovative Track and Train solution, which aims to support Britain's railways to eliminate diesel-only trains by 2040.

By helping our customers reduce their greenhouse gas (GHG) emissions and cutting emissions from our own operations, Siemens Mobility strives to support the transition to a low-carbon economy and the transformation of the UK rail industry.

Beyond reducing GHG emissions, we see the transition to a low-carbon economy as an opportunity to encourage circular practices and provide climate-positive solutions in line with our customers' goals. Ultimately, we are positioning our portfolio to meet the current and future needs of the environment, our customers, and the societies in which we operate.

Our commitment to climate protection is reflected in the Siemens DEGREE framework, which embeds sustainability throughout our business by focussing on Decarbonisation, Ethics, Governance, Resource Efficiency, Equity and Employability.

Through this framework, we commit to reduce Scope 1 and 2 emissions associated with our operations by 90% by 2030, against our 2023 baseline.

We also commit to reduce emissions associated with our supply chain by 20% by 2030, and to reach net zero emissions in our supply chain by 2050.

For our Scope 3 emissions, we commit to achieve 30% absolute reduction in emissions by 2030 and 90% absolute reduction in emissions by 2050. These targets support our overall ambition to reach net zero Scope 1, 2 and 3 carbon emissions by 2050.<sup>1</sup>

All notes referenced throughout this document are detailed within the Notes section on Page 45

## Decarbonising UK rail: our Track and Train approach

The rail network is an essential part of the British transport system and is crucial in helping the UK achieve its goal of decarbonising the economy by 2050. Rail is already a low-carbon transport mode, accounting for around 10% of all distance travelled across the UK but responsible for less than 2.5% of total transport emissions and about 0.6% of the UK's total emissions.

Despite the industry's shift towards electrification, approximately 29% of Britain's current fleet still runs solely on diesel fuel. To address this, we have developed our Track and Train solution, which aligns with the ambitions of the UK Rail Industry's Sustainable Rail Blueprint and the UK Government's Transport Decarbonisation Plan to achieve Net Zero by 2050.

Our Track and Train solution features battery bi-mode trains, assembled at our Goole Rail Village. The trains are powered by overhead wires on electrified routes and switch to battery power in non-electrified areas.

This approach requires only small sections of routes or certain stations to be electrified with overhead line equipment (OLE), making it quicker and less disruptive to replace diesel trains compared to full electrification.

Siemens Mobility's innovative Rail Charging Converter (RCC) allows for faster installation of OLE by enabling direct

connection to the domestic grid, potentially reducing delivery times from seven years to as little as 18 months.

Extensive modelling using advanced train performance simulation software shows that Siemens Mobility's battery bi-mode trains would only require 20-30% of a line to be electrified. These trains, utilising Lithium Titanate Oxide battery chemistry, can charge their batteries to full capacity in 20 minutes while moving along electrified sections or charging at stations.

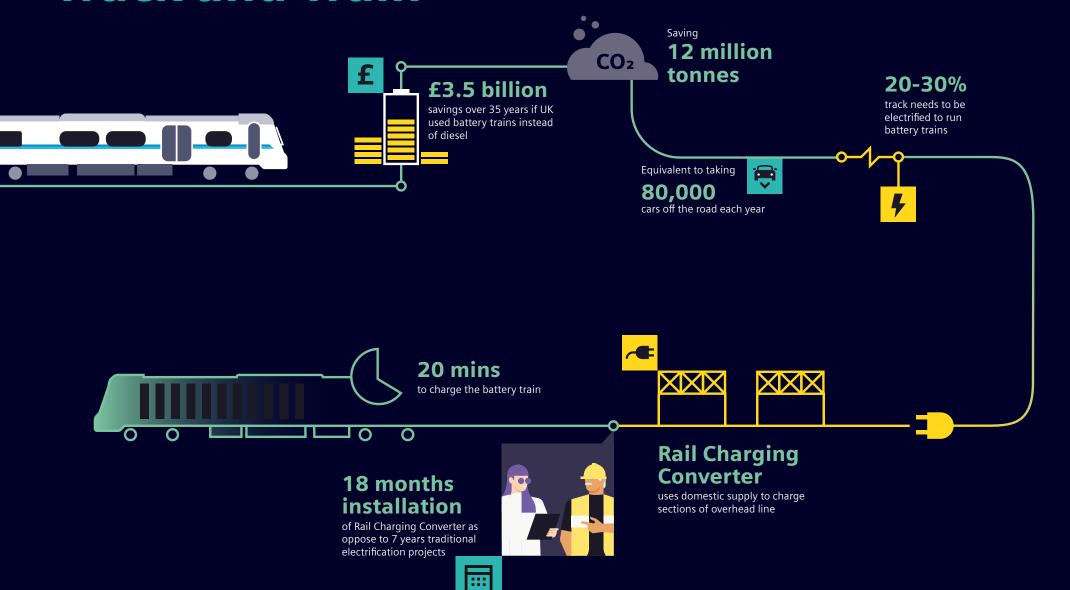
We have identified strategic points along routes where discontinuous electrification OLE could be installed, powered by RCCs, enabling battery charging. The RCCs can be connected to the local power grid using an 11kV charge, instead of the high-powered 275/400kV electricity network, which can take up to seven years to install on traditional electrification project.

This approach would save Britain's railways £3.5 billion over 35 years compared to using diesel-battery-electric 'tri-mode' trains and support the Government's aim of removing diesel-only trains from Britain's railways by 2040. It would also reduce CO<sub>2</sub> emissions by 12 million tonnes over that period.

Further detail about our Track and Train innovation can be found in the 'Supporting decarbonisation of the UK rail industry' on page 34 of this report.



## **Track and Train**





## Measuring our emissions

## **Baseline emissions footprint**

#### **UK Baseline Year: FY23**

Siemens Mobility uses a fixed base year for tracking emissions, allowing for consistent long-term comparisons.

The original financial year (FY20) baseline was adjusted<sup>2</sup> due to the divestment of Yunex Traffic Limited at the start of FY22, which impacted Scope 1, 2, and 3 emissions. Several data gaps and calculation errors were identified in the historical data therefore FY23 has been established as the new baseline year. Improvements in our calculation methodology reduce the reliance on estimations and assumptions within our Scope 1, 2, and 3 emissions data.

The updated baseline emissions are 131,472 tCO₂e, and future carbon reduction efforts will use this new baseline.

#### Methodology

Our carbon data management is complex, with emissions from various sources. We collect granular activity data from automatic sources and suppliers for accuracy. Where automatic data is unavailable, we use site-specific inputting tools. Estimation and approximation are avoided except where activity data is not available.

Siemens Mobility uses the Greenhouse Gas (GHG) Protocol operational control methodology for Scope 1, 2 and 3 emissions<sup>3</sup>. For Scope 2 emissions, market-based methodology is used. We have selected an operational control organisational boundary to ensure a comprehensive carbon inventory.

For leased assets, we follow GHG Protocol guidance on Categorising GHG Emissions Associated with Leased Assets. Most leases, including vehicles and building space, are operational leases. Emissions fall within Scope 1 and 2 if we have full control; otherwise, they are reported in Scope 3 Category 8 (Upstream leased assets).

We currently report Scope 3 Categories 4 and 9 as a single figure within Scope 3 Category 4 (Upstream transportation and distribution) due to the inability to separate upstream and downstream expenses. Categories 11 (Use of sold products) and 12 (End of life treatment of sold products) are relevant to our operations but we lack sufficient data for accurate calculation. We are working to improve data granularity and processes to separate Categories 4 and 9 and to calculate Categories 11 and 12 emissions in the future.

This Carbon Reduction Plan covers emissions from Siemens Mobility's UK operations only, with no emissions reported for the Republic of Ireland this year.

Siemens AG's FY24 global emissions and energy consumption are detailed in the Siemens Group 2024 Sustainability Report<sup>4</sup>.

#### **Emissions inventory**

Scope 1,2 and 3 total	135,833	12,022	12,893	131,472	106,057
Scope 3 total	130,337	7,685	9,730	125,629	102,330
End of life treatment of sold products					
Use of sold products					
Downstream transportation & distribution*					
Upstream leased assets				463	243
Employee commuting*	4,226	3,839	4,598	2,982	2,909
Business travel*	2,799	1,234	2,063	4,441	4,002
Waste generated in operations*	260	105	101	156	99
Upstream transportation & distribution*	2,720	2,507	2,968	3,381	3,518
Fuel and energy related activities	1,846			2,991	2,015
Capital goods	14,315			3,545	8,589
Purchased goods and services	104,171			107,670	80,955
Scope 3 breakdown	130,337	7,685	9,730	125,629	102,330
Scope 2 market based	821	582	600	1,037	394
Scope 2 location based <sup>10</sup>	3,473	3,200	3,150	3,348	3,608
Scope 1	4,675	3,755	2,563	4,806	3,333
Emissions	Total (tCO <sub>2</sub> e) <sup>9</sup>				
	FY20⁵	FY21 <sup>6</sup>	FY22	FY23 <sup>7</sup>	FY24 <sup>8</sup>



<sup>\*</sup>PPN 06/21 minimum requirements A full upstream Scope 3 inventory was not calculated in FY21 and FY22.

## **Emissions reduction targets**

We are committed to achieving Net Zero emissions across the entirety of our value chain and within our operations by 2050. We have introduced several interim targets against our FY23 baseline to support the delivery of this, in line with the Siemens DEGREE framework.

#### **Net Zero Operations**

55% absolute reduction in Scope 1 & 2 carbon emissions by FY25

absolute reduction in Scope
1 & 2 carbon emissions by FY30<sup>11</sup>

#### **Net Zero Supply Chain**

absolute reduction in Scope 3 (categories 1-6) carbon emissions by FY30

90%

absolute reduction in Scope 3 (categories 1-6) carbon emissions by FY50

We also support Siemens AG's 1.5°C science-based net-zero target consistent with the Paris Agreement.

Siemens AG aims to reduce Scope 1 and 2 emissions by 90% and Scope 3 emissions by 30% by FY30, with a 90% reduction across the entire value chain by FY50. We measure our performance using the market-based approach for Scope 2 emissions.

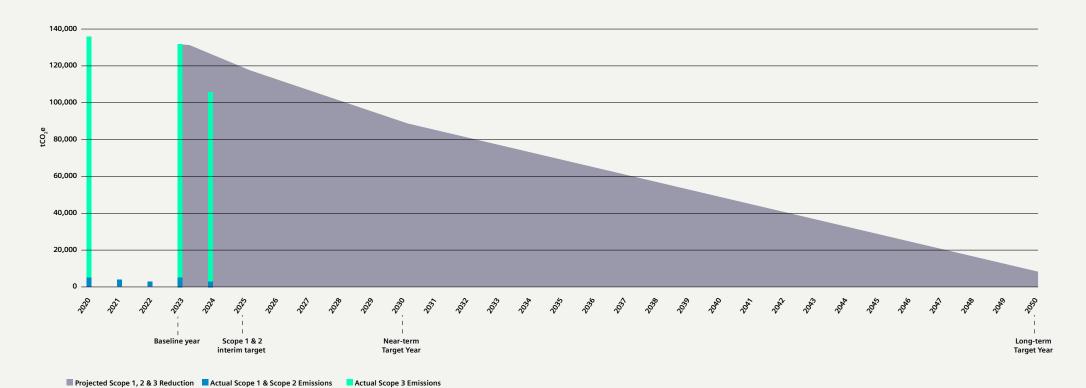


## **Progress against targets**

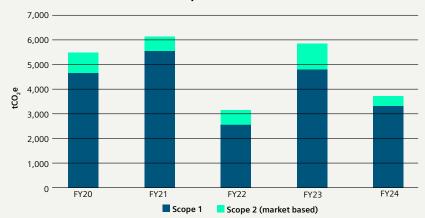
During the reporting year our total annual carbon emissions decreased by approximately **25,500 tCO<sub>2</sub>e** representing a 19% reduction.

#### Siemens Mobility Carbon Emissions (tCO2e)

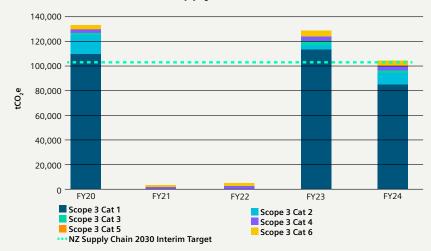
Projected v Actual



#### **Net Zero Operations Performance**



#### **Net Zero Supply Chain Performance**



A full upstream Scope 3 inventory was not calculated in FY21 and FY22

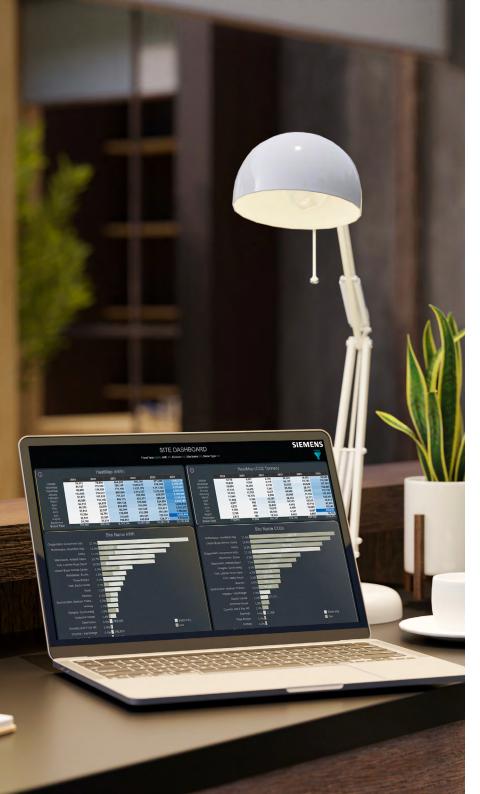
Our operational emissions within Scope 1 and 2 (market-based) significantly decreased during FY24, with a reduction of 31% and 62% respectively. These reductions were achieved through a combination of an increased uptake of battery electric vehicles within our company car fleet, a reduction in gas consumption across our estate and the utilisation of REGO\* certified renewable energy at several of our landlord managed sites. During the year we also made significant improvements to our calculation methodology to remove assumptions; the FY23 baseline was recalculated using the updated methodology to ensure that the carbon figures are comparable.

Emissions within our upstream supply chain (Scope 3 categories 1-6) decreased by 19% during the reporting year, bringing us close to our FY30 interim target of 20% reduction from our FY23 baseline.

Most carbon emission reductions were in Category 1 – Purchased goods and services, calculated using Siemens AG's externally validated cross-regional, macroeconomic input-output model based on spend. Specific initiatives with suppliers and across commodities contributed to the reduction, along with a 10% decrease in total in-scope spend from the baseline year. Improved accuracy of conversion factors and better classification of suppliers and commodities also played a role.

<sup>\*</sup>Renewable Energy Guarantees of Origin (REGO)





## Carbon data management

Due to the complexity of carbon data management, we have improved data availability, accuracy, and efficiency.

At the start of FY24, we identified all necessary data sources, addressing gaps and opportunities for improvement. We transitioned from manual invoice data to half-hourly meter data and gas-meter logger data on the Siemens Awarely energy platform, enhancing the accuracy of electricity and gas monitoring.

We also started to automate Scope 1 and Scope 2 carbon reporting using Tableau Software. The "DEGREE Dashboard" will enable detailed data interrogation and aggregation for corporate-level carbon accounting.

By working closely with landlords, we have reduced estimated fuel and energy use to **less than 1%** of our Scope 1 and 2 emissions inventory. We now access 99.8% of our Scope 1 and 2 data monthly or quarterly and aim to calculate emissions quarterly by the end of FY25 to track progress and identify trends.

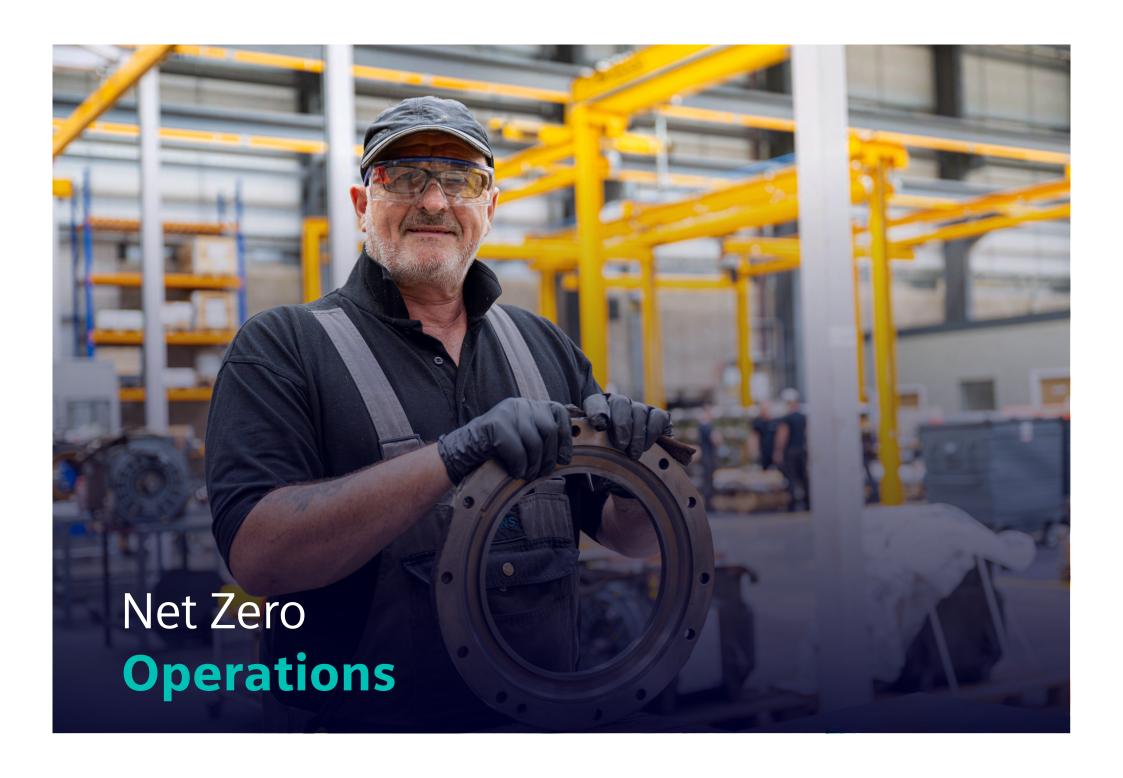
## Process improvement

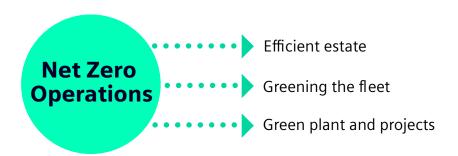
During FY24, we enhanced our carbon management processes to ensure consistent calculation and focused reduction efforts.

We updated our Corporate Carbon Accounting Procedure to include methodologies for calculating Upstream Scope 3 emissions and updated our Environmental KPIs to track key Scope 3 metrics. We developed processes to capture carbon reduction actions and collect evidence for our Energy Savings Opportunity Scheme (ESOS) Action Plan<sup>12</sup> and this Carbon Reduction Plan.

Carbon reduction activity has been reviewed at Business Unit level and during FY25 action plans will be developed to support delivery of our net zero commitment.

We also developed processes for managing whole-life carbon in our Rail Infrastructure projects<sup>13</sup>, aligning with PAS 2080 requirements.





## Reducing Scope 1 and 2 carbon emissions

Our operational emissions mainly come from gas heating and our diesel-powered van fleet, making up 77% of our total Scope 1 and 2 emissions. Other sources include electricity use, company car fleet fuel, and small amounts of liquid and gaseous fuels used in plant and equipment. To reduce emissions, we are targeting the areas where we can have the most impact. We have committed to the Climate Group initiatives **RE100**<sup>14</sup> (complete conversion to renewable electricity), **EV100**<sup>15</sup> (conversions of the vehicle fleet to electric vehicles), and **EP100**<sup>16</sup> (net zero emissions buildings), adopting a three-pronged approach: efficient estate, greening the fleet and green plant and projects.

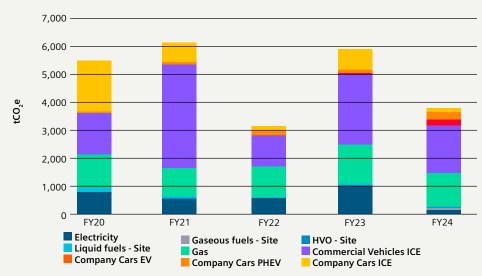
°CLIMATE GROUP EV100

°CLIMATE GROUP EP100

RE100 °CLIMATE GROUP



#### Scope 1 and 2 emissions breakdown





### **Efficient estate**

#### **Green leasing**

Much of the Siemens Mobility estate is managed by Siemens Real Estate (SRE). We collaborate closely with them to ensure we occupy buildings that meet our operational needs, which are balanced with SRE's sustainability strategy and the Siemens Green Lease Guidelines, to lease, wherever possible, carbon neutral all-electric buildings.

The primary goal of the Guidelines is to reduce operational CO<sub>2</sub> emissions of the leased real estate portfolio to zero by FY30. Where it is not possible to lease a property that meets the Guideline requirements, SRE may only sign a contract with a maximum lease term of FY29 to allow for relocation to a carbon neutral site before 2030, subject to any deviations requiring management confirmation by both SRE and Siemens Mobility. As lease contracts expire, SRE supports us to relocate to more energy-efficient buildings.

Our business needs are continually changing. During FY24, we moved out of three premises, saving around 25.7 tCO<sub>2</sub>e per year from electricity consumption. We plan to move out of at least one more site in FY25, saving an additional 34.9 tCO<sub>2</sub>e per year from electricity and gas consumption.



#### **Glasgow office**

Early in FY24, we moved our main Glasgow office to a highly energy-efficient **BREEAM "Excellent"** building, reducing occupancy space by 23%, improving the EPC rating from C-40 to A-15, and saving an estimated 27 tCO<sub>2</sub>e per year.

The new office was built with sustainability in mind and features heat recovery and variable speed technology for heating, cooling, and ventilation, motion-sensitive LED lighting, rooftop solar PV panels, 100% renewable energy supply, rainwater harvesting, zero landfill waste solution, cycle racks, changing rooms, shower facilities, and rooftop beehives.

#### **Purpose built facilities**

#### **Goole Rail Village**

We invested £200 million in a state-of-the-art train assembly facility in Goole, officially opened in October 2024. The Goole "Rail Village" includes halls for manufacturing, commissioning, test areas, warehouses, and a modern office building.

During the design and build, we tracked **embodied carbon** and used sustainable materials like unreinforced concrete for external yard slabs and Ground Blast-Furnace Slag (GBFS) as a partial substitute for cement. We also installed LED lighting, efficient heating and cooling systems, and planned for on-site solar panels. Grid-supply upgrades were secured for electric vehicle charging.

We invested more than £2 million to install energy efficient localised Air Source Heat Pumps to ensure that the Goole Rail Village had a gas free heating solution, supporting our Net Zero ambitions.

Future investments in Goole Rail Village include a Bogie Assembly and Service Centre, expanding our capabilities to overhaul and assemble bogies for new trains. This facility will produce the next generation of trains for the UK, supporting the sustainability of the British rail industry by **localising the supply chain** and reducing **the whole-life impact** of train manufacturing.



#### **Building upgrades**

To support the delivery of our Net Zero Operations target, we have invested across our estate to upgrade building efficiency.



### LED lighting transition

The SRE and Customer Services Facilities Teams have been working to transition to LED lighting, which consumes up to 90% less energy and can last up to 25 times longer than traditional incandescent bulbs.

In 2024, focus was given to upgrading our premises at Ashby De-La-Zouch, Derby, Kettering and Kings Heath.

During a recent refurbishment at Derby, the team achieved **60% reduction** in lighting energy usage from LED upgrades. This equates to an annual saving of approximately 20.7 MWh which is equivalent to 4.3 tCO<sub>2</sub>e.



## **Energy efficient** air compressor

The Facilities team at Ardwick Depot, part of the Customer Services business unit, identified the need to update their air compressor. During the procurement process, they determined that a more energy-efficient model could be installed, delivering significant annual energy and financial savings.

Using estimated yearly costs and the average cost per kWh, it is projected that the new compressor will save 35 MWh of energy per annum. This translates to an approximate reduction of 7.4 tCO<sub>2</sub>e per year.



### Timer controls

At Traction Drives, located within the Goole Rail Village, the team identified equipment that was frequently left on standby overnight. To address this, they installed timers on devices such as drill chargers, ensuring they power down overnight and automatically turn back on in the morning. Additionally, the air compressor is now set to shut off between 5 p.m. and 5:45 a.m.

The site has also optimised the building management system to ensure the heating and cooling systems are turned off overnight. We are currently exploring ways to monitor the benefits of this initiative.

11.7 tCO<sub>2</sub>e
saved per year from
building upgrades



## Renewable energy

As part of our commitment to the Climate Group RE100 initiative, we only purchase REGO certified 100% renewable energy for all our managed and operated sites.

Where we do not pay directly for the electricity, we work with our landlords to encourage them to switch to 100% renewable UK-generated electricity. In the reporting year 90% of our total electricity came from renewable sources including on-shore and off-shore UK wind power.

In FY23 we completed a climate-related risk and opportunity assessment closely aligned to the Taskforce on Climate-related Financial Disclosure (TCFD), identifying the potential to generate our own renewable energy. During FY24 we installed solar panels at our Biggleswade site (41.25 kW array) and Goole Rail Village (980 kW array), which could generate up to 830 MWh of electricity and save 171.9 tCO<sub>2</sub>e annually.

830 MWh

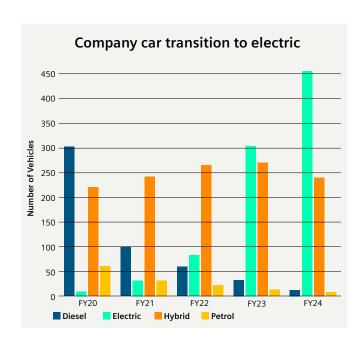
projected on-site
electricity generation
under optimal conditions

## **Greening the fleet**

We aim to fully electrify our 1130-strong vehicle fleet by 2030, in line with our Climate Group EV100 commitment. In FY24, our fleet emissions totalled 2,232 tCO<sub>2</sub>e.

Our EV First Policy mandates all new company car orders be 100% electric unless valid exceptions apply. To support eligible employees, we offer a grant towards the cost of installing home wall box chargers.

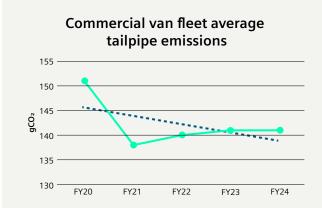
Since implementing the EV First Policy in 2022 we have seen a significant increase in electric and plug-in hybrid vehicle uptake. By the end of FY24, 63% of our company fleet was fully electric, saving almost 490 tCO<sub>2</sub>e since FY20 and 166 tCO<sub>2</sub>e in FY24.



We trialled electric vans in our Rail Infrastructure business unit; while the vans received positive feedback on quality and experience, they did not meet range or payload needs. We continue to explore market options and focus on low-carbon hybrids.

We are working with our leasing provider, LEX Autolease, to reduce commercial vehicle tailpipe emissions. We have achieved a 9% reduction over the last 4 years and expect a further 4% reduction next year.

We have installed telemetry into our vans; each week our drivers receive a report with an easy-to-read analysis of driving behaviours such as speeding and heavy braking, using a traffic light system to highlight areas for improvement. The report is designed to encourage safe and efficient driver behaviour; we are investigating how we may further interrogate the telemetry analysis and use it to promote efficient driving.



## 9% reduction

in average tailpipe emissions from our commercial van fleet over the last four years

#### **Gold status for fleet management**

The Fleet Operator Recognition Scheme (FORS) sets the standard for safer, smarter and greener road transportation operations. This year we achieved FORS Gold status for the first time for our Logistics Fleet Management at Chippenham.

To be awarded FORS Gold we had to demonstrate that our fleet is **optimally managed** through route planning, load consolidation and vehicle sizing to minimise emissions. We were also required to demonstrate that we have a decarbonisation plan in place, considering alternative transport modes such as rail and sea before road, and reviewing low- and no-carbon technologies and fuels.

## **Green plant and projects**

Diesel used in our depots and plant is a source of operational carbon emissions. To support our Net Zero Operations target, we developed workstreams to reduce diesel usage by procuring equipment powered by alternative, lower-carbon fuels. These workstreams have been successfully trialled and are now being rolled out across the business.

#### **Green Plant Mandate**

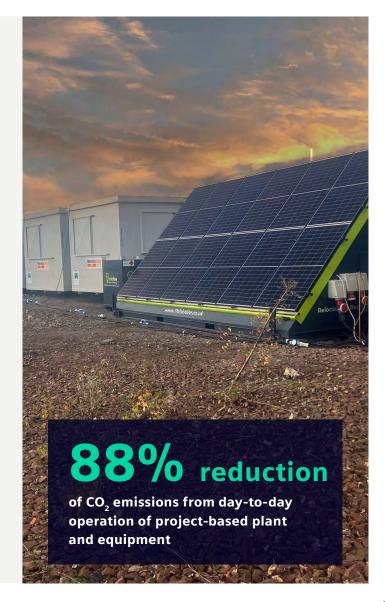
Historically, our Rail Infrastructure project sites relied on diesel-based equipment, contributing to operational emissions. In 2023, we mandated the use of renewable power with Hydrotreated Vegetable Oil (HVO) as backup fuel for generators and welfare units to transition towards **diesel-free sites** for our Rail Infrastructure projects.

The Supply Chain Management team collaborated with key partners to source sustainable HVO, ensuring it is non-palm oil derived and FAME\*-free, which extends its shelf life compared to diesel. In FY24, we replaced 84% of diesel used at Rail Infrastructure project sites with HVO.

This change reduced CO<sub>2</sub> emissions by 88% from project-based equipment.

We are exploring further diesel replacement opportunities, including HVO integration into Railroad Vehicles (RRVs), currently trialled with our supplier, Story Plant. If successful, RRV CO<sub>2</sub> emissions could be reduced by up to 90%.

\*Fatty Acid Methyl Ester (FAME)





#### **Award-winning green energy project**

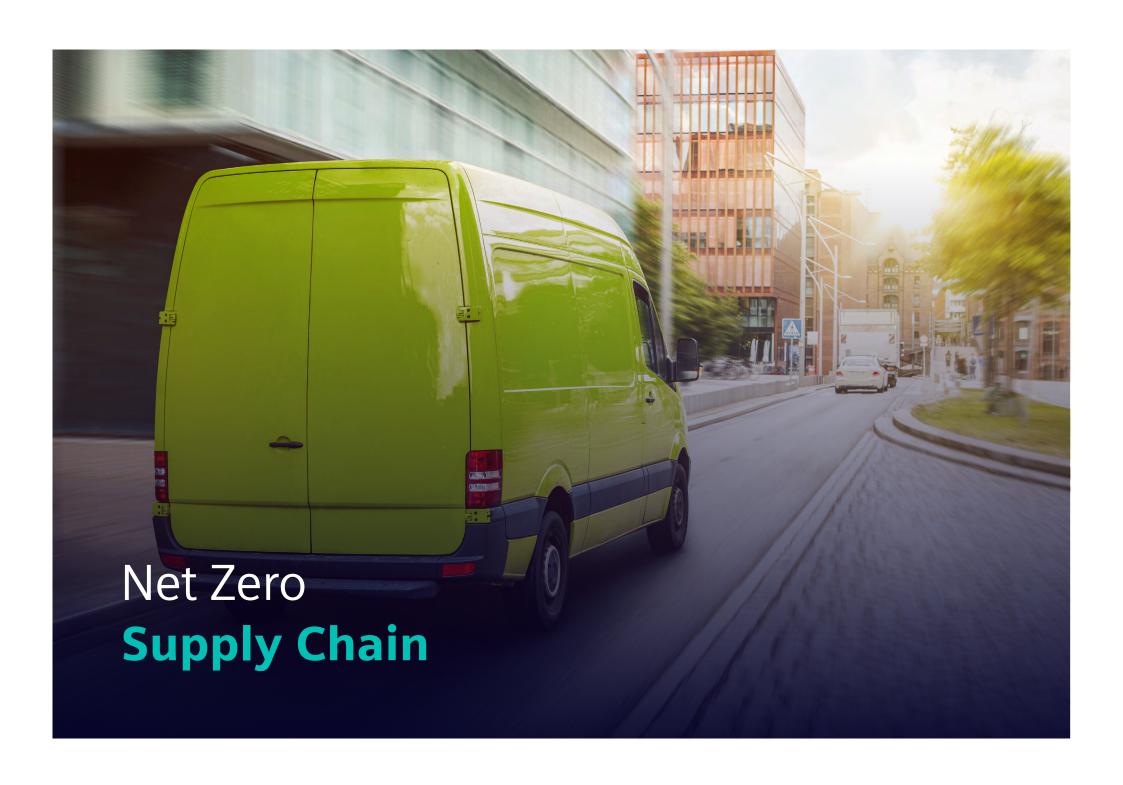
The East Coast Digital Programme (ECDP) is enhancing the East Coast Mainline to create a next-generation railway. Sustainability has been embedded in the decision-making process to reduce carbon emissions and promote resource efficiency, leading to one ECDP project receiving its sixth Green Apple Award in 2024.

The Welwyn North depot, supporting the Welwyn to Hitchin project, is transitioning to a fossil fuel-free construction site. By working with ThinkHire Renewable Energy Systems, the site switched from diesel to solar-hybrid generators, reducing emissions including CO<sub>2</sub>, NOx, SO<sub>2</sub>, and particulate matter by up to 50%. The switch is expected to reduce CO<sub>2</sub> emissions by 25.2 tonnes over the 9-year lease.

Monitoring equipment was installed to optimise energy consumption, and remote asset management features allow for adjustments to maximise efficiency.

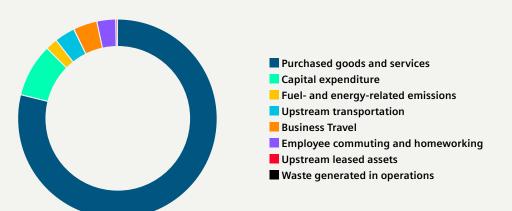
This depot serves as a model for fossil fuel-free construction sites, setting new standards and **promoting best practices** across the business.







#### **Calculated Scope 3 Emissions**



#### **Reducing Scope 3 carbon emissions**

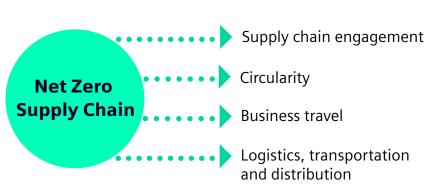
Our measured Scope 3 emissions represent 96.5% of our total carbon footprint.

In FY24, we analysed our Scope 3 carbon emissions, focusing on categories 1-8. We found that purchased goods and services, capital expenditure, and business travel are the main contributors.

Our Procurement Teams are improving data, setting key performance indicators (KPIs), engaging suppliers, and targeting carbon-intensive goods and services.

We are currently working towards alignment with the **ISO 20400** sustainable procurement standard to promote responsible sourcing and reduce our carbon footprint.

Over the next 12 months, we will be working with our supply chain to develop a sustainable procurement strategy with workstreams on decarbonisation, social value, and skills.



## Gathering and improving data

Scope 3 Category 1 - Purchased Goods and Services is the largest portion of our Scope 3 emissions. Our Procurement team has been refining spend categorisation, heatmapping suppliers, and developing product carbon footprints to identify key areas for decarbonisation.

Data improvements and heatmapping

Our Procurement team has analysed spend data to identify carbon-intensive purchases and determine risks and opportunities in the value chain. We are working with suppliers to complete our bespoke Carbon Web Assessment (CWA), sharing their carbon footprint to identify priority areas for decarbonisation.

The Sustainable Procurement team has created a Supplier Sustainability Dashboard using data from heatmapping and the CWAs. This dashboard will **track decarbonisation efforts** and **compare supplier performance.** 

A key performance metric is supplier transparency in the CWAs, which helps incorporate sustainability into decision-making and enhances supplier performance. We aim to use this dashboard in future procurement decisions.

We currently have 29% of supplier CO<sub>2</sub> emissions covered by a CWA, aiming for 50% by the end of FY25.

Product carbon footprinting

We are working with our supply chain to gather contract and product-specific information to support our decarbonisation targets.

In our Customer Services business unit, we are working with one of our key suppliers to develop a Product Carbon Footprint (PCF) for a typical product, considering its entire lifecycle to identify carbon savings. We are also calculating the carbon benefit of historical lifecycle changes, such as relocating product maintenance from Germany to the UK and optimising maintenance frequency.

Once we establish a PCF and a methodology to calculate carbon benefits, we will share our learnings with other key suppliers. This will help us make informed **low-carbon purchasing decisions** and identify further carbon reduction opportunities.

29%

of supplier CO<sub>2</sub> emissions covered by a CWA

## Understanding and engaging our supply chain

#### Supply Chain Sustainability School

For over 5 years, Siemens has partnered with the Supply Chain Sustainability School to **educate** organisations, especially SMEs, on sustainability. The school offers a free online portal with various learning mediums, including guided learning, workshops, lunch and learns, and good practice reports, all CPD accredited.

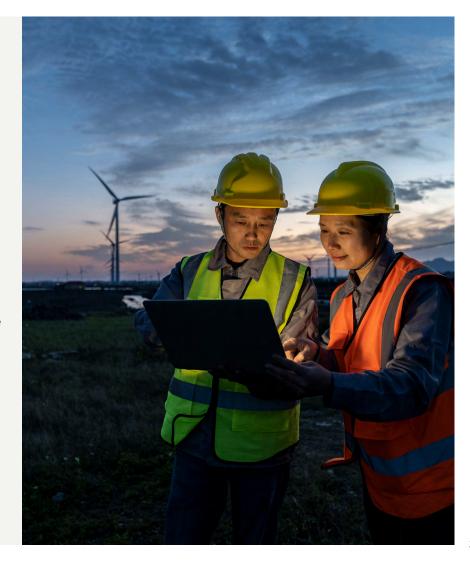
Siemens supports the school as part of its Sustainable Procurement Strategy, aligning with DEGREE framework decarbonisation targets. This ensures that our supply chain understands sustainability and can report on their own decarbonisation efforts.

As part of the new Sustainable Procurement Strategy, Siemens aims to increase membership of key suppliers, SMEs, and developing partners through the Supply Chain School, supporting Siemens reporting requirements like carbon web assessments.

#### Bringing our top suppliers along on our decarbonisation journey

Engaging suppliers is crucial for reducing indirect emissions. Our Procurement teams collaborate with key suppliers, including Small and Medium-sized Enterprises (SMEs), to integrate **sustainability into contracts.** We engage suppliers through events, contract reviews, and workshops, providing updates, resources, and support on sustainability and decarbonisation topics.

In FY24, we required our Top 20 Customer
Services suppliers, including 10 SMEs, to provide
Sustainability Plans and agree on actions for
implementation during contract delivery. We
provided training and support to ensure these
plans were effective. In recent years, several of
our key SME suppliers have transitioned to
electric fleets, provided low-carbon deliveries,
and installed solar panels, directly benefitting
our Scope 3 carbon footprint. See the supplier
spotlight for achievements by Browns Fasteners.





## **Supplier spotlight: Browns Fasteners**

Browns Fasteners are one of our Top 20 suppliers for our Customer Services business unit, they are also a SME. From having limited focus on sustainability, Browns have now completed their scope 1 and 2 emissions assessments and are working to identify their scope 3 emissions. They have also demonstrated their commitment to sustainable practices by implementing a new environmental policy that includes:

- Reducing greenhouse gas emissions through encouraging hybrid/electric vehicles, promoting car sharing, offering flexible working for those who walk/cycle, allowing train travel for meetings, and optimising transportation routes.
- Reducing packaging and waste by reusing materials, using reusable containers, and having dedicated recycling bins.
- Responsible trading by partnering with environmentally committed organisations and developing relationships with sustainable businesses.
- Improving office energy efficiency through heating optimisation, LED lighting, device management, water conservation, and use of eco-friendly office equipment.
- Educating and informing employees about environmental and sustainability issues and sharing their goals with stakeholders.

Additionally, Browns have registered and are active members of the Supply Chain Sustainability School and SME Climate Hub. They have also committed to community engagement through local charity partnerships, developing relationships with local businesses, creating employment and training opportunities, and implementing diversity and inclusion initiatives.

"We are very proud to have been recognised by Siemens Mobility for our efforts in improving our sustainability and environmental commitments. Our long-term working relationship with Siemens Mobility has given us an excellent opportunity to learn from their vision and efforts and has inspired us to implement significant improvements across all areas of our business.

We will continue to follow their example as our partnership continues to grow and in turn, try to inspire other companies to take similar steps in carbon reduction."

Mark Ainsworth,
Director at Browns Fasteners said

#### **Circularity**

We are continually looking for opportunities to safely extend the life of our key components, reducing maintenance costs and minimising waste.

At Siemens Mobility, Circularity is key. We are doing more with less for our customers, society and planet. Siemens Mobility is helping entire industries transition from linear to circular. We create circular products, embrace circular business, and empower circularity across sectors – decoupling growth from consumption. By scaling circularity, we reduce the burden on the planet while creating opportunities for growth and innovation.

Carbon reduction can be achieved through improvements in product circularity, reducing the need for carbon-intensive manufacturing of new materials.

### 1.5 million

Major overhaul of bogies for the Desiro Classic fleet has more than doubled to 1.5 million miles



#### **Optimised maintenance**

Over the last decade, our Asset Maintenance Optimisation (AMO) Team has balanced reliability, safety, service quality, cost, and sustainability in fleet maintenance schedules for our Customer Services business.

They assess and optimise Vehicle Maintenance (VMI) Schedules for efficiency, including identifying local suppliers, reducing major overhaul frequency, and adjusting maintenance schedules to minimise energy consumption and waste and optimise planning and staffing at local depots.

By undertaking a forensic strip down analysis of bogie components, the AMO Team has been able to extended major overhauls for bogies from 650,000 to 1.5 million miles for the Desiro Classic fleet.

They have also optimised door maintenance, specifically for the Class 350 fleet, ensuring maintenance is performed only when necessary. This approach maintains the reliability and safety of the fleet while **minimising** waste and carbon emissions.

To ensure safety and reliability, our Engineering Teams conduct surveys and analyse monthly Reliability Reports to monitor maintenance trends.

They are working to install vibration and heat sensors on key components to automate the Maintenance Optimisation process.

The carbon benefits of the life extension of essential components are anticipated to reduce Scope 1, 2, and 3 emissions.





## Circular practices in our Class 185 Heating, Ventilation and Air Conditioning (HVAC) systems

To maximise the impact of our circularity efforts, we focus on components which are common across our product range. Heating, Ventilation and Air Conditioning (HVAC) units are situated in all rolling stock train carriages, and were identified as an area where we could improve the sustainability of the overhaul process.

To reduce waste and embodied carbon during overhaul, we have switched to using high-quality, remanufactured compressors, which were previously replaced. Our supplier, Green Point UK, has estimated that 98% of units returned are suitable for remanufacturing, resulting in minimal wastage.

Additionally, it was identified that the wear and tear of the ball bearing component was leading the HVACs to require complete overhaul.

By replacing the ball bearing component within the HVAC units of our Class 185 fleet, the overhaul period of the HVAC unit is doubled from 8 to 16 years. This approach not only reduces costs but also decreases emissions associated with the transportation and manufacture of replacement fans and major overhaul activities. This solution is currently implemented on the Class 185 Fleet, efforts are underway to extend this success across other fleets soon.

#### **Refurbishment over replacement**

Our Customer Service Procurement and Engineering teams have been collaborating to explore opportunities for enhancing the efficiency and sustainability of rail infrastructure components.

Focusing on the Class 700 fleet, our team has identified two key opportunities to incorporate circularity into bogie overhauls: the refurbishment of yaw dampers, which absorb shock to prevent railcars from swaying excessively from side to side, and of wheel-set bearings, which support the railcar along the track.

In partnership with our strategic yaw damper supplier in Germany, our Procurement team has investigated the benefits of refurbishing yaw dampers in the UK, rather than sourcing new ones from Germany.

While the potential carbon savings have not yet been quantified, significant cost and **waste reduction** benefits have been identified. We anticipate implementing this initiative during the next overhaul, currently scheduled for 2028. Similar opportunities have also been identified for the Class 700 wheel-set bearings and we are working with our suppliers to investigate further.



#### **Embracing circularity at a local level**

Within the Customer Services Business Unit, the Ardwick Depot Materials and Facilities teams demonstrated ingenuity and environmental awareness by repurposing wood and metal destined for disposal.

Materials from a closed location, as well as packaging crates from deliveries, were transformed into trolleys and workbenches. The only purchased item was caster wheels, costing just £16, which resulted in significant cost savings for the depot.

Additionally, the team repurposed wood from the closed site to clad the tool room walls and used leftover metal caging from a previous rack build to complete the room.

This project highlights the team's **innovative approach** to sustainability, reducing emissions associated with purchased materials, waste management and transportation.



#### Slicker oil collections: re-refining waste oil into base oil

Waste oil is traditionally processed into Processed Fuel Oil (PFO) and burned in the marine and energy markets, resulting in one-time use and carbon emissions from combustion. To minimise our environmental impact from waste oil disposal, we have switched our waste oil collection contractor at our Ardwick and York Customer Service depots, to Slicker Recycling.

Slicker specialises in re-refining waste oil into base oil, which can be used to create new lubricating products, significantly reducing its environmental impact.

Re-refining waste oil into base oil is 37% more carbon efficient than producing PFO and can be reused repeatedly, contributing to a sustainable circular economy.

Slicker Recycling estimates that for every 1,000 litres of waste oil re-refined, 480 kgCO<sub>2</sub>e of carbon emissions are saved. During FY24, Ardwick and York disposed of 19 tonnes of waste oil via Slicker, saving approximately **10.4 tCO<sub>2</sub>e**. We are investigating the feasibility of introducing a similar solution at a number of our other Customer Service depots across the UK.

## Logistics, transportation and distribution

By localising our supply chain and using lower carbon multi-modal transportation solutions, we are able to minimise the carbon emissions associated with getting parts to our sites and our products to our customers.

### **EPC-A**

Kettering and Goole warehouses both have an EPC-A rating

## Sustainability benefits of warehousing upgrades

In 2024, we completed the Kettering warehouse and began constructing the Goole warehouse, set to finish in early 2025. These facilities aim to enhance warehousing and logistics, place materials closer to their point of use, reduce transportation distances, and improve delivery times.

Both facilities have been built to BREEAM "Very Good" status and have an EPC-A rating. The Kettering facility includes grey water recycling, solar thermal heating, low-energy proximity roof lighting and 10% of the parking is allocated for electric vehicles.

The racking system is designed for flexibility, and electric cloud-based forklifts maximise storage space. We opted for a mobile crane at Goole to minimise the facility's embodied carbon by avoiding the need for an extensive steel framework and structural changes to the building.

To address packaging waste, we are testing recycled plastic tote boxes with GPS tracking and working with suppliers to minimise packaging received on site. Localising our warehouse solutions aims to **reduce emissions associated with parts manoeuvring** for manufacturing and maintenance activities



#### **Bogie transportation: Graz to Goole**

Bogies for new trains are currently manufactured in Graz, Austria, and transported to our Goole Rail Village almost entirely by road. Our Logistics team asked bidders to pitch a sustainable solution for this international logistics route to save on both cost and carbon. The carbon emissions from the proposed transport routes were calculated and compared using EcoTransIT, which verifies the calculation methods according to EN 16258.

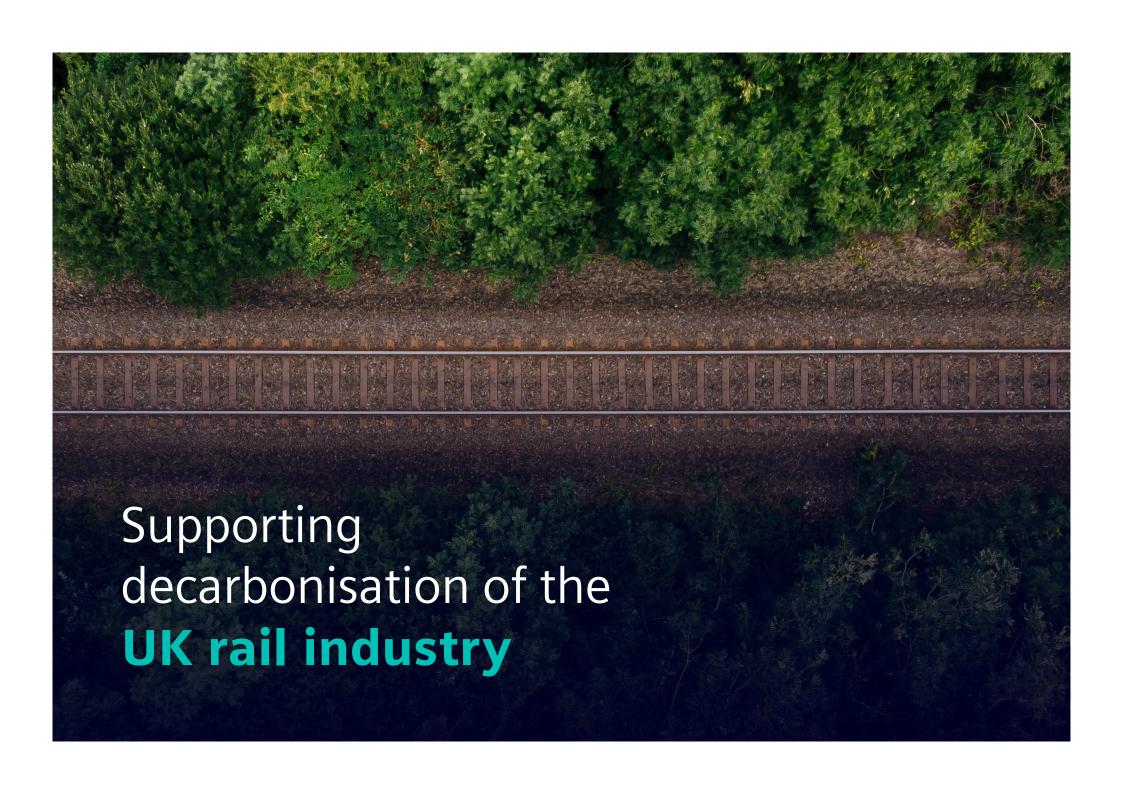
The result was an **intermodal solution** where the bogies were transported by road to Werndorf, Austria, then by rail to Neuss, Germany, by road again to Rotterdam, Netherlands, ferried to Hull, UK, and finally transported by road to Goole. We aim to implement this solution for 750 with Bulung Logistics.

The transport route has been active since August 2024 and, due to its use of rail and sea rather than solely road transportation, it is estimated to reduce carbon emissions by approximately 70% compared to the original road transportation<sup>17</sup>.

This project came second for Siemens Procurement Logistics Award as an example of logistics innovation and sustainable solutions and is one example of how we are focusing on reducing our Scope 3 Category 4 – Upstream transportation and distribution emissions.

70%
Estimated carbon emissions reduction compared to road alternative for bogie transportation





## **Siemens Track and Train innovation**



#### **Desiro Verve train**

In support of global emissions targets, Siemens Mobility has committed to stop producing and selling diesel passenger trains, focusing instead on greener technologies like battery. The new Desiro Verve battery-electric multiple unit (BEMU) is a significant step towards decarbonising rail transport, supporting the UK's Net Zero goals.

It offers far superior performance to a diesel train when running under battery power on non-electrified routes with all the advantages of an electric unit operating under overhead catenary. The Desiro Verve offers ranges of more than 50 miles on battery power, based on worse case modelling at end of life, with allowance made for an operational reserve.

For many regional duties, that alone is sufficient for them to travel from origin to destination without recharging. On longer journeys, they take power from overhead catenary to charge the battery in 15-20 minutes whilst moving along electrified sections or charging whilst stopped at stations, enabling trains to complete an entire journey with **zero emissions at source.** 

Sustainability is embedded into the Desiro Verve's lifecycle, from design to end-of-life. The train incorporates a high percentage of recyclable materials, ensuring at least 95% recyclability by mass. It also features an advanced energy management system optimising battery performance, extending operational range while reducing energy consumption. Simulations of seven new train projects using our Desiro Verve trains demonstrate a projected savings of 12 million tonnes of CO<sub>2</sub>, 60,000 tonnes of NOx and 750,000 tonnes of particulate matter over their 35-year lifespan when compared to a diesel only fleet.

The Desiro Verve train is to be assembled at Siemens' Goole facility, which is working towards becoming a Net Zero site using 100% renewable electricity generated on site.

#### **Rail Charging Converter**

The Rail Charging Converter is a new solution that allows compliant 25kV supplies to OLE to be created from any standard 11kV power supply. By effectively miniaturising static frequency converter technology, power can be provided wherever it is needed fully compliant with UK electricity and railway requirements. This avoids the large quantities of concrete and steel required today to create 25kV supplies from extra-high-voltage distribution systems, and then carry it along the railway to where it is required.

This creates new opportunities to decarbonise and improve railway operations: as well as enabling conversion of diesel trains to battery electric, and reducing the size, weight and embedded carbon of on-board batteries, it enables discontinuous electrification, reinforcement of weak power supplies, and local power supplies for depots where keeping operations live at night conflicts with the need to safely maintain the mainline railway.

For the first time, electrification can be reliably delivered faster than new trains, meaning Britain need never buy another diesel.

The RCC is fully manufactured and tested off-site and designed for rapid installation with **minimal site works,** reducing the carbon footprint of site compounds and completely eliminating concrete from construction.

In addition, the RCC is a **fully SF6-free solution**, introducing to UK rail for the first time clean gas 11kV technology, enabling a compact solution without the global warming effect of SF6 insulated switchgear being installed today across UK railways.

SF6-free
First clean gas 11kV

technology for UK rail



## Innovating for the UK industry

Beyond our Track and Train solution, we are continually looking for opportunities to support our customers and the wider UK rail industry with decarbonisation whether it be through maximising energy efficiency for fuel minimisation, embedding circularity into our maintenance to minimise wastage and material use, or using digital solutions to optimise operations.

We are reducing the embodied carbon of our solutions and developing technology to reduce our customers' operational emissions. The following examples highlight some of the initiatives that are under investigation, in development or have been recently implemented.

#### Robust Eco-Design and the Green Digital Twin™

Siemens Mobility is committed to improving product sustainability from the beginning of each product's lifecycle, including the implementation of Siemens' Robust Eco-Design (RED) Framework<sup>18</sup> for all new product developments.

The RED framework adopts a collaborative approach, using expert knowledge from each stage of the product's design lifecycle to analyse our products against the following 12 Ecodesign criteria:



An important step in our Robust Eco-Design process is the use of the Siemens Green Digital Twin™ (GDT). The GDT is a Siemens tool used for:

- Completing full **Life-Cycle Assessments** to allow for a quantitative understanding of a product's environmental impact. An Environmental Product Declaration (EPD) can be produced, upon customer request, summarizing the results of the Life-Cycle Assessment.
- Making sustainable and value driven decisions at the design stage of a product, in line with the RED Framework.

We are working to build our **catalogue of Type II EPDs** (self-declared) for a range of Siemens Mobility signalling products to support our customers to better understand their environmental footprint.



#### **Piccadilly line trains**

In collaboration with the Vienna University of Technology, Siemens Mobility Austria has developed an innovative manufacturing technique for aluminium car bodies designed to **reduce overall car body weight.** 

A case study on the "bionic car body" applied to a standard mid-capacity metro system revealed that a 10% reduction in car body weight results in an approximately 2% reduction in overall train weight. Furthermore, implementing all technically feasible weight reductions on car bodies could achieve up to a 20% reduction in car body weight, leading to a 4% decrease in total train weight. Investigations on energy consumption show that for metro systems, a reduction of weight by 4% correlates with an energy consumption reduction by 4%.

The innovative "bionic car body" technique has been applied to several structural parts of the Piccadilly line trains, assembled at our Goole facility. This technique, combined with the use of fewer bogies compared to conventional units, results in a lighter train.

The reduced weight of the car bodies offers significant advantages, such as meeting axle load limits, reducing track deterioration, and **lowering energy consumption**, which directly contributes to reduced carbon emissions for our customer.





#### **Intelligent HVAC control**

Our Class 185 fleet is the last diesel fleet that we actively maintain in the UK. Siemens Mobility is working with the customer to reduce the operational energy consumption and emissions of this fleet, identifying several potential projects for further exploration.

Currently, HVAC systems on the Class 185s operate throughout the entire train, even when empty, wasting energy and increasing carbon emissions. We have devised a potential solution to trial a new HVAC controller supported by sensors that monitor CO<sub>2</sub> and NO<sub>2</sub> levels, train location, passenger numbers, and weather conditions. This system will ensure **heating or cooling is appropriate**, empty carriages aren't heated, and the system stops operating as the train approaches a terminus.

The project parties are currently in the process of establishing a business case to undertake an operational trial to inform the technical and commercial case for a full fleet roll out. It is anticipated a trial would take place between 2025-26.



#### Variable rate sanding

Our Variable Rate Sanding (VRS) system optimises rail adhesion by adjusting sand distribution during wheel slide or emergency braking, providing drivers more confidence in braking during slippery conditions.

VRS has a positive effect on wheel flats and cavities. Fewer wheel defects translate directly into reduced **maintenance demands**, **lower material consumption**, and **decreased track wear**, collectively extending the lifespan of both rolling stock and infrastructure, thus supporting a more sustainable rail network.

From a network performance perspective, better braking reduces delays caused by trains slowing down too much and bunching up. This helps keep services running smoothly and saves fuel by avoiding frequent braking and acceleration.

We are expanding our analysis with data from South Western Railway's Class 158/159 fleet to further validate the impact of Variable Rate Sanding across the different train types.

#### Low carbon electrification: Sicat SX

Sicat SX is our most innovative overhead line system yet, designed to significantly reduce the carbon footprint of rail electrification projects.

Sicat SX builds on tried and tested components, ensuring compatibility with existing infrastructure while introducing advanced features such as high current capacity conductors and optimized dynamic performance.

The system is fully National Technical Specification Notice (NTSN) and Technical Specifications for Interoperability (TSI) compliant and has been successfully deployed in various European countries, including Hungary and Denmark.

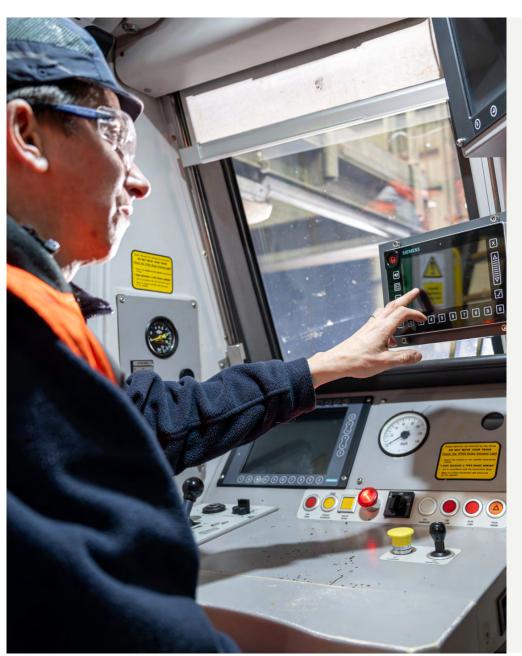
The Sicat SX system features span lengths of up to 112 meters and tension lengths of up to 2,000 meters, significantly greater than traditional overhead line equipment (OLE). Longer span lengths result in fewer tensioning devices, cantilevers, masts and associated concrete foundations.

The system is proven to reduce the embedded carbon associated with electrification infrastructure through the reduction of copper, steel and concrete. Modelling indicates that the Sicat SX system achieves a 22% reduction in total embedded carbon compared to traditional systems.

Denmark's rolling electrification program, which includes the Sicat SX system, has achieved efficiency levels of 93%. The use of Sicat SX has enabled spans of up to 109 meters and tension lengths of up to 2 kilometres, reducing the amount of electrification equipment required by up to 40%.

We are exploring opportunities to implement Sicat SX across the UK to support the decarbonisation of Britain's railways. With the first deployment planned for the system in late 2025 to support the decarbonisation of Britain's railways.





#### **C-DAS**

Siemens Mobility has developed the Connected Driver Advisory System (C-DAS) to address the challenge of reducing energy consumption in trains during operation.

This innovative system aims to **support driver efficiency** by providing real-time speed advice to train drivers, enabling smoother and more efficient journeys. By optimising speed, the system helps minimise unnecessary acceleration and braking, which in turn reduces energy consumption and wear and tear on train components.

The system comes ready to integrate with any of our existing 11,000 in-cab v4 Global System for Mobile communications – Railway (GSM-R) radios installed across the UK. All that's required for installation on the train is to upgrade the existing GSM-R antenna with the Siemens Multi-Band Antenna (SMBA). The SMBA provides 4G LTE and Global Navigation Satellite System (GNSS)/Global Positioning System (GPS) connectivity in addition to GSM-R.

A Siemens Graphical Driver Control Panel (GDCP) is also available for enhanced visual display. Drivers can choose between audio advice over the cab radio loudspeakers, or visual advice through the display.

We conducted a pilot with ScotRail on the Siemens Class 380 train. Early indications suggest that the technology has the potential to **reduce carbon emissions** for the customer. We hope to collaborate with customers on their fleets soon to achieve significant savings.

C-DAS represents a significant step forward in our efforts to reduce energy consumption and carbon emissions in the rail industry. By deploying national, real-time, speed advice to train drivers, C-DAS not only enhances the efficiency of train operations but also contributes to the sustainability goals of our customers.



#### Reducing embodied carbon in our Infrastructure Projects

To achieve our Net Zero target and reduce carbon intensity, we are reducing concrete usage and implementing alternative construction methods and materials in our Infrastructure projects.

Our Green by Design and Build workstream identifies and implements low carbon solutions in civils projects.

We work with our Civils Design partners to calculate and select the lowest carbon options for signalling ancillary civils packages.

Through 'Sustainability by Design' workshops, project teams embed sustainability into designs by using less carbon-intensive materials, choosing local suppliers, and establishing resource efficiency procedures early in the project.

#### **Retention systems**

Ballast is used to help drain water and other materials away from the tracks, allowing them to remain stable for safe train operation. One component of ballast use is the ballast board which helps to retain the ballast and keep it in place. Through our Green Design and Build workstream, we identified the opportunity to **reduce the embodied carbon** associated with ballast board.

We trialled and installed a FlexMSE Green Retaining Wall solution in the place of a traditional ballast board retention system in one of our Rail Infrastructure projects. The FlexMSE system uses polypropelene bags filled with soil in place of concrete to create a retaining wall. Initial calculations indicated that the FlexMSE solution could provide a 26% reduction in embodied carbon when compared to traditional ballast board, representing a saving of **926 kgCO<sub>2</sub>e.** Now successfully trialled, this solution will be implemented in similar situations across Rail Infrastructure.

#### Sustainable design in practice

At our Kingmoor site in Cumbria, Sustainability by Design workshops, along with the subsequent delivery of carbon reduction initiatives, led to a total projected embodied carbon saving of more than **205 tCO<sub>2</sub>e.** 

To achieve this carbon saving, the team substituted Relocatable Equipment Buildings (REBs) with Location Cases where possible, which are smaller, easier to install and require less maintenance. Location Cases are associated with around 30% less carbon than REBs. The team also used Trough Tec Systems (TTS) troughing, made from 100% recycled polymer, which is lighter and easier to install. TTS has about 28% less carbon than traditional concrete troughing.



## **Look ahead**

This Carbon Reduction Plan, along with our Energy Savings Opportunity Scheme (ESOS) Action Plan, will form the basis of the Siemens Mobility Net Zero Plan which is due for internal publication in FY25.

The Siemens Mobility Net Zero Plan will outline our Action Plan for delivering the Siemens DEGREE decarbonisation targets between 2025 and 2030.

#### During FY25 we are planning to:

- Start construction on our new, BREEAM Excellent, purpose-built manufacturing facility in Chippenham which will eventually replace our existing manufacturing site in the town.
- Achieve alignment with ISO 20400 Sustainable Procurement
- Generate renewable energy from our newly installed solar panels at the Goole Rail Village and our Biggleswade site.

### Governance

At Siemens, sustainability is rooted in all that we do, including our business purpose and strategy, corporate culture, processes, and guidelines. The management of sustainability matters is embedded across our Siemens businesses, supported by a robust governance framework.

#### **Board of Directors**

- Ultimate responsibility for and oversight of sustainability
- Discusses sustainabilityrelated risks and opportunities of strategic/ business importance
- Financial accountability

#### Siemens Mobility UKI Sustainability Committee

- The central steering committee of sustainability
- Monitors the execution of the sustainability strategy and oversees the communication of sustainability activities with stakeholders
- Supports the coordination of action and flow of information between Steering Groups
- Links to Siemens Mobility Global and Siemens AG plus other relevant specialist groups
- Ensures accountability at Board level

#### **Steering Groups for three strategic pillars**

- Conservation of Nature and Resources (Environment)
- Contribution to People and Society (Social)
- Responsible Buisness Practices (Governance)
- Senior management sponsorship
- Understand and communicate material sustainability considerations
- Supports setting of sustainability targets and commitments
- Enables the devlopment of operational action plans

#### **Business Units**

- Business Unit Sustainability Sponsor at director level responsible for:
- Business unit response to sustainability commitments
- Overall accountability for agreed action plans aligned to our sustainability focus areas and targets

#### Internal and External Audits

- PwC LLP provide Siemens Mobility UKI with independent limited assurance over the reporting of Scope 1 and 2 Greenhouse Gas emissions as reported within the Annual Report
- Siemens AG Assurance team undertake internal audits focusing on sustainability process and governance

#### **Notes:**

- 1. 2045 for projects delivered in Scotland
- As defined within the GHG Protocol and Appendix E of the Corporate Standard

   Base year recalculation methodologies for structural changes and as per SBTi
   Corporate Net-Zero Standard Criteria and Siemens AG Base Year Recalculation
   Policy
- 3. https://ghgprotocol.org/corporate-standard; https://ghgprotocol.org/corporate-value-chain-scope-3-standard; https://ghgprotocol.org/scope-2-quidance; https://ghgprotocol.org/scope-3-calculation-quidance-2
- 4. https://assets.new.siemens.com/siemens/assets/api/uuid:32a7154d-edba-47bc-8e9b-9761617ba774/sustainability-report.pdf
- 5. Original baseline year adjusted following carve out of Yunex Traffic UK Limited and Scope 3 Category 1 (purchased goods and services) recalculated to align with updated methodology
- 6. Emissions inventory adjusted following carve out of Yunex Traffic UK Limited. Full Scope 3 inventory not calculated in this year
- 7. Full Scope 3 inventory not calculated in this year
- 8. New baseline year, adjusted during FY2024 to align with updated methodology
- Figures throughout the report have been rounded to the nearest whole number
- 10. Scope 2 location-based emissions included for transparency. Our targets are set on Scope 2 market-based emissions
- 11. Carbon Credits are not considered appropriate for achieving a net zero-carbon footprint as they do not reduce Siemens Mobility's emissions but only compensate for them externally. We are not currently considering carbon offsetting to achieve our 90% target by FY2030 but will look to use high-quality carbon credits for any residual emissions after 2030 following Siemens AG guidelines.

- 12. https://assets.new.siemens.com/siemens/assets/api/uuid:1720c28b-6e96-44fb-ad9f-02bb1da3b31d/ Siemens-Mobility-UK-ESOS-Phase-3-Action-Plan-Extract original.pdf
- 13. Currently applied only to Rail Infrastructure Projects that are within scope as defined by Network Rail
- 14. https://www.there100.org/
- 15. https://www.theclimategroup.org/ev100
- 16. https://www.theclimategroup.org/ep100
- 17. This figure has been calculated using EcoTransIT. It is an estimation based on the journey from Graz to Goole via Werndorf, Neuss, Rotterdam, and Hull using an intermodal route. This was compared to if the journey was completely entirely by road via the Channel Tunnel at Calais, as was originally planned.
- 18. https://www.siemens.com/global/en/company/insights/how-ecodesign-can-help-the-environment-and-the-bottom-line.html
- 19. https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

#### **List of Abbreviations**

AMO: Asset Maintenance Optimisation
BEMU: Battery-Electric Multiple Vehicle

BREEAM: Building Research Establishment Environmental Assessment Method

C-DAS: Connected Driver Advisory System

CO<sub>2</sub>: Carbon Dioxide

CO<sub>2</sub>e: Carbon dioxide equivalent

CS: Customer Services

DEGREE: DEGREE Framework (Decarbonisation, Ethics, Governance, Resource

Efficiency, Equity and Employability)
ECDP: East Coast Digital Programme
EHS: Environment, Health and Safety
EPC: Energy Performance Certificate

ESOS: Energy Savings Opportunity Scheme

EV: Electric Vehicle

FAME: Fatty Acid Methyl Ester

FY: Financial Year

GBFS: Ground Blast-Furnace Slag GDCP: Graphical Driver Control Panel

GDT: Green Digital Twin GHG: Greenhouse Gas

GNSS: Global Navigation Satellite System

**GPS: Global Positioning System** 

GSM-R: Global System for Mobile communications - Railway

HVAC: Heating, Ventilation, Air Conditioning

HVO: Hydrotreated Vegetable Oil ICE: Internal Combustion Engine

**KPI: Key Performance Indicators** 

LED: Light Emitting Diode

NTSN: National Technical Specification Notice

NOx: Nitrous Oxide

OLE: Overhead Line Equipment PCF: Product Carbon Footprint

PFO: Processed Fuel Oil

PHEV: Plug-In Hybrid Electric Vehicle

PPN: Procurement Policy Note RCC: Rail Charging Converter

**REB: Relocatable Equipment Buildings** 

RED: Robust Eco-Design

REGO: Renewable Energy Guarantees of Origin

**RRV: Railroad Vehicles** 

SBTi: Science Based Targets initiative

SECR: Streamlined Energy and Carbon Reporting

SMBA: Siemens Multi-Band Antenna

SME: Small and Medium-sized Enterprises

SO<sub>2</sub>: Sulphur Dioxide SRE: Siemens Real Estate SWR: South Western Railway

TCFD: Taskforce for Climate-related Financial Disclosure

TSI: Technical Specification for Interoperability

TTS: Trough Tec Systems

VMI: Vehicle Maintenance Schedule

#### **Declaration and Sign Off**

This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard and uses the appropriate Government emission conversion factors for greenhouse gas company reporting<sup>19</sup>.

Scope 1 and Scope 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard.

This Carbon Reduction Plan has been reviewed and signed off by the Board of Directors.

