hs1 high speed one

HS1 Limited ESG Report

2023/24

Contents

Glossary

5YAMS	5-Year Asset Management Strategy
ABAC	Anti-Bribery and Corruption
AHU	Air Handling Unit
AI	Artificial Intelligence
ARP4	Fourth Round Adaptation Reporting Power
BMS	Building Management System
BNG	Biodiversity Net Gain
BTP	British Transport Police
CCRA	Climate Change Risk Assessment
CFA	Carbon Footprint Analysis
CHW	Chilled Water
CO_2e	Carbon Dioxide Equivalent
COP	Communication on Progress
CP	Control Period
CPPA	Corporate Power Purchase Agreement
CSR	Corporate Social Responsibility
EAG	Energy Action Group
EDI	Equality, Diversity and Inclusion
ELT	Executive Leadership Team
ERMC	Energy Risk Management Committee
ESG	Environmental, Social and Governance
ESOS	Energy Savings Opportunity Scheme
EV	Electric Vehicle
GHG	Greenhouse Gas
GIS	Geographic Information System
GRI	Global Reporting Initiative
H&S	Health & Safety
HS1	High Speed 1
IEA	International Energy Agency
IGC	Investment Governance Committee
ILO	International Labour Organisation
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation
LTHW	Low Temperature Hot Water
MSU	Mobile Segregation Unit
NGFS	Network for Greening the Financial System
NRHS	Network Rail High Speed
NRIL	Network Rail Infrastructure Limited
ORR	Office of Rail and Road
PPA	Power Purchase Agreement
PR	Price Review
R&D	Research & Development
REACT	Route Energy Action & Carbon Reduction Team
REGO	Renewable Energy Guarantees of Origin
RM3	Risk Management Maturity Model 3
ROST	Recruit Operational Scenario Training
RSSB	Rail Safety and Standards Board
SDG	Sustainable Development Goals
SECR	Streamlined Energy and Carbon Reporting
SIMD	Singlewell Infrastructure Maintenance Depot
SNCF	Société Nationale des Chemins de fer Français
SPP	Simple Payback Period
TASG	Transport Adaptation Steering Group
TCFD	Task Force on Climate-Related Financial Disclosures
TOC	Train Operating Company
UKHab	UK Habitat Classification System
UKPNS	UK Power Networks Services
UNGC	United Nations Global Compact
WTW	Willis Towers Watson

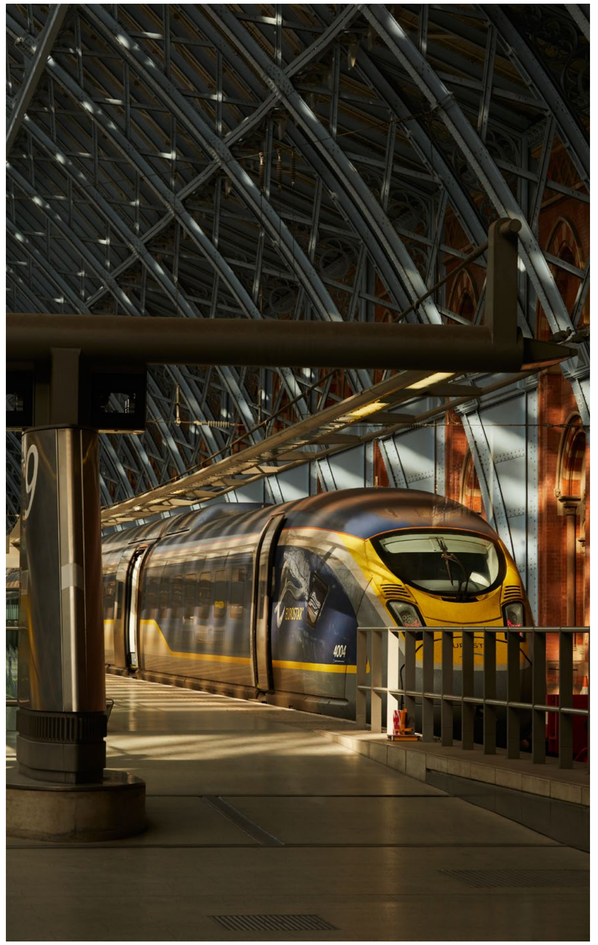
FOREWORDS

This Environmental, Social and Governance (ESG) report is a testament to HS1's commitment to sustainability, showcasing the progress we have made towards our 2030 targets, and the initiatives planned for the next several years.

Robert Sinclair
CEO, HS1 Limited

The report covers the 2023/24 financial year; a year that saw continued passenger growth, exciting new developments in the international rail market and delivery of several key HS1 Sustainability Strategy milestones. The report also offers an honest assessment of areas which need additional focus, particularly in waste and resource management, where we have formulated robust plans to address missed targets.

We are committed to delivering exceptional environmental stewardship, tangible climate action and net social value, but our mission is not solely about achieving published targets. It's about providing a seamless, efficient, and eco-friendly way of travelling from London to Kent and across to mainland Europe, fostering a more sustainable and interconnected future. As we tackle the growing urgency of the climate crisis, the obstacles we encounter in minimising HS1's footprint are viewed not as barriers, but as chances for innovation and industry leadership. With the ongoing support of our staff, customers, and supply chain, HS1 will continue to make enduring contributions to the sector and, crucially, to the communities we serve.



Forewords

Over the past year, we have made significant strides towards achieving our 2030 Sustainability Strategy targets.

Richard Thorp
Director of Engineering & Technology,
HS1 Limited

I am particularly proud of the following initiatives:

- We have significantly reduced electrical energy consumption through modifications to our electrical feeder stations, contributing to substantial cost savings of c.£1.1m annually for our Train Operating Companies (TOCs) during a typical year.
- We have increased net-zero electricity sources by c.28%, having continued to expand our renewable energy portfolio through a Corporate Power Purchase Agreement (CPPA).
- We have installed a Mobile Segregation Unit (MSU) at St Pancras International Station, which will significantly improve future station recycling rates.
- We have recently launched our Social Value Framework, setting out our updated approach to maximising the net social value that HS1 generates.
- We continue to mature our climate-related financial disclosures, aligning with the Taskforce on Climate-related Financial Disclosures (TCFD) ahead of the mandatory reporting timeline.

In the context of broader industry initiatives, we continue to develop plans for our next regulatory control period (CP4) as part of our 2024 Price Review (PR24). Sustainability is a core value for HS1, and we have worked collaboratively with our supply chain to ensure that our CP4 commitments align with our ambitious 2030 Sustainability Strategy targets. The next five years leading to 2030 are pivotal in our sustainability journey, and I am eager to maintain our robust progress in this crucial period.

"InfraRed commends HS1's pragmatic and holistic approach to sustainability.

Their ambitious strategy sets out clear actions to enhance the environmental and social outcomes beyond what is already generated through the provision of a low-carbon rail connection between the UK to Europe. Moreover, we firmly believe that HS1's forward-thinking sustainability practices underpin the robust governance, risk management, and financial performance of the business. InfraRed looks forward to supporting HS1 as they further embed sustainability into their business operations."

Jack Paris
CEO, InfraRed Capital Partners Limited

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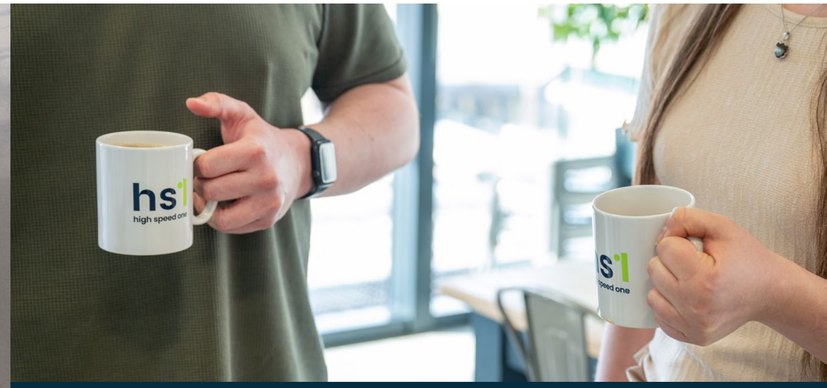


"We are pleased to see HS1's continued progress against its ambitious sustainability targets which support the delivery of low-emissions, high speed rail transportation within the UK and to Europe.

As a long-term responsible investor, Equitix is highly supportive of HS1's longstanding commitment to strengthening social and environmental value that underpins business performance. HS1's reduction in power use achieved during the period as well as biodiversity protection measures, community initiatives and the development of circular economy projects are all strong examples with demonstrable customer and stakeholder benefits. They in turn are supported by HS1's transparent reporting, its well-embedded safety culture and structured asset stewardship approach. We look forward to engaging further with HS1 as they continue to proactively pursue opportunities presented by the climate transition which drive performance and deliver positive impact."

Hugh Crossley
CEO, Equitix Ltd

OUR PURPOSE

HS1 is focused on driving meaningful change and continual performance in our sustainability priority areas.

In line with our values, we are committed to achieving sustainability improvements and strive to be a sustainability leader in the rail industry. This commitment is reflected in our 2023 Sustainability Strategy which is guiding our efforts to continually improve our sustainability credentials through relevant, ambitious and achievable targets. HS1's annual ESG reports are a mechanism to monitor and demonstrate progress against our Sustainability Strategy.

Purpose

To manage a high-speed rail system, connecting London, Kent and Europe that is good for commuters, business and especially the environment.

Vision

Rail travel is everyone's number 1 choice

Mission

Getting people to fall in love with high speed rail travel

Values

- A **BE AMBITIOUS**
- C **BE COLLABORATIVE**
- T **BE TRUSTED**
- S **BE SUSTAINABLE**

© Fernando Manoso

OUR PERFORMANCE AND PRIORITIES

This ESG report showcases the initiatives and activities that HS1 has undertaken over the past financial year to demonstrate progress against our Sustainability Strategy.

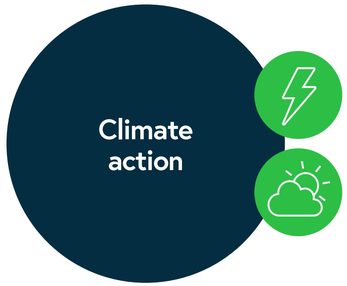
We continue to report on our six priority areas within the following three themes:

- Climate action
- Environmental stewardship
- Social value

HS1 Sustainability Strategy

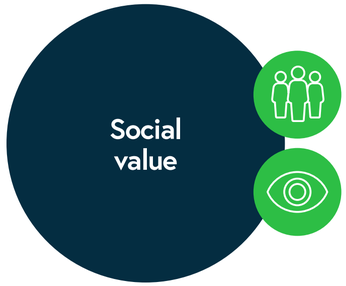
In 2023, Our Sustainability Strategy was updated to build on the progress made since 2020, and sets new targets out to 2030, under our core themes. HS1 is committed to driving continuous improvement and extending our efforts to benefit the wider railway system. Our Sustainability Charter serves as a driver for collaboration and the sharing of best practices between HS1 and our partners.

ESG Highlights



Climate action encompasses both climate mitigation and adaptation activities. It includes reducing our energy consumption whilst increasing our net-zero energy supply to achieve our net-zero energy targets by 2030. It also involves preparing our infrastructure to cope with future climatic conditions and ensuring our railway system remains resilient.

As responsible asset stewards, we are committed to identifying and reducing any negative environmental impacts associated with our activities. This theme encompasses two key priority areas - 'resource use and waste impacts' and 'biodiversity'. In collaboration with our partners and suppliers, our aim is to reduce resource consumption, increase recycling rates and enhance biodiversity across our estate.



Our 'social value' and 'transparency' priority areas sit under our social value theme, ensuring our workforce and local communities are at the forefront of all our activities. We aim to contribute positively to society and ensure that we are aligned with industry-leading standards in the rail sector. Our commitment to transparent reporting ensures that we are held accountable for our activities and helps us to drive continual improvement.

16%
Reduction in gas usage[1]

1%
Reduction in electricity usage[1]

+c.28%
Increase in net-zero electricity sources procured[1]

0.1 tonnes
Waste sent to landfill

3
Consecutive years of flowering lizard orchids

Gold
Investors in People WIIP accreditation after triennial review

8th
Consecutive Biodiversity Benchmark Award

£69,870
Donated to charitable causes and value in-kind

16
Executive level leadership health and safety tours undertaken

5
Additional mental health first aiders trained

1 Compared to 2022/23

Targets from 2023 Sustainability Strategy

2023/24

- 90% recycling of operations and project wastes
- Develop a circularity plan targeted at all key resources for stations and depot → Implement the circularity plan
- Understand hazardous waste and waste indirect to landfill profiles → Develop a plan to reduce hazardous waste and waste indirect to landfill

2024/25

- Develop adaptation strategy → Implement adaptation strategy

2025/26

2029/30

- Develop a modal shift plan for each HS1 transport hub

2030/31

- 20% BNG compared with 2020/21 baseline
- Engage our local communities to interact with our transport hubs
- Protect, enhance, adapt and engage with our irreplaceable heritage assets
- Reduce traction energy per passenger journey by 25%
- Reduce traction energy per train journey by 10%
- Promote positive equality, diversity and inclusion, H&S and wellbeing within our workforce, our supply chain and those that interact with our asset
- All HS1 energy to be net-zero carbon
- Reduce non-traction energy consumption by 10% per £ revenue
- Reduce non-traction (estates and buildings) energy drawn from the grid by 10%
- Embed and influence good business ethics across the HS1 system and supply chain
- Inspire young people from our local communities towards railway careers of the future and work toward improving local social mobility

Our sustainability priority areas

- Climate change and adaptation
- Resource use and waste impacts
- Energy management
- Biodiversity
- Transparency
- Social value

TBC

- HS1 wider emissions to be net-zero (GHG protocol)

Our 2023/24 performance at a glance

	Sustainability priority	2023/24 performance	Progress against our 2023 Sustainability Strategy	Commentary
Climate action	Climate change and adaptation	Compared to 2022/23… 15% reduction in Scope 1 location-based emissions 6% increase in Scope 2 location-based emissions 1% increase in Scope 3 location-based emissions	●●●○○	HS1 has continued to make progress on decreasing the reliance on non-renewables. This year we have refined the calculation methodology for calculating market-based emissions. We will use this methodology going forwards to provide a more accurate appraisal of emissions from electricity purchasing.
	Energy management	Compared to 2022/23… 1% reduction in electricity use 16% reduction in gas use	●●●●○	HS1 has continued to implement schemes to reduce energy consumption across our estate, primarily through the Route Energy Action & Carbon Reduction Team (REACT) and Energy Action Group (EAG) energy reduction working groups.
Environmental stewardship	Resource use and waste impacts	Compared to 2022/23… 63% of waste recycled 188.7 tonne increase in waste generated 217% increase in water consumption The installation of the MSU delivered a 69% station recycling rate in the final four weeks of the year	●●●○○	The installation of a MSU was a key milestone, pushing us closer to our recycling rate target and providing us with real-time waste data. Reported water consumption has increased due to increased passenger numbers and improved data coverage.
	Biodiversity	Biodiversity re-baselining plans developed 3rd year of flowering Lizard Orchids	●●○○○	We have taken the decision to re-baseline our biodiversity baseline in line with UK Habitat Classification (UKHab) surveys and will continue to make progress against our 2030 Biodiversity Net Gain (BNG) target.
Social value	Social value	Awarded We Invest In People Gold Award in 2023 Contributed 713 hours of volunteer time 72% of staff undertook volunteering activities £69,870 donated to charitable causes and value in kind	●●●○○	We have published our updated social value approach in our HS1 Social Value Framework 2024. The framework sets out our strategies and delivery plans that contribute towards our social value targets. We are proud to have continued to contribute more than 700 hours of volunteering time with 72% of staff undertaking volunteering activities.
	Transparency	Reported zero environmental incidents 100% environmental compliance Continued to report against TCFD and our alignment with United Nations Global Compact (UNGC)	●●●●○	We continued to undertake activities in line with environmental and social regulatory standards and continued to create mechanisms to mature TCFD and UNGC reporting.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

HS1 is committed to delivering sustainable development, ensuring that our operations align with our sustainability strategy targets and the United Nations Sustainable Development Goals (SDGs). By integrating the SDGs into business practices, we strive to foster positive social and environmental outcomes for wider society.

Climate action

Climate change and adaptation

HS1 aims to achieve net-zero carbon energy by 2030 and is taking steps to become increasingly resilient to the impacts posed by climate change, contributing to 13.2.2.

Energy management

HS1 aims to improve energy efficiency and will continue to implement energy saving initiatives through dedicated energy reduction working groups, supporting 7.3.1.

Environmental stewardship

Resource use and waste impacts

We aim to reduce our resource use, waste production and water consumption, contributing to 6.4.1 and 12.5.1. The high-speed rail infrastructure that we manage offers a sustainable travel connection from London to Kent and mainland Europe, contributing to 9.1.2. In addition, our various workstreams focused on improving resource efficiency contribute to 9.4.1.

Biodiversity

HS1 is taking action to protect the biodiversity along our route. Our goal of 20% BNG target by 2030 supports 15.5.

Social value

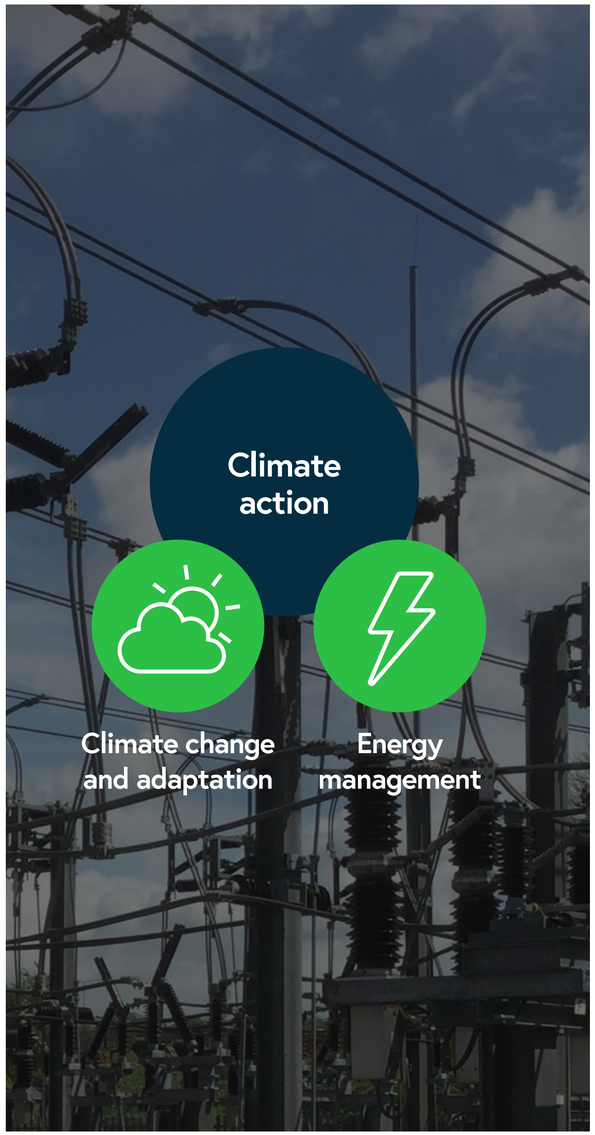
Social value

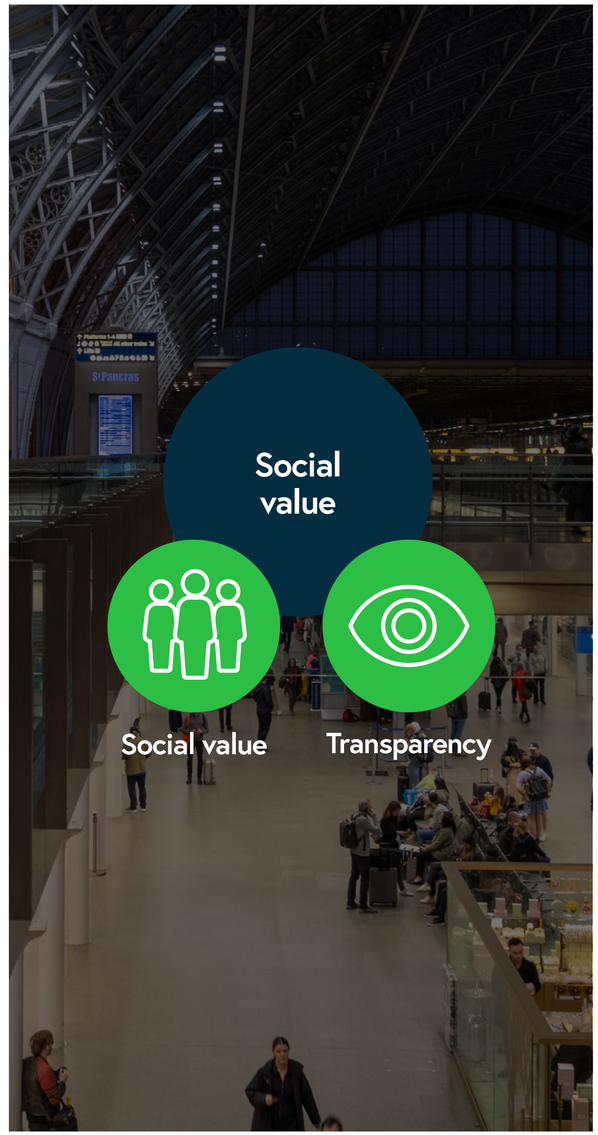
HS1 is committed to prioritising positive EDI, health and safety and wellbeing of our workforce. We aim to support our local communities through outreach and volunteering activities, and we will continue doing so in the coming year. Preserving our heritage assets is another important aspect of our operations, contributing to 11.4.1.

Transparency

HS1 operates in a transparent and responsible manner in line with procedures and policies, aligning with 8.7.1, 12.6.1 and 16.5.

SPOTLIGHT: OUR SIX PRIORITIES





Climate change and adaptation

Minimising our contribution towards climate change is a priority for HS1. We will continue to measure and reduce our GHG emissions, and ensure that our infrastructure remains resilient to future climatic conditions

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Our ambition

Our goal is to operate with environmental responsibility, minimise our environmental impact and prepare for the future impacts of climate change.

HS1 already represents the most sustainable form of mass transport from London to Kent and mainland Europe, reducing annual emissions by 750,000 tonnes of CO_2e[2] (carbon dioxide equivalent) as a result of people choosing to take the train rather than fly. Nonetheless, we have published ambitious 2030 net-zero energy targets, and have a duty to prepare for the future impacts of climate change as responsible asset stewards.

Targets

- All HS1 energy to be net-zero carbon by 2030/31.
- Develop adaptation strategy and implement by 2024/25.
- HS1 wider emissions to be net-zero (Greenhouse Gas (GHG) protocol) (date TBC).

Actions taken in 2023/24

- Progressed to the detailed design stage of heat pump installation at St Pancras International, Stratford and Ebbsfleet International stations.
- Undertook our third full spectrum Carbon Footprint Analysis (CFA) to identify our largest emission sources.
- Consulted with the supply chain regarding the Climate Change Risk Assessment (CCRA) and started to develop a joint outline Climate Change & Adaptation strategy ahead of our Fourth Round of the Adaptation Reporting Power (ARP4) submission in 2024.
- Explored options to increase baseload renewable energy supply.
- Completed the implementation of CPPA 1 resulting in c.40% of electricity being procured from zero-carbon sources.

FOCUS FOR 2024/25

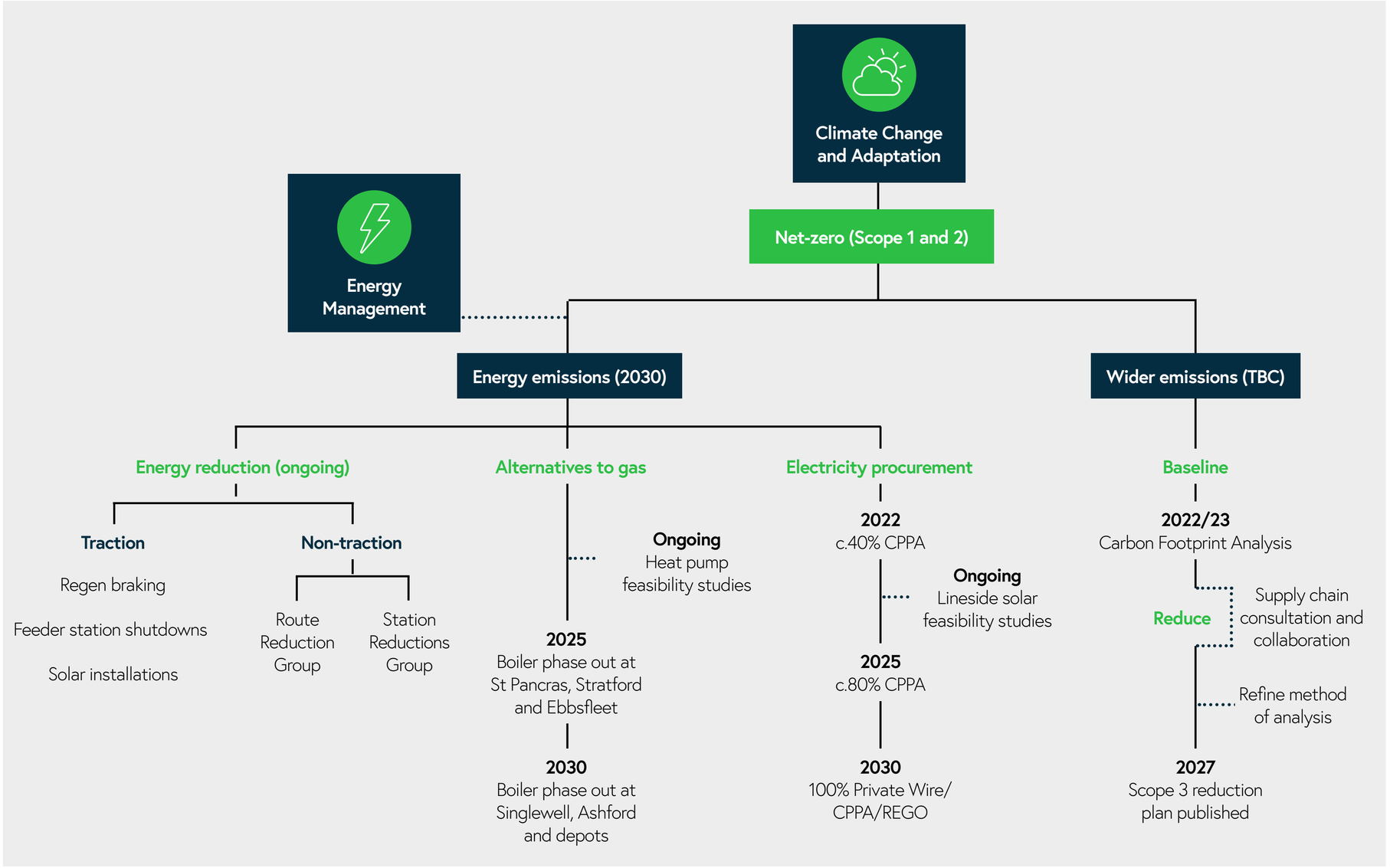
- Continue to develop an internal carbon price to inform future carbon reduction measures.
- Continue to develop our commercial electric vehicle strategy and engage with suppliers regarding their electric vehicle strategies.
- Draft a climate adaptation strategy following the development of the CCRA and submit a ARP4 report.
- Continue to work with freight operators to develop a solution to support the business case for a modal shift to high-speed rail.
- Maintain Achilles Reduce Carbon certification to externally validate energy and carbon data.

2 https://highspeed1.co.uk/media/vemkxmot/delivering-for-britain-and-beyond-the-economic-impact-of-hs1-march-2020.pdf

Our focus on climate change and adaptation is underpinned by almost all priority areas within our Sustainability Strategy, particularly energy management. The infographic outlines our approach to achieving net-zero energy emissions and the interdependencies between our energy strategy and wider climate targets.

"Whole life carbon costs should form an integral part of asset management decisions, so it is important that our asset management and decarbonisation strategies are aligned. For example, we will capitalise on our renewable electricity portfolio by renewing station boilers with heat pumps over the coming year. We also recognise the need to consider future climate scenarios in asset management and are currently developing a fourth round ARP4 report."

Jo Parkes
Head of Asset Management, HS1 Ltd



Statistics

The significant year-on-year variation between market-based figures reflects the change in volume of net-zero electricity procured over recent years. Between 2021/22 and 2022/23, our supply of net-zero electricity (REGO backed) reduced significantly due to a sudden increase in unit rates. Between 2022/23 and 2023/24, we increased our long-term supply of net-zero electricity to c.40% through a 10-year Corporate Power Purchase Agreement (CPPA). Over coming years, we will continue to increase our net-zero electricity supply through CPPAs.

Location-based (tCO_2e)	2020/21	2021/22	2022/23	2023/24
Scope 1 emissions	1,681	1,427	1,144	974
Scope 2 emissions	14,025	13,553	12,015	12,759
Scope 3 emissions	875	1,462	1,297	1,312
Total gross emissions	16,581	16,442	14,456	15,046

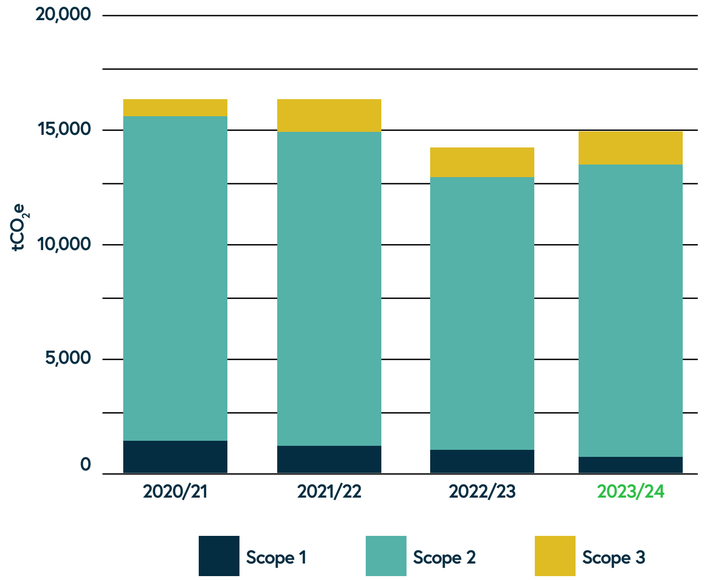
Market-based (tCO_2e)	2020/21	2021/22	2022/23	2023/24
Scope 1 emissions	1,681	1,427	1,144	974
Scope 2 emissions	131	0	23,528	13,206
Scope 3 emissions	875	1,462	1,297	1,312
Total net emissions	2,687	2,889	25,969	15,492

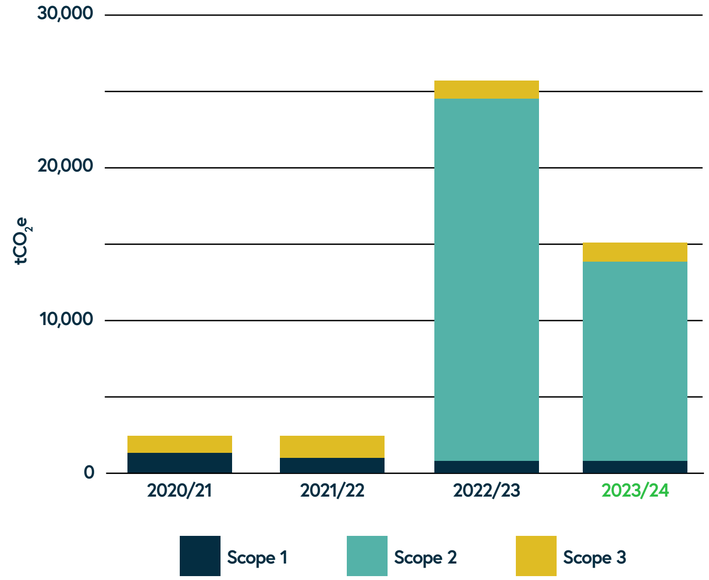
INSIGHT

Updated reporting methodology

This year we have changed the calculation methodology for calculating market-based emissions. This provides a more accurate appraisal of emissions from electricity purchasing. Previously, the UK National Grid emission factor had been used to represent emissions from non-renewable electricity purchases. Aligning the GHG protocol for European countries, HS1 is now using our electricity supplier's residual fuel mix emission factor to calculate the residual electricity emissions (significantly higher than the national grid emission factor). Therefore, with current renewable electricity purchases representing around 44% of all electricity consumed, market-based reporting produces a carbon footprint almost equal to location-based reporting. We have updated the previous year's data with this methodology, to allow for annual data comparisons.

As more of HS1's purchased electricity will consist of CPPAs in the future, the benefit of purchasing net-zero electricity will become more apparent, as market-based emissions will be significantly lower than location-based emissions.



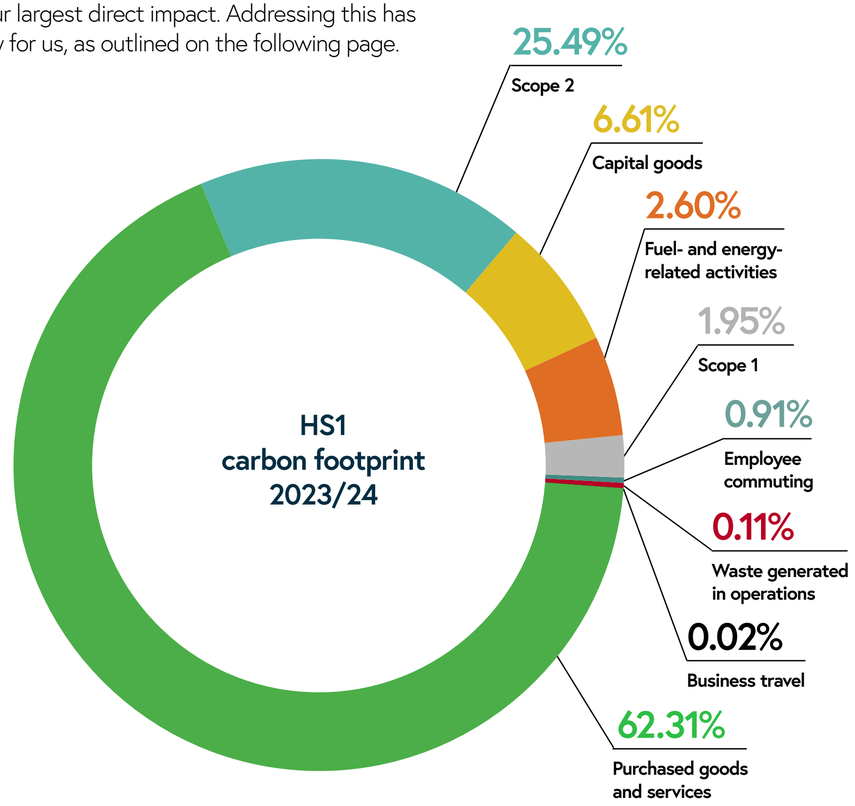


Extended scope carbon footprint analysis

This year, HS1 completed our third 'extended scope' carbon footprint analysis, incorporating indirect emissions beyond the Streamlined Energy and Carbon Reporting (SECR) scope and boundary.

HS1's total carbon footprint was 50,057 tCO_2e in 2023/24 (excluding traction energy usage). Indirect emissions from 'purchased goods and services' accounted for over 60% of this figure.

The analysis also highlights that emissions from electricity account for our largest direct impact. Addressing this has been a priority for us, as outlined on the following page.



CASE STUDY

Procurement of electricity

Energy risk management committee

Procurement of zero-carbon electricity forms a central part of our net-zero energy strategy and the overall sustainability of the HS1 system. We have formed an Energy Risk Management Committee (ERMC). The ERMC meet quarterly to review electricity purchasing performance and hedging strategies while providing strategic oversight at the stakeholder executive level. As we continue to develop and execute our Electricity Purchasing Strategy, the committee will play a crucial role in ensuring that we are on track to deliver our net-zero energy targets by 2030.

Net-zero electricity

HS1 continues to deliver against our Electricity Procurement Strategy, supporting the wider Sustainability Strategy through the progressive introduction of Power Purchase Agreement (PPA) volume. As previously reported the first CPPA 1 has been procured and is delivering renewable electricity linked to UK renewable assets, at 10MW (c.40%) of total volume requirements for 10 years as of 1st April 2023. Our ambition is to meet 80% of our volume requirements via renewable energy sources from April 2025. If market conditions allow, we aim to deliver the majority of baseload through a second PPA and the residual baseload will be Renewable Energy Guarantees of Origin (REGO) backed.

Statistics

15,492 tCO_2e
Total market-based emissions

5,619 tCO_2e
Total carbon offset due to Renewable Energy Guarantee of Origin (REGO)/ CPPA[3]

44%
Scope 2 carbon savings with offset[4]

0.326 $kgCO_2e$
CO^2 per passenger using net emissions

3 Using national grid emission factor
4 This has been calculated by pro rata allocation of the total renewable energy purchased distributed between HS1's assets and Manhattan Loft Hotel (located at St Pancras International).

Roadmap to 2030: Climate change and adaptation

As emissions from energy account for one of our largest impacts, we continue to monitor our performance including measuring carbon emissions to drive efficiencies and respond accordingly.

The HS1 infrastructure is vitally important as the only rail link between the UK and mainland Europe. This year we have consulted with our supply chain and started to develop our climate change and adaptation strategy to ensure the line remains fit for purpose despite changing climate and weather conditions.

Net-zero carbon
All HS1 energy to be net-zero carbon by the end of 2030/31.

Net-zero emissions
HS1 wider emissions to be net-zero (GHG protocol).

Adaptation strategy
Develop adaptation strategy and implement by 2024/25.

Ongoing activity

Measure and reduce HS1's wider (scope 3) emissions

Review results of the RSSB Rail Carbon Tool

2024/25
- Develop and implement adaptation strategy
- Continue to develop an internal carbon price
- Continue to develop our commercial electric vehicle (EV) strategy and start to develop supply chain EV strategies
- Draft a climate adaptation strategy following the development of the Climate Change Risk Assessment (CCRA) and submit a fourth round Adaptation Reporting Power report
- Continue to work with freight operators to develop a solution to support the business case for a modal shift to high-speed rail
- Maintain Achilles Reduce Carbon certification or similar to externally validate energy and carbon data and claims

2025/26
- CPPA 2 implemented (up to additional 40% of electricity)
- Adaptation plans implemented

2026/27
- Develop residual carbon reduction plan
- CCRA Review (ARP4)
- Scope 3 reduction plan implemented
- Evaluate effectiveness of reduction measures and CPPA coverage

2027/28

2028/29
- Set process to support CP5 CCRA
- All gas boilers renewed with heat pumps

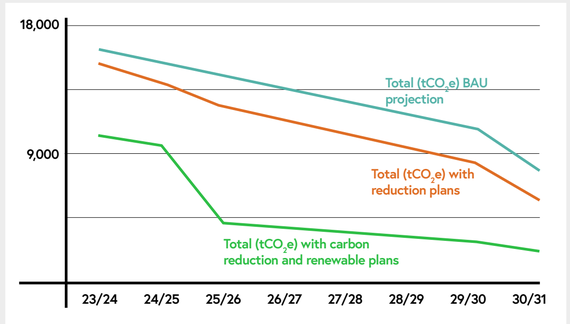
2029/30

2030/31
- All HS1 energy to be net-zero carbon

13 CLIMATE ACTION

GLIDE PATH

Net-zero carbon energy projections
By 2030/31 we aim to have reduced our energy consumption and associated emissions as far as reasonably possible before considering offsetting.



Climate action

Energy management

HS1 is dedicated to enhancing energy efficiency and minimising energy consumption. Our commitment to these objectives is highlighted through our involvement in a range of energy saving initiatives, collaboration on projects with our partners and throughout our value chain.

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Energy Strategy

HS1's Energy Strategy is based around three main principles: projects that reduce energy use, use of alternatives to gas for heating and greener procurement of the resulting electricity required. It also includes robust plans to tackle scope 1 and 2 emissions. Plans are being developed to reduce scope 3 emissions based on our CFA, and we are also developing an adaptation strategy based on the results of our CCRA.

Targets

- Reduce traction energy per passenger journey by 25% by 2030/31 compared to 2019/20 baseline.
- Reduce traction energy per train journey by 10% by 2030/31 compared to 2019/20 baseline.
- Reduce non-traction (estates and buildings) energy drawn from the grid by 10% by 2030/31 compared to 2019/20 baseline.
- Reduce non-traction energy consumption by 10% per £ revenue by 2030/31 compared to 2019/20 baseline.

Actions taken in 2023/24

- Analysed regenerative braking on the domestic fleet and estimated the benefit for the international fleet.
- Continued to deliver small scale energy reduction projects.
- Included proposals for further energy reduction schemes within our CP4 plans.
- Explored solar opportunities and potential sources of funding.
- Surveyed the infrastructure to identify further energy saving opportunities as part of the Energy Savings Opportunity Scheme (ESOS).
- Developed an Energy Standard and progressed towards energy targets.
- Implemented the N-1 feeder station energy reduction scheme.

FOCUS FOR 2024/25

- Continue to identify and deliver small scale energy projects across routes and stations through dedicated energy reduction working groups.
- Review the tenant fit out and operations guide to ensure it includes energy reduction through design and operation.
- Review potential of train scheduling to use regenerative braking peaks and troughs.
- Undertake Stratford projects including platform lighting to LED, upgrading air handling unit (AHU) fans to plug fans and upgrading lighting controls.
- Continue to progress the heat pump installation project at St Pancras, Stratford and Ebbsfleet International.

INSIGHT

Stations energy reduction

HS1 has continued to deliver energy saving initiatives across our stations through the stations' EAG.

Small scale schemes

The EAG have implemented a suite of Building Management System (BMS) enhancements at St Pancras, Ebbsfleet and Stratford International stations. One of the measures introduced at St Pancras International included a demand-based supply of Low Temperature Hot Water (LTHW) and Chilled Water (CHW) from secondary pumps. This enhancement alone resulted in a 47% reduction in energy usage for LTHW pumps and a 5% reduction for CHW pumps. The project demonstrates the potential for minor pump speed reductions to produce a significant energy saving without compromising temperature differentials. In addition, the project paid for itself in less than three months, demonstrating the importance of BMS enhancements in energy and cost reduction.

Large scale schemes - Feasibility studies on heat pumps

Over the last year, HS1 has continued to progress plans to cease all use of gas and eliminate the associated carbon impact of gas use from our operations. We are currently developing detailed designs for heat pumps which will replace the existing gas boilers at St Pancras, Stratford and Ebbsfleet International stations. Not only are heat pumps significantly more energy efficient than traditional gas boilers, but they are also powered by electricity, allowing us to capitalise on our renewable electricity procurement strategy.

The boiler plant at the Singlewell Maintenance Depot and Ashford International Station will also be replaced with electric air to air or ground source heat pumps by 2030. These changes will eliminate gas from our energy mix and deliver an annual saving of circa 1,500 tonnes CO_2e.

47%
Energy reduction for LTHW pumps

5%
Energy reduction for CHW pumps

"Energy reduction represents one of the biggest opportunities for us to reduce our environmental impact. This year we implemented a feeder station energy saving scheme which is set to reduce annual emissions by over 600 tonnes CO_2e per year. It is energy reduction initiatives like this, alongside continual implementation of smaller-scale initiatives, that will help us to deliver our ambitious energy reduction targets by 2030."

Sam Sage
Sustainability & Environmental Manager, HS1 Ltd

INSIGHT

Route energy reduction

Along the route, HS1 has continued to implement energy saving initiatives which include continuous improvement and large-scale schemes.

REACT Group – Continuous Improvement

REACT is a collaboration between HS1's key supply chain partners, including Network Rail High Speed (NRHS) and UK Power Network Services (UKPNS), drawing on specialist knowledge from across our assets and streamlining the project implementation process. The group focuses on delivering lineside energy reduction initiatives, allocating their funds this year to the following:

- Ongoing Building Management System optimisation at Singlewell Infrastructure Maintenance Depot (SIMD) to increase the energy efficiency of the building.
- An AHU optimisation project at SIMD involving the installation of sensors to regulate fan speeds based on CO_2 levels, eliminating unnecessary electricity consumption (case study below).

The payback period for these projects is projected to be less than 3 years, with a carbon saving of over 30 tonnes CO_2e per year.

REACT Spotlight – Air Handling Unit Optimisation

As part of HS1's ongoing commitment to energy reduction across our estate, optimisation of the fan speed controller on the main fresh-air AHU at SIMD was carried out in 2024. The objective of this enhancement was to ensure the AHU supply and extract fans run at a speed to maintain a maximum level of CO_2 within the occupied space. Previously the fans were set to 60% maximum speed as a fixed setting.

The result of this project was an energy usage reduction of 83% on the fans and additional savings in heating and cooling. This is estimated to produce annual savings of approximately £8,000, reducing the site electricity consumption by 6% and the site gas consumption by 12%. The Simple Payback Period (SPP) for this project was five months, highlighting the potential for further energy-efficient AHU designs in similar contexts.

Large scale schemes – N-1

Commencing in January 2024, a major route energy reduction project was undertaken titled the N-1 Energy Saving Scheme. This involved a joint effort between HS1 and UKPNS with the aim of reducing operating system usage and to provide cost savings for train operators on HS1. As only two feeder stations are required at any one time to operate the railway, the scheme transitioned one station to cold standby mode during non-maintenance days. This approach is expected to bring annual energy savings of 3,300 MWh, reducing carbon emissions by 668 tonnes CO_2e during a typical year. With an estimated cost saving of £1.1m per year, the financial benefits will be shared among the TOCs. As the traction electricity costs are passed through to train operators directly, HS1 does not receive any financial benefit from this scheme.

3,300 MWh

Annual energy savings through N-1 during a typical year

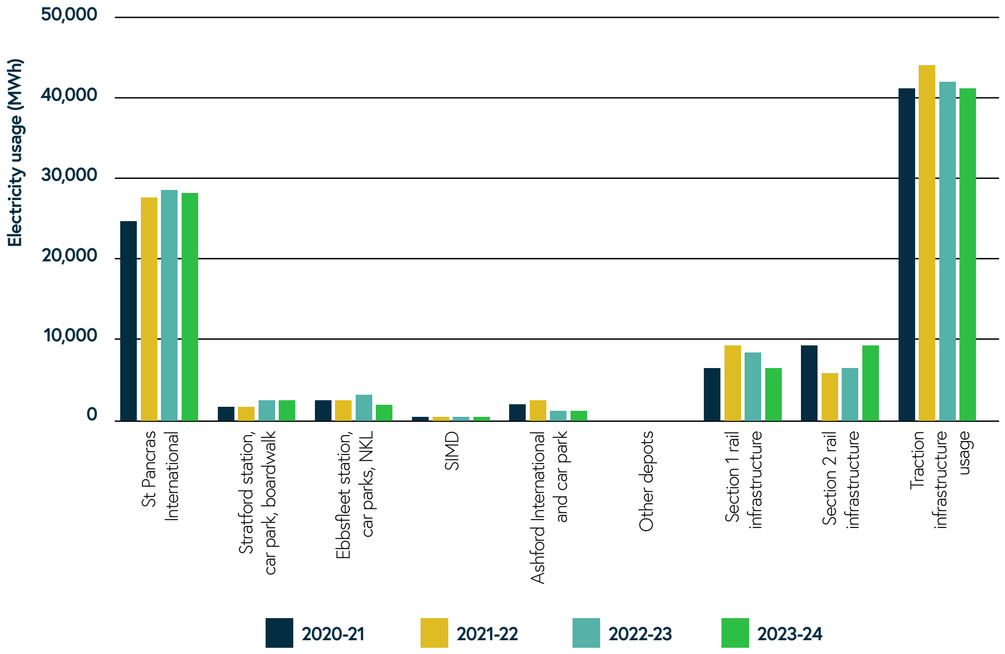
668 tonnes

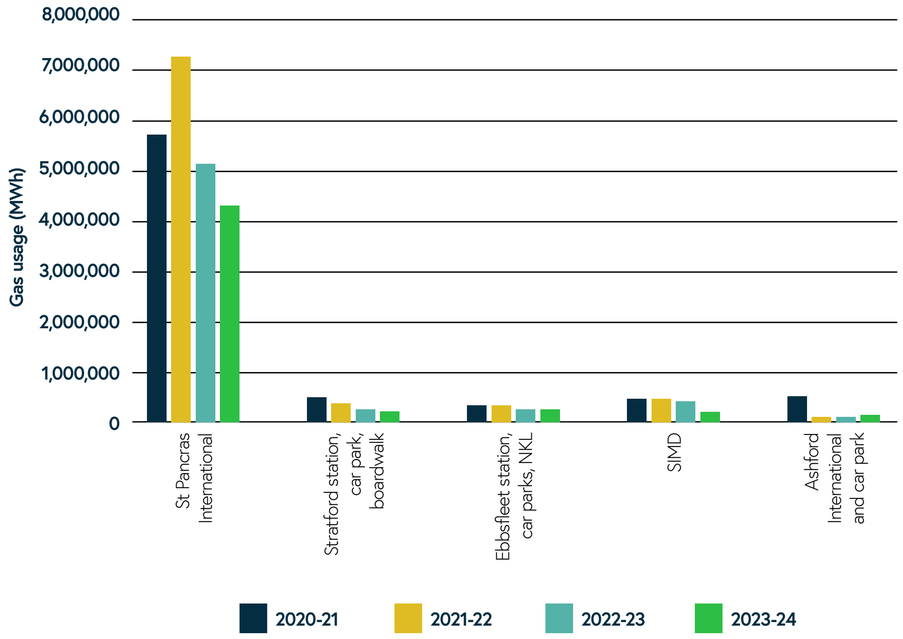
CO_2e carbon emissions saved through N-1

Statistics

		2020/21	2021/22	2022/23	2023/24
Electricity	Electricity use (MWh)	60,158	63,828	62,131	61,616
	Electricity use change	-	+6%	-3%	-1%

		2020/21	2021/22	2022/23	2023/24
Gas	Gas use (MWh)	9,142	7,740	6,265	5,286
	Gas use change	-	-15%	-19%	-16%

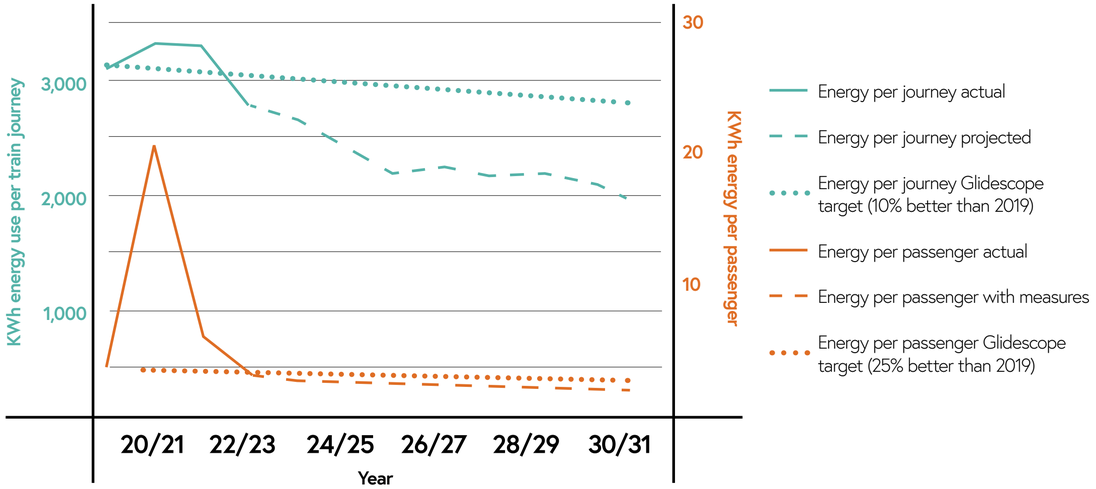




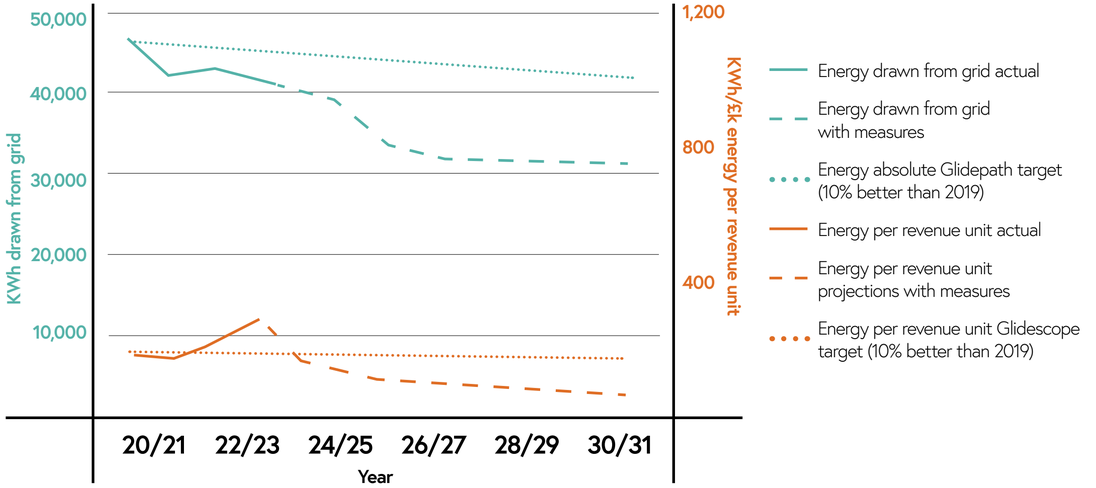
Glide paths

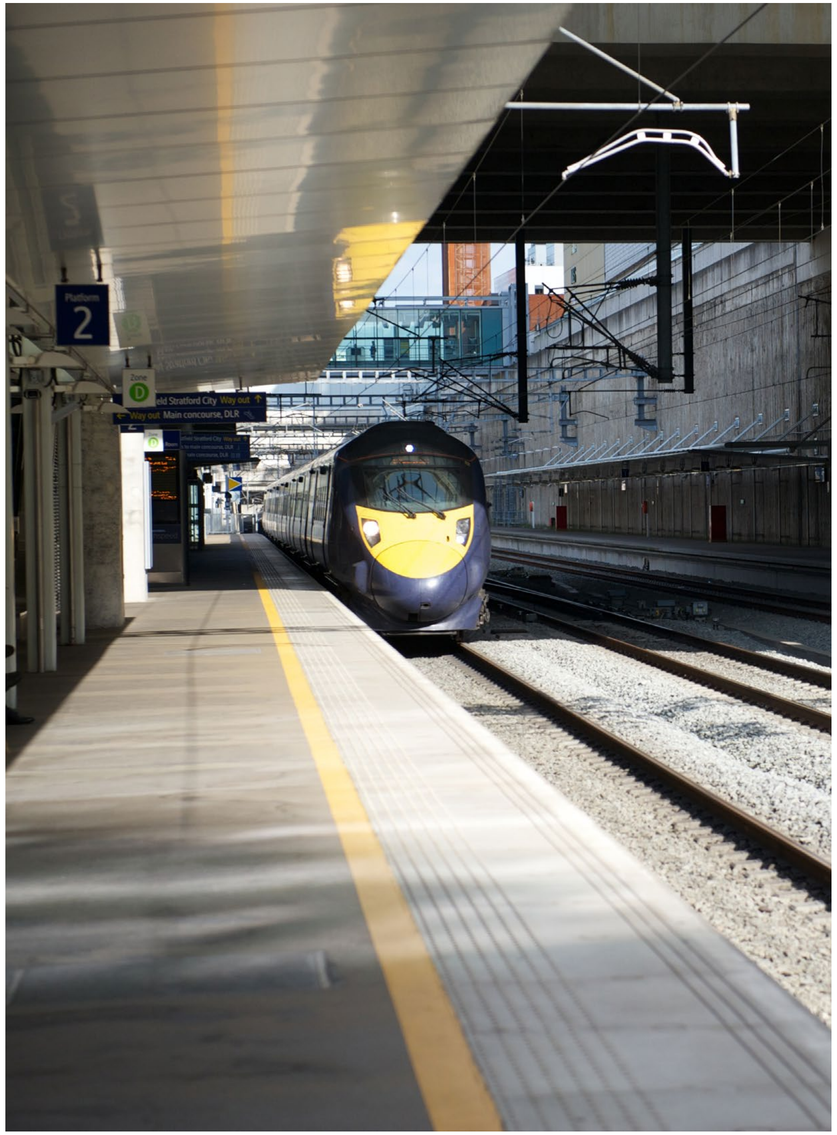
This graph includes total traction energy used by the trains which, whilst not in HS1's statutory reporting boundary (traction energy is reported by each TOC), has decreased significantly as a result of schemes such as regenerative braking and N-1 which HS1 delivered in partnership with the TOCs.

Traction



Non-traction





Roadmap to 2030: Energy management

Traction energy remains the HS1 system's biggest source of power consumption and direct impact. Our N-1 initiative has significantly reduced traction electricity consumption by operating system usage.

We will continue working with our customers, partners and supply chain to implement further measures to reduce energy use across our infrastructure. We will use the results of our 2024 Energy Savings Opportunity Scheme report to identify further energy saving initiatives.

Our Route Energy Action & Carbon Reduction Team (REACT and stations Energy Action Group (EAG)) are working with our partners to identify and implement energy efficiency measures.

Traction energy

Reduce traction (train movement) energy per passenger journey by 25% by 2030/31.

Reduce traction energy per train journey by 10% by 2030/31.

Non-traction energy

Reduce non-traction (estates and buildings) energy drawn from the grid by 10% by 2030/31.

Reduce non-traction energy consumption by 10% per £ revenue by 2030/31.

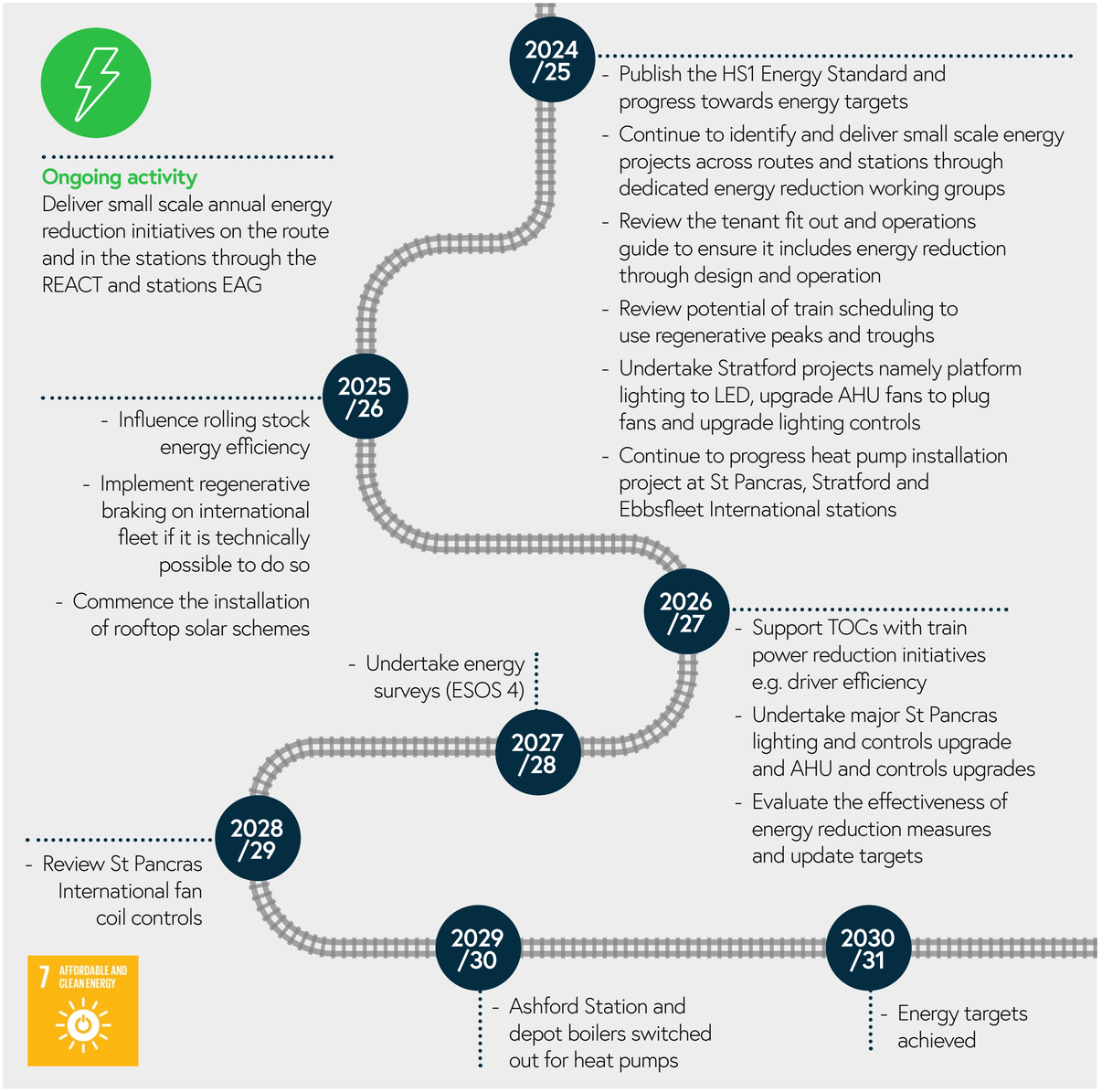
CASE STUDY

Traction electricity metering

This year, HS1 commissioned UKPNS to install 18 monitoring devices strategically along the traction system, providing real-time data on energy consumption and electricity quality.

The reporting dashboard will help HS1 understand how and where power is consumed on our estate, so that we can better direct investment to reduce consumption.

The system will also record any severe incidents that may affect operations, increasing operational resilience.



Environmental stewardship

Resource use and waste impacts

We continually aim to reduce the volume of resources we use, reuse resources efficiently and reduce the volume of waste that we produce. HS1 works in collaboration with partners and suppliers to understand and agree how we can reduce our collective impact on our environment.

Our ambition

Our ongoing commitment is to reduce resource consumption, increase resource reuse and minimise waste generation. HS1 collaborates with partners and suppliers to understand and establish strategies for decreasing our combined environmental impact.

Targets

- 90% recycling of operations and project wastes by 2023/24.[5]
- Develop a circularity and minimisation plan for stations and Singlewell Maintenance Depot and implement the plan by 2024/25.
- Understand hazardous waste and waste indirect to landfill and include it in waste minimisation by 2024/25.

Water

Whilst water consumption across our infrastructure forms a minimal part of HS1's overall environmental impact, we recognise the critical importance of efficient consumption.

There is an increasing pressure on water as a resource, with summer rainfall projected to decrease by 22% by the 2080s[6].

As outlined in our 2022/23 ESG report, a focus for this year has been on improving water consumption data quality. We have previously relied on utility bills to report consumption data, but now have access to meter readings from all four stations and Singlewell Infrastructure Maintenance Depot. This improvement in data quality and granularity will allow us to identify 'consumption hotspots' and reduction opportunities over the coming years. Water consumption at our remaining lineside locations can be classed as de minimis owing to their small scale and infrequent use.

Reported water consumption has increased by 47,401m^3 [7] since 2022/23. This is due to increased passenger numbers and improved data coverage.

Actions taken in 2023/24

- Continued to seek opportunities for water reduction, recycling and preventing water pollution.
- Improved water consumption data quality and granularity to help identify the highest impact reduction initiatives.

FOCUS FOR 2024/25

- Identify opportunities for water reduction and recycling and understand our water pollution pathways in a continued effort to prevent water pollution.

5 We acknowledge we have fallen short of our 90% recycling rate and have embedded activities to improve this figure over the coming year(s).
6 Environment Agency. Living better with a changing climate. https://assets.publishing.service.gov.uk/media/6165bacbd3bf7f55fe946c08/environment-agency-climate-change-adaptation-report-summary.pdf
7 Data now sourced from meter reading at all four stations and Singlewell Infrastructure Maintenance Depot

Materials

Significant quantities of materials are used in HS1 projects and operations.

Whilst our material standards restrict the use of environmentally damaging materials, we also have a responsibility to reduce the volume of virgin raw materials that we use and embed circular economy principles in our activities. The HS1 system has taken the first step in our Circular Economy Implementation Plan by collaboratively identifying opportunities to embed these principles across our operations. We will continue to report our progress against this implementation plan as the initiatives progress.

Actions taken in 2023/24

- Developed Circular Economy Implementation Plan.

FOCUS FOR 2024/25

- Continue working towards reducing resource use and actively select lower-impact resources for projects.
- Implement our Circular Economy Implementation Plan targeting key resources at stations and depots.
- Ensure zero non-hazardous waste is sent to landfill from regular operations and projects.

CASE STUDY

Circular economy workshop

In 2022/23, HS1 held a circular economy workshop with key suppliers, identifying opportunities to embed circular economy principles across our operations. The graphic above outlines the process required to create a full circular business model and HS1 has undertaken the first two steps in this process.

As part of the Circular Economy Implementation Plan, HS1 is working with technical leads to understand the feasibility of these opportunities and implement them where appropriate. This year, HS1 has been building on the results of the circular economy workshop and taking action to understand the business case and have trialled embedding circular economy principles into our activities. We have worked with NRHS to develop a joint implementation plan and initiatives have been grouped into two categories, circular depot initiatives and circular station initiatives.

We achieved a significant milestone in our circular stations journey by installing an MSU at St Pancras International. Not only will this segregation unit increase our recycling rate by circa 30%, but it will also significantly improve waste data quality and granularity.

The installation of the MSU also allows us to pinpoint the exact source of individual waste streams and contaminated waste; information that will be used to identify reduction and re-use opportunities in line with circular economy principles and the waste hierarchy.

Circular depot initiatives are also progressing. A business case has been developed for the installation of solar cells on lineside buildings. Optimising the use of HS1's land for on-site renewable electricity generation will help to maximise the benefits of future projects including heat pump installations and a transition to electric fleet vehicles.

Going forwards, we will deliver the Circular Economy Implementation Plan by continuing to collaborate with our supply chain and revisit the recommendations to implement further circular economy initiatives.

"The HS1 system achieved a significant milestone this year, installing a MSU in St Pancras International. Not only will this unit improve our recycling rates, the new processes and technology will decrease the frequency of waste collections, taking vehicles off the roads and further decreasing our carbon emission. We have also developed a joint circular economy plan with HS1 this year, further solidifying our commitment to waste and carbon reduction."

Mark Eveleigh
Route Property and Facilities Manager, NRHS

Waste

We acknowledge our responsibility to optimise the use of resources and keep the highest residual value of materials in operation for as long as possible.

Collaborating with our stakeholders, we aim to minimise waste generated from our operations by enhancing resource efficiency and promoting recycling.

We have achieved a recycling rate of 63% this year. This is a 4% improvement since last year, however, we have fallen short of the 90% recycling target published in our Sustainability Strategy. This year, improvement actions focused on St Pancras International which processes the vast majority of HS1's waste in terms of volume. Installation of a MSU in the station was delayed until December 2023 whilst we certified that the operation would not conflict with a parallel project in Midland Road Service Yard. Whilst we haven't met our average recycling target for the year, the MSU delivered a 69.2% station recycling rate in the final four weeks of the financial year, and we are confident that this upward trend will continue into 2025 as we further refine the process. The remainder of this waste was diverted from landfill to an Energy Recovery Facility. We also have access to a dashboard which includes real time data on the total waste produced, recycling rate, waste to energy and landfill.

In the second half of the reporting year, we worked with our partners NRHS to deliver waste segregation training sessions for all station retailers. This was a good opportunity for our waste operatives to explore the challenges faced by retailers in relation to correct waste segregation and help identify solutions. Similarly, it was a good opportunity for us to explain the role of the new MSU, and how retail teams can maximise its effectiveness through their own management of waste.

Actions taken in 2023/24

- Continued to identify, assess and implement circular economy opportunities within our operations and in collaboration with HS1 partners.
- Strengthened data collection and focused on circularity and waste minimisation.
- Continued to develop an understanding of hazardous waste and waste indirect to landfill profiles through improvements in data quality.
- Installed a waste MSU in St Pancras International to segregate retailer, concourse and onboard train waste.

FOCUS FOR 2024/25

- Support our supply chain to embed contracts that will increase positive waste management.
- Maximise the potential of the MSU by refining supporting waste management processes.
- Identify and assess broader circular economy opportunities in partnership with stakeholders.

Statistics

	2020/21	2021/22	2022/23	2023/24
Waste generated (tonnes)	510	1,231	2,507	2,696
Waste recycled	54%	54%	59%	63%
Waste to landfill (tonnes)	8	5	1.1	0.1
Water use (m^3)	9,613	31,909	21,851	69,252*

CASE STUDY

Mobile Segregation Unit

We have installed a MSU at St Pancras International, a long-term solution for comprehensive waste management. A combination of manual segregation and specialist technology is used to process station and retailer waste, producing clean, segregated waste bales, ready for recovery or recycling. The self-contained unit will ensure consistently higher recycling rates, provide real-time waste data and establish accountability by highlighting the waste demographic per retailer. By crushing and baling recycling streams on-site, the frequency of waste collections is also set to decrease, taking vehicles off the road, and reducing carbon emissions. The station teams have engaged with retailers to understand their individual waste management challenges and delivered an educational session with stakeholder packs. The MSU provides the opportunity for a greater number of materials to be recycled. Contrary to common belief, most disposable coffee cups are not widely recycled because of their polyethylene plastic liner. However, disposable cups are now segregated within the MSU, baled and sent to a specialist recycling contractor for processing. Even biproducts such as leachate, which has a high calorific value, is collected and sent to an anaerobic digestion facility for energy production. The installation of the MSU represents a significant step towards achieving HS1's sustainability goals and improving the overall environmental impact of our operations.

*Reported water consumption has increased by 47,401m^3 since 2022/23 due to increased passenger numbers and improved data coverage.

Roadmap to 2030: Resource use and waste impacts

HS1 is focused on limiting our resource impact and have developed a circularity plan to target our key resources at stations and depots.

We have been collaborating with our partners and suppliers to establish strategies to reduce our combined environmental impact.

To reduce our environmental impact, we aim to reduce waste production across our operations, including waste generated at St Pancras International, with the introduction of the Mobile Segregation Unit (MSU).

Recycling

90% recycling of operations and project waste by 2023/24*.

*We acknowledge we have fallen short of our 90% recycling rate and have embedded activities to improve this figure over the coming year(s).

Landfill profiles

Understand hazardous waste and waste indirect to landfill.

Circularity plan

Develop a circularity and minimisation plan for stations and depot and implement the plan by 2024/25.

INSIGHT

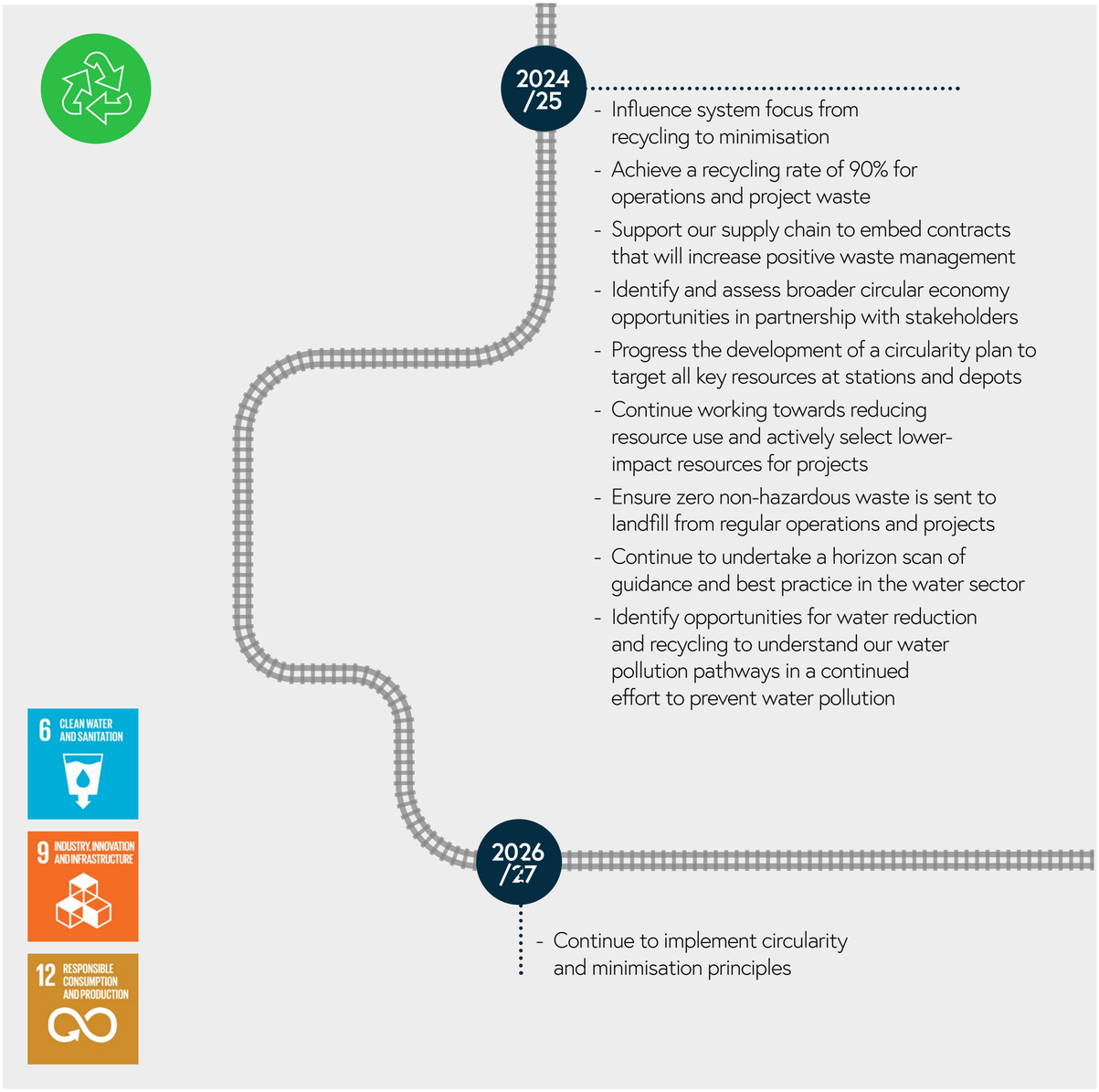
How we will achieve our targets

Having achieved a recycling rate of 63% this year, we are now focusing on maximising the benefits of our recently installed MSU to help us reach our 90% target.

We will also focus on reducing the amount of raw materials we use, and reuse and repurpose where possible.

The MSU provides us with real-time waste data and ensures we establish accountability. This allows us to provide an accurate and transparent waste demographic per retailer.

The MSU is a key milestone in helping us achieve our target of 90% recycling rate and further support waste segregation.



Environmental stewardship

Biodiversity

HS1 has a duty to protect our lineside landscape. We have worked in collaboration with the Adonis Blue Environmental Consultants to protect and enhance these habitats with the target of delivering 20% biodiversity net gain by 2030.

Our ambition

HS1 has a responsibility to protect the natural surroundings along our rail lines.

This year, we collaborated with Adonis Blue Environmental Consultants (formerly Kent Wildlife Trust Consultancy Services) to safeguard this environment, with the aim of enriching habitats and achieving a 20% BNG by 2030.

The Biodiversity Benchmark is a respected standard for the protection of wildlife and continual biodiversity enhancement through management of commercial landholdings. Our partners, NRHS, have been externally recognised for their commitment to biodiversity protection and enhancement, achieving the International Organisation for Standardisation (ISO) 14001 aligned Biodiversity Benchmark Award for the eighth consecutive year. We are proud to support NRHS with this award and look forward to continuing our collaborative approach to biodiversity management.

Targets

- Achieve 20% BNG on the 135 lineside tiles by 2030 compared with a revised 2024 baseline.

Actions taken in 2023/24

- Installed interpretation boards along the HS1 route to promote biodiversity enhancement measures and highlight local biodiversity importance.
- Published our Annual Environmental Report detailing the fifth year of our wildflower trial to understand the best management techniques for biodiversity.
- Protecting rare species: we introduced further protection measures for rare species such as the Lizard Orchids found on site.
- Awarded the Biodiversity Benchmark Award by the Wildlife Trust for the eighth consecutive year.

"HS1 has the opportunity to protect and enhance a diverse range of habitats, managing a corridor of land from central London all the way down to the Channel Tunnel. I appreciated the opportunity to help deliver our biodiversity action plan this year, having spent the day with Kent Wildlife Trust Consultancy planting native hedgerows adjacent to our line"

Alicia Vickers
Heritage Advisor, HS1 Ltd

FOCUS FOR 2024/25

- Review and determine the suitability of the key habitat area locations between Ebbsfleet and Folkestone and determine key habitat areas between St Pancras and Ebbsfleet International.
- Re-baseline BNG metric using best practice UKHab ecology surveys within the key habitat areas.
- Implement a GIS virtual platform to monitor progress.
- Conduct carbon insetting calculations based on the future implementation of the management techniques identified.
- Highlight key indicator fauna species in survey reports and outline essential management techniques required to protect them.
- Produce a Biodiversity Management Handbook detailing site specific management techniques and protocols to undertake general management techniques.

INSIGHT

Biodiversity re-baselining

HS1 continues to work with our suppliers to protect, manage and enhance biodiversity along the HS1 lineside asset. We manage 235ha of land divided up into 136 'tiles' for ease of identification and management. By the end of the 2020/21 financial year all tiles had been surveyed, and we have used this as the baseline year to date. Since this time, various management techniques have been implemented, the general condition of several tiles have been upgraded, rare species have been discovered and protection measures have been put in place. We have also conducted a rolling program of Phase 1 habitat surveys for the Landscape Focus Areas between Ebbsfleet and Folkestone to assess any habitat changes since the previous ecological surveys.

We have taken the decision to re-baseline our biodiversity baseline during the 2024/25 financial year using best practice UKHab surveys. UKHab was first launched in 2018 as a unified classification coding system for all terrestrial, freshwater and marine habitats. It is now recognised as best practice for habitat surveys in the UK, increasing the consistency and spatial accuracy of key habitat features. In 2024/25, we will continue to undertake ecological surveys to ensure that vegetation is sustainably managed for safety, the environment, and our neighbours, and feed this data into the UKHab system. By the end of the year, we will have developed a revised baseline, supported by a comprehensive Geographic Information System (GIS) linked dataset. We also plan to develop a Biodiversity Management Handbook detailing site specific management techniques and protocols to foster biodiversity net gain.

CASE STUDY

Protecting rare species

HS1 continues to protect and enhance habitats suited for rare chalk grassland plants and pollinators and are pleased to confirm that the Lizard Orchids (Himantoglosssum Hircinum), first discovered in 2021, were found to be flowering again for a third consecutive year. The Lizard Orchid is one of the rarest plants in the UK and is listed as a protected species in the UK on Schedule 8 of the Wildlife and Countryside Act, 1981.

HS1 continues to maintain optimum conditions for this species, periodically removing encroaching tree saplings, herbaceous growth and scrub to prevent shading or smothering. We have also introduced a radius buffer around the plants and will continue to monitor their condition on a periodic basis. Over time, we hope that further presence of the species will be identified within the surrounding sward.

CASE STUDY

Biodiversity interpretation boards

HS1 understands the crucial role we have to play in highlighting the value of diverse ecosystems and this year installed biodiversity interpretation boards at key locations on our route. The Great Wood to Ranscombe biodiversity interpretation boards features protected species expected in the area, such as slow worms and badgers, along with a history of the woodland. The boards raise awareness and provide information regarding the practical steps to take if these species are encountered.

INSIGHT

Project hotspot updates

A 'Hotspot Project' is a significant nature-based opportunity to enhance an area of the HS1 asset or adjacent to an HS1 asset, in an optimal location for flagship species in Kent and nationally. These projects can enhance biodiversity and/or increase the resilience of our assets to climate change.

Following consultation with Adonis Blue Environmental Consultants , this year we selected hedgerow enhancement as our biodiversity hotspot project. Healthy hedgerows are essential to nature recovery as they support whole ecosystems. For example, foraging bats, nesting birds and insects all rely on hedgerows for survival. They are also a nectar source for pollinators and a highway for protected species such as reptiles and hazel dormouse.

We identified lineside locations that would benefit from extra hedgerow planting and replacement of non-native species, creating thicker and thornier hedging. This will in turn attract endangered and iconic birds of Kent such as nightingale and turtle dove which are both facing a dramatic decline in their populations. One of the locations identified was a plot of land adjacent to the HS1 line near Godinton House, Ashford.

To increase staff engagement in this area of sustainability, the HS1 Engineering team volunteered to spend a day at Godinton, helping the Adonis Blue Environmental Consultants team plant a biodiverse hedgerow. The planting took place along the boundary of a woodland within the estate, containing newly planted trees and partly managed through coppicing. The location was chosen due to historical data suggesting hedgerows would normally be found along woodland boundaries.

The planting involved four species, field maple, oak, hawthorn, and hazel; additional species were also added by foraging for saplings on the woodland boundary. The aim was to create a species-rich hedgerow (5 species within 30m along the hedgerow). The 200m long hedgerow was planted as a double hedgerow with infill planting occurring due to lack of space along the boundary. We look forward to seeing this hedgerow flourish over the coming years!

Roadmap to 2030: Biodiversity

We are committed to maintaining and protecting the natural environment on our estate.

Over the past year we have worked with Adonis Blue Environmental Consultants to progress our 20% BNG target. Looking forward, HS1 has a number of initiatives planned to focus on biodiversity in 2024/25 with the overarching aim of safeguarding the environment for the communities we serve.

We are looking forward to our continued collaboration on biodiversity with NRHS whom we recently supported in their achievement of the long-established Biodiversity Benchmark Award.

Biodiversity Net Gain

Achieve 20% Biodiversity Net Gain (BNG) on the 135 lineside tiles by 2030 compared with a revised 2024 baseline.

INSIGHT

Biodiversity Net Gain

To ensure we meet our 20% BNG target we will re-baseline our BNG metric this coming year using best practice UKHab ecology surveys within the key habitat areas.

We will continue to monitor key species as indicators of a positive biodiversity asset and implement a GIS virtual platform to monitor progress. This will allow us to accurately report against our target.

Ongoing activity
Deliver annual biodiversity spotlight projects

2024/25
- Biodiversity no net loss assessed and updated enhancement plan developed
- Review and determine the suitability of the key habitat areas locations between Ebbsfleet and Folkestone and St Pancras and Ebbsfleet
- Re-baseline BNG metric using best practice UKHab ecology surveys within the key habitat areas
- Conduct carbon insetting calculations based on the future implementation of the management techniques identified
- Highlight key indicator fauna species in survey reports and outline essential management techniques required to protect them
- Produce Biodiversity Management Handbook detailing site specific management techniques and protocols to undertake general management techniques
- Implement a GIS virtual platform to monitor progress

2025/26
- Proactively identify further opportunities for net gain supporting the landscape focus areas

2027/28
- Community Lineside projects identified and implemented

2030+
- Achieve 20% BNG on the 135 lineside tiles by 2030 compared with a 2021 baseline

2030+
- Develop effective local partnerships to ensure that programs for biodiversity conservation are maintained in the long term

15 LIFE ON LAND

Social value

The targets in our updated Sustainability Strategy cut across all elements of social sustainability, and we align activities with best practice within the rail industry. HS1 is committed to positively contributing to local communities and as an organisation, we recognise the importance of supporting our workforce and providing opportunities to aid their growth and development.

Committed Member of Inclusive Employers

INVESTORS IN PEOPLE®
We invest in people Gold

Our ambition

The targets within our Sustainability Strategy include multiple aspects of social sustainability and we ensure these are aligned with industry-leading standards in the rail sector.

HS1 aims to have a positive impact on local communities, understanding the importance of supporting our workforce and offering opportunities for advancement and growth. Our recently published 2024 Social Value Framework sets out our updated approach to maximising the net social value that HS1 generates.

Targets

- Engage our local communities to interact with our transport hubs.
- Inspire young people from our local communities towards railway careers in the future and work towards improving local social mobility.
- Protect, enhance, adapt and engage with our irreplaceable heritage assets.
- Promote positive EDI, health and safety (H&S) and wellbeing within our workforce, our supply chain and those that interact with our assets.
- Embed and influence good business ethics across the HS1 system and supply chain.

Actions taken in 2023/24

- Implemented milestones in the People Strategy and EDI Strategy.
- Five employees completed Mental Health First Aid (MHFA) training to support the mental health of HS1 employees. We now have a total of eight MHFA trained employees.
- Achieved Inclusive Employers Membership.
- Signed The Mental Health Charter.
- We retained gold level We Invest in People accreditation, which was awarded by the organisation Investors in People after our triennial review.
- Published our 2024 Social Value Framework.
- Contributed 713 hours of staff time to local communities and charity activities related to HS1's activities.

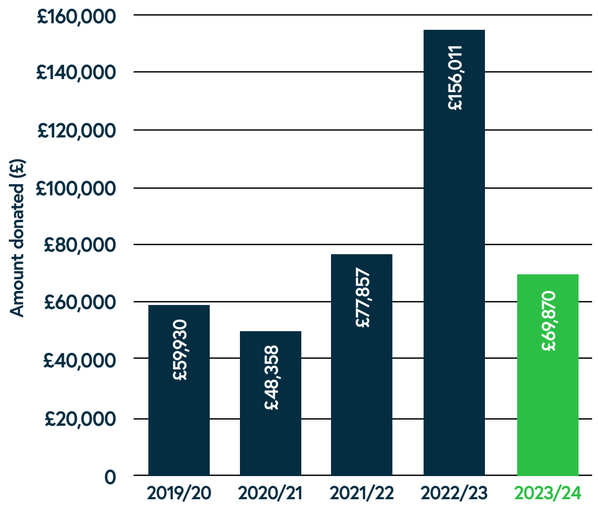
FOCUS FOR 2024/25

- Deliver against the new 2024 Social Value Framework.
- Review and re-publish the HS1 People Strategy.
- Continue to attend the Rail Safety and Standards Board (RSSB) Social Value Working groups to learn from the wider industry and share best practice.
- Continue to horizon scan appropriate social value quantification tools.
- Continue to work with QSA Partners, our external sustainability specialist, to develop best practice social value initiatives, benchmarked against other sectors.
- Conduct a bi-annual maturity assessment using the Social Value Maturity Index tool[8].

8 Private sector version

Corporate social responsibility donations

This year, our Corporate Social Responsibility (CSR) donations have totalled nearly £70,000. Activities included, but were not limited to, the donation of IT equipment to local charities including HealthProm, volunteer time including time spent at the Animal Sanctuary and hedgerow planting at Godinton House, Ashford. In addition, Prostate Cancer UK were given time on our advertising screens and Bipolar UK were given use of our boardroom for meetings throughout the year.[9]



9 The CSR value that HS1 delivered during the previous financial year (2022/23) was particularly high due to the provision of a Ukrainian Refugee Welcome Centre and charity Christmas tree in St Pancras International for a protracted period of time.

SPOTLIGHT

We Invest In People Accreditation

HS1 was successful in achieving the Gold Standard for the We Invest in People Accreditation in 2023. This is a standard designed to advance an organisation's performance through the management and developments of its people. The following areas were celebrated:

- Our people believe that HS1 has clear values.
- Recognition and feedback are both being prioritised as the organisation attempts to address the challenges presented by the pandemic.
- Our people appreciate the opportunities for growth that are available at HS1, with training, qualifications, secondments and interesting projects continuing to be cited as examples of how people can realise their ambitions within the organisation.
- Our people appreciate the friendly and supportive nature of HS1 and people feel that they are treated as individuals and are cared for if they have personal challenges.

INSIGHT

2024 Social Value Framework

HS1 sees social value as multifaceted, with various factors determining an organisation's overall impact on society. To support this, our 2024 Social Value Framework aims to maximise the net social value generated by our activities, outlining our goals for 2030 and exploring our delivery approach. To maximise social value, HS1 distinguishes between activities we directly control and those we can only influence, recognising the importance of partnerships with community groups and experts. Additionally, HS1 commits to identifying initiatives that address emerging social inequalities and share these successful initiatives for wider industry adoption.

HS1's social value progress to date has focused on four key areas: staff volunteering, gifts/goods 'in kind', targeted cash donations and enhancing the HS1 workforce. We aim to broaden our impact by engaging with supply chains, supporting local communities and inspiring young people towards railway careers. Our framework outlines that going forward, our social value milestones will be developed on an annual basis, factoring in the learnings from previous years. We will engage with HS1 staff during the development of these milestones to encourage a degree of ownership.

HS1 Targets

- Promote positive EDI, H&S and wellbeing within our workforce, our supply chain and those that interact with our asset.
- Embed and influence good business ethics across the HS1 system and supply chain.
- Engage local communities to interact with our transport hubs.
- Inspire young people from our local communities towards railway careers of the future and work toward improving local social mobility.
- Protect, enhance, adapt and engage with our irreplaceable heritage assets.

SPOTLIGHT

Improving usability of screens at St Pancras International

HS1 carried out research to enhance the usability of the information screens at St Pancras International Station. Recognising the importance of navigation to passenger satisfaction, the research aimed to optimise the customer information screen design.

Through five phases, including desk research, ethnographic studies, concept development, online surveys, and in-person feedback, the team identified that a 3D map with calling points on the main screen was most effective for helping passengers navigate the station.

The process not only improved the information screens but also established a framework for future customer engagement. The enhancements received positive feedback and improved passenger experiences, highlighting the potential to boost post-pandemic rail travel.

CASE STUDY

HS1 & BTP volunteering day

This year, volunteers from HS1 participated in the British Transport Police (BTP) Recruit Operational Scenario Training (ROST) days, offering valuable insights into the BTP and the role of a Police Constable. Spread across three separate days, volunteers acted out real-life scenarios faced by the BTP in a live station environment. The program gave BTP students the opportunity to apply their training by interacting with members of the public, whilst allowing the training team to assess the student's ability to communicate effectively. For many of the students, this was the first time they had worn their uniform in public.

HS1 volunteers were given a first-hand perspective of policing and BTP operations. By the end of each day, participants had gained insights into policing from a 'police perspective,' acquired a better understanding of the BTP, and were given the opportunity to provide constructive feedback, contributing to the development of the training program.

"Spending the day with the BTP helped me to appreciate the wide variety of situations that front line officers manage on a day-to-day basis. Gaining this 'police perspective' was an eye opener for me, and it was great to meet the next generation of officers!"

Scott Durno
Head of Digital and Systems, HS1 Ltd

INSIGHT

Wellbeing

HS1 has a range of initiatives and resources that support the mental health of our employees. We have a total of eight accredited Mental Health First Aiders who are points of contact for employees experiencing mental health issues or emotional stress. HS1 has joined the Railway Mental Health Charter which is a framework to help promote, manage and support our workforce. This Charter includes an assessment of our current practices and responds to rail-specific wellbeing needs, such as musculoskeletal disorders, fatigue and post-incident trauma management, providing targeted actions and resources to improve the mental health of employees.

"Last year, HS1 enhanced our social value targets, with a focus on incorporating EDI, wellbeing, business ethics and community engagement into our activities. I am proud of the progress that we have already made against these targets, having been re-awarded the Gold Standard We Invest in People accreditation, signed the Mental Health Charter, and supported over 20 charities and organisations through volunteering activities. We also published a Social Value Framework this year, setting out our approach to maximising the net social value that HS1 generates. I look forward to supporting the team as we deliver against this framework over the coming years".

Sukhdeep Dhesi
Head of People, HS1 Ltd

SPOTLIGHT

Animal sanctuary

In January, a team from HS1 joined partners NRHS for a day at The Retreat Animal Sanctuary near Ashford International. The Retreat are a not-for-profit organisation that provide specialised care for tormented, abused, sick, injured and unwanted animals. The centre houses over 1,000 animals at any one time, with a wildlife hospital to deal with animal intakes and emergencies. The team spent the day mucking out stables, laying woodchips, tidying storage containers, feeding the animals and generally helping out at the sanctuary. It was a rewarding day and great to support a charity so close to the HS1 route.

Statistics

713 hours
HS1 staff volunteering hours

72%
Employee participation in volunteering.

£69,870
Donated to charitable causes and value in-kind.

56%
Of contracted suppliers are SMEs.

Roadmap to 2030: Social value

We recognise the important role that HS1 can play in supporting communities from central London, down to the Channel Tunnel.

We have positioned ourselves as leaders in the social value space with significant accomplishments, most notably achieving the Gold Standards Investors in People accreditation. This year we have also implemented milestones in both our People and EDI Strategy along with signing The Mental Health Charter and developing our Social Value Framework. These initiatives highlight our commitment to both our staff and the communities we serve.

Heritage
Protect, enhance, adapt and engage with our heritage assets.

Communities
Engage our local communities to interact with our transport hubs.

Inspire
Inspire young people from our local communities towards railway careers.

EDI, H&S Wellbeing
Promote positive EDI, H&S and wellbeing within our workforce.

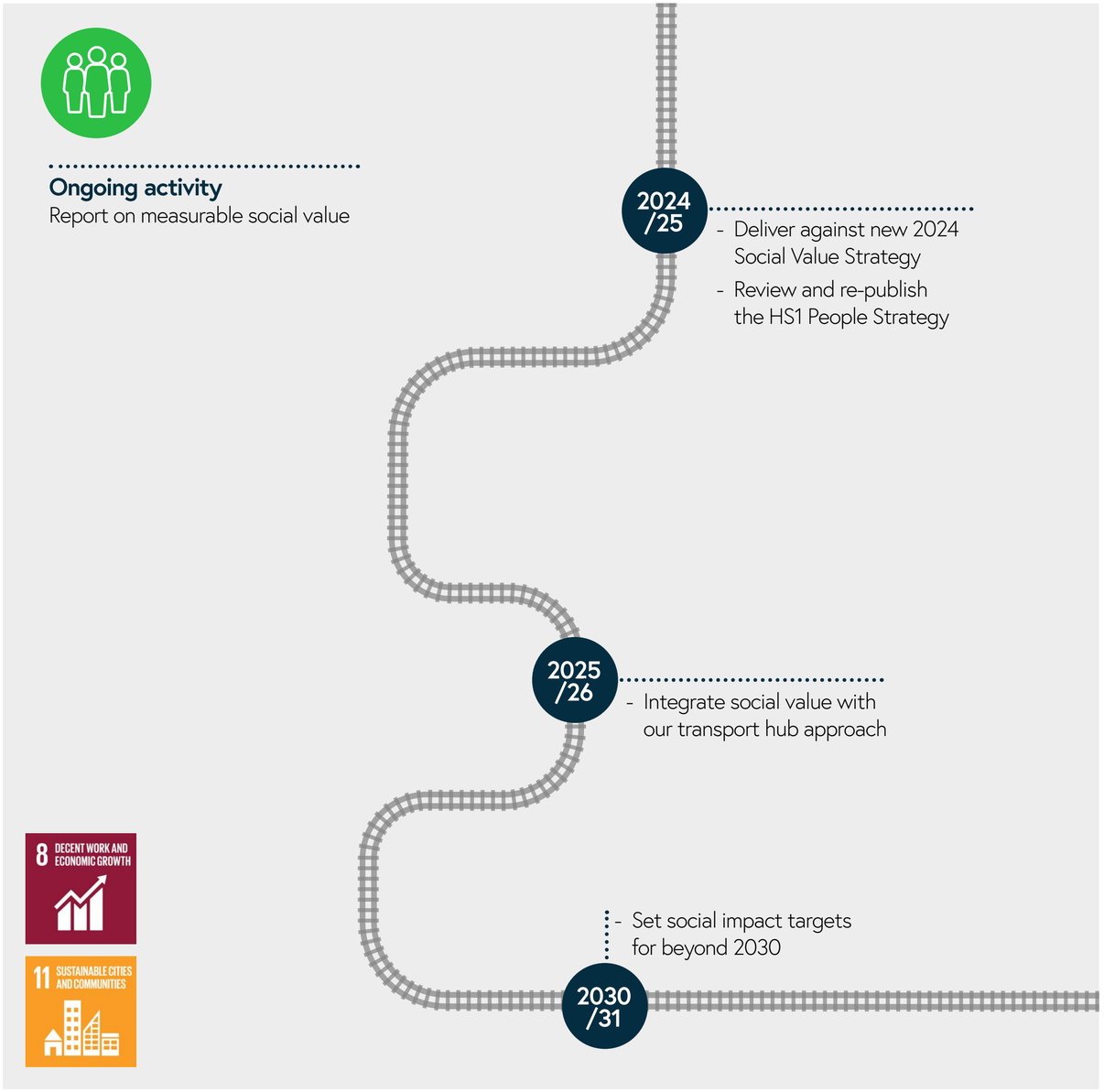
Business ethics
Embed and influence good business ethics across the HS1 system and supply chain.

INSIGHT

Our updated Social Value Framework
Our 2023 Sustainability Strategy deepens our net social value impact. New targets focus on community engagement, heritage, railway careers, modal shift, EDI and business ethics.

The HS1 Social Value Framework 2024 sets out our updated approach.

The framework highlights the multifaceted nature of social value and sets out our strategies and delivery plans that contribute towards our social value targets. Our strategy sets out that we will 'proactively identify initiatives that will address emerging social inequalities' and 'use our media platforms to promote successful initiatives in hope that they can be duplicated elsewhere in the industry'.



Social value

Transparency

HS1 operates in a transparent manner, remaining accountable by monitoring and reporting various sustainability metrics. Our reporting systems allow us to identify improvement opportunities, and drive continual improvement.

Our ambition

HS1 prioritises transparency and accountability in our operations. We maintain clear communication, closely monitor our activities, and use robust reporting systems to track performance. This commitment to transparency and accountability drives ongoing improvements in operational sustainability.

We are committed to adhering to best practices, industry standards and benchmarks which serve as a cornerstone to elevate our performance. Our Sustainability Strategy targets helps to guide our activities and are a key consideration in business decisions.

Targets

- Develop a modal shift plan for each HS1 transport hub by 2029/30.

Actions taken in 2023/24

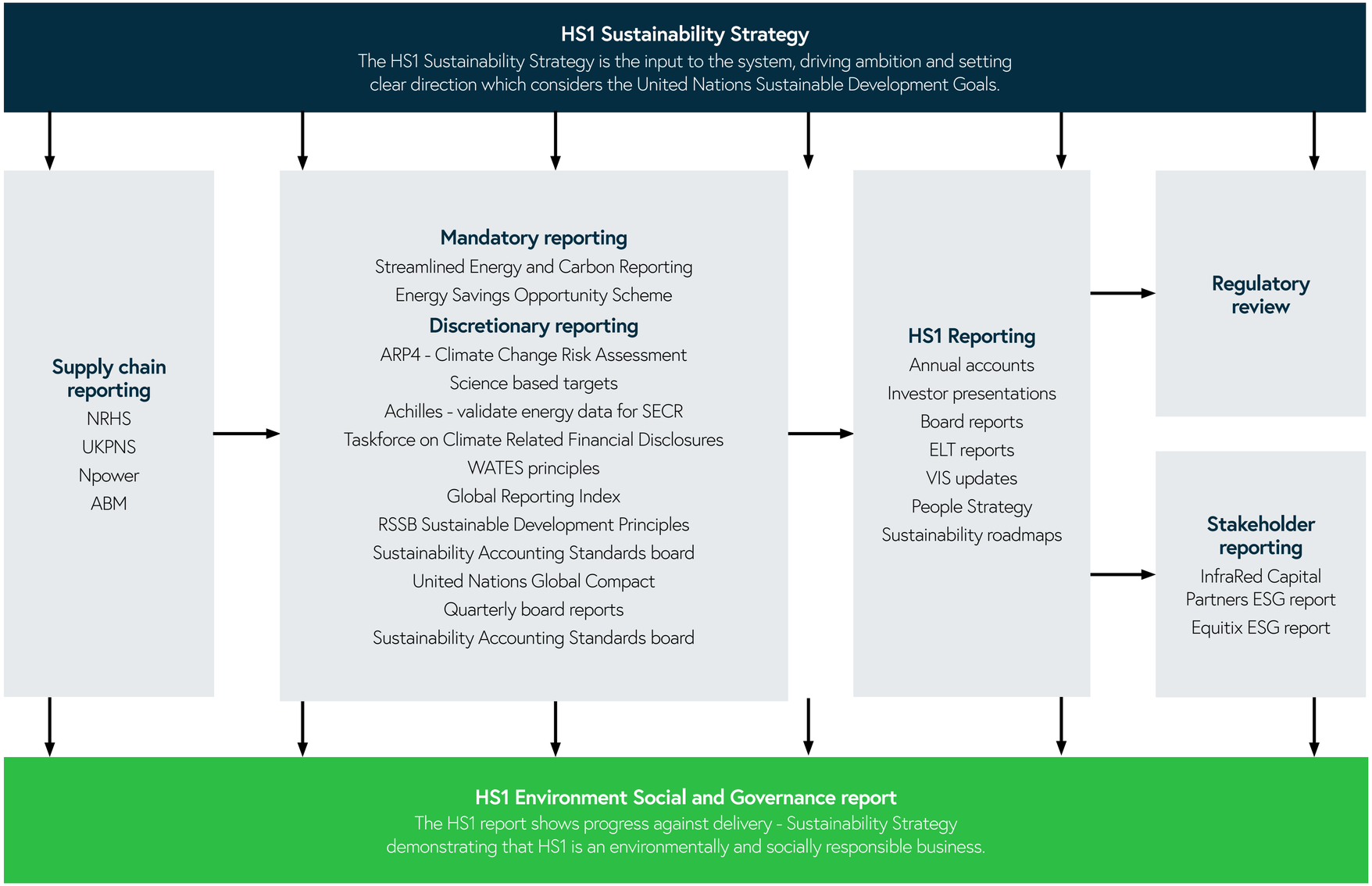
- Continued to undertake and create mechanisms to mature TCFD data collection, processes, governance and risk management for external reporting and to be fully compliant by 2024/25.
- We made progress in building sustainability into procurement and contracts, enhancing the sustainability credentials and assessment of new suppliers.
- Continued to report ESG progress annually.
- Undertook activities to comply with environmental and social regulatory requirements.
- Undertook horizon scans for appropriate transparency reporting frameworks and integrated where appropriate.
- Continued to mature dashboard reporting across the Sustainability Strategy themes and directorates and continued to create mechanisms to further mature TCFD and UNGC reporting.
- Continued to promote the environmental benefits of high-speed rail to foster a modal shift to rail.
- Developed an HS1 Business Ethics Committee to ensure cross-departmental governance with sustainability being a key responsibility.

FOCUS FOR 2024/25

- Understand what makes a good transport hub and what links are currently available and will be available in the future.
- Continue to mature the HS1 Business Ethics Committee and develop a roadmap of activities.

"Sustainability is a core HS1 value and we are committed to embedding a transparent reporting and governance approach. HS1 has made significant progress over the past year, outlined in our fourth ESG report. We continue to mature our TCFD reporting mechanisms, demonstrating our commitment to understanding climate-related risks and opportunities for HS1."

Claire Howling
Interim Finance Director, HS1 Ltd



CASE STUDY

Office of Rail and Road annual review of HS1 line

HS1's annual review by the Office of Rail and Road (ORR) reflects our progress in delivering performance improvements across the HS1 line. The 2022-2023 report, published in July 2023, highlighted our strong performance despite challenges in the rail sector, noting HS1's strong commitment to environmental sustainability through its recently published Sustainability Strategy and annual ESG updates. In particular, the report comments on the good progress made on climate change resilience and plans to reduce energy use in line with best practice. Overall, the ORR report highlights HS1's transparent reporting and compliance with environmental regulations, emphasising our dedication to sustainability and responsible asset management whilst also providing guidance on areas of improvement.

CASE STUDY

Science Based Targets

HS1 was involved in the second Science Based Targets (SBT) cross–industry workshop in collaboration with National Highways, High Speed 2, Transport for London and East West Rail. These workshops were facilitated by Network Rail and focused on encouraging suppliers to set their own emission reduction goals. Having already committed to a 1.5 degree aligned reduction with the SBT initiative, HS1 was in a strong position to support Network Rail by sharing best practice with the wider industry. In 2022/23, we baselined our Scope 3 emissions by conducting an extended scope carbon footprint analysis. We now intend to conduct this analysis on an annual basis to track progress and continually refine our method of analysis.

The SBT workshops were attended by 1,925 people and emphasised the importance of the industry's transition to renewable energy. Network Rail have since announced that 75% of its suppliers have committed to implementing science-based emissions targets, aligning with the UK government's goal of net-zero carbon emissions by 2050. The commitments from these cross-industry SBT workshops reflect a significant step forward towards a zero-carbon industry, aligned with the Paris Agreement's climate goals.

Roadmap to 2030: Transparency

Having published four ESG reports we have established a transparent reporting approach to sustainability, which we will continue to develop over the coming years to maintain accountability.

We report against accredited benchmarks and standards, often ahead of the mandatory reporting timelines, as with our TCFD reporting.

Modal shift is our driver for change under transparency and we will look at how we develop our transport hubs to be centres for our communities.

Modal shift

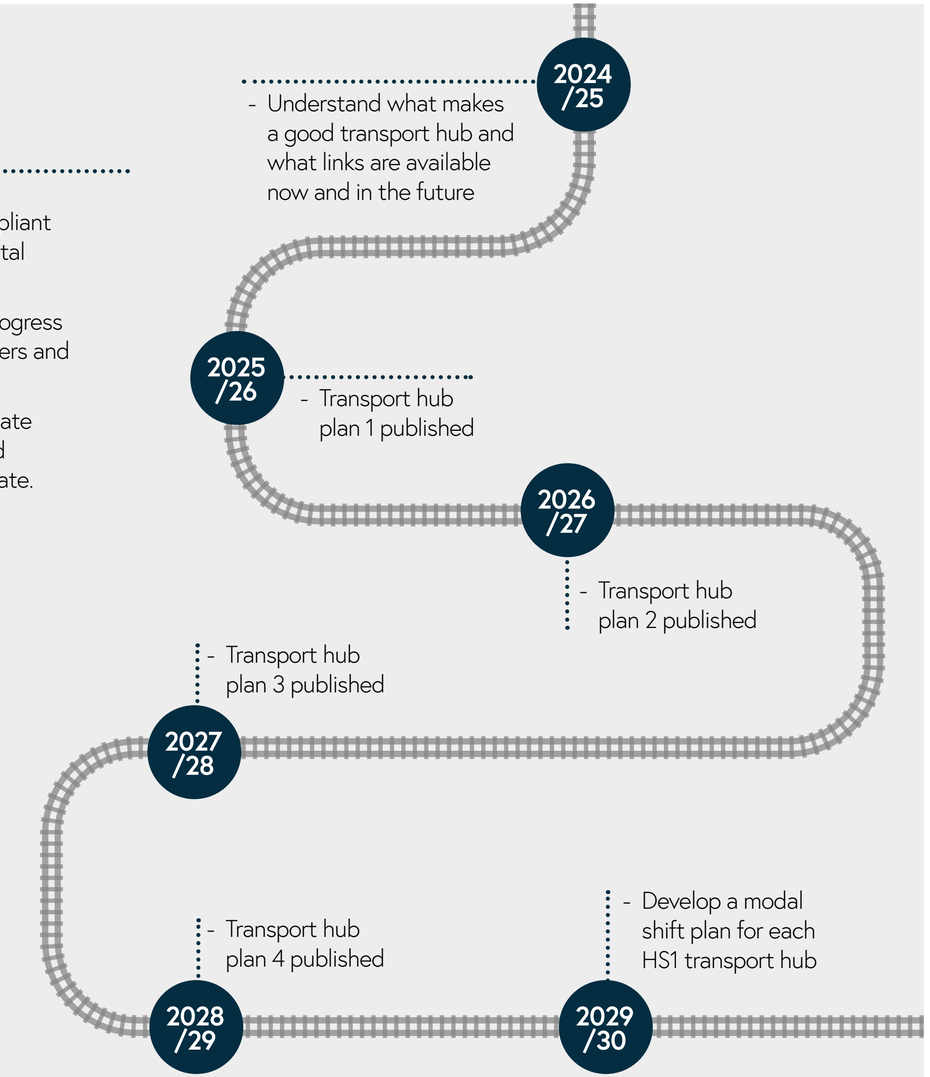
Develop a modal shift plan for each HS1 transport hub by 2029/30.

Ongoing activity

Ensure we are 100% compliant with relevant environmental regulatory requirements.

Report annually on our progress to inform investors, partners and stakeholders.

Horizon scan for appropriate reporting frameworks and integrate where appropriate.



8 DECENT WORK AND ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

INSIGHT

HS1 annual modal shift opportunity

International

4.9m passengers onto train

-26,000 flights

→ **470,000tn** carbon benefit

Domestic

-2m car trips per year

→ **18,600tn** carbon benefit between 2025 and 2035

Health and safety

Health and safety is integral to HS1's daily operations and we adhere to relevant policies and procedures to proactively prevent accidents occurring. This is embedded in our core values, making it a shared responsibility among all HS1 team members. We each contribute to maintaining a secure work environment for our employees, customers and the supply chain. This ensures safety remains a key business priority, with the ultimate target being a workplace with zero harm.

16
HS1 safety and security tours undertaken by senior management.

100%
Delivery of annual safety improvement plan.

0.010
Passenger/MoP FWI[3].

0.055
Workforce/contractor FWI MA.

"HS1 is committed to fostering a culture where safety is paramount. Risks are identified and managed in order to protect the wellbeing of our employees, supply chain and customers. Our commitment to safety is the foundation upon which we build stakeholder confidence and operational success."

John Curley
Non-Executive Director and Chair of the HS1 Board Safety Committee

CASE STUDY

St Pancras AI trial on escalators

Escalators at St Pancras International have been a focus area of the station safety plans. Lifts and escalators in the station are used by circa 40,000 passengers per day and are where most passenger accidents occur. In St Pancras International, we are trialling the use of artificial intelligence (AI) screens which recognise unsafe behaviours as people approach the escalator. If unsafe behaviours, such as carrying luggage, are recognised, the screens warn passengers to stop and guides them to use the lifts.

The results of the programme are being used to implement new safety ideas and improvements and are supporting the successful reduction in passenger injuries. NRHS is currently assessing the data from the trial to understand the benefits of a wider roll out.

CASE STUDY

RM3 assessment

HS1 uses the ORR's Risk Management Maturity Model (RM3) to assess the organisation's maturity in managing health and safety risk. A baseline assessment was set in 2019 and HS1 has conducted annual self-assessments to ensure that we maintain a base level of maturity across all 26 spokes. We are also pushing towards Predictable (4) and Excellence (5) maturity levels for select spokes which are key to HS1 as a management client. In 2023, we instructed an independent external assessment which showed significant maturity improvements over CP3. The assessment was carried out in accordance with the HS1 Health, Safety and Assurance Audit Standard. The RM3 assessments not only highlighted areas of good practice but also identified opportunities for enhancement, reinforcing HS1's strategy of understanding risk, improving risk management and assuring the effectiveness of arrangements in place. HS1 also undertakes regular RM3 audits of its key suppliers aimed at supporting our supply chain in developing their maturity and identifying improvement actions. The 2023 RM3 assessment exemplifies HS1's dedication to maintaining a mature and effective health and safety management system, which is crucial for the safety of workers, passengers and allows HS1 and our suppliers to define what excellence looks like in safety and risk management.

LOOKING AHEAD TO 2025 AND BEYOND

Reflecting on the year, I am proud of HS1's progress against our priority areas as we continue to embed sustainability into our operations.

Sam Sage
Sustainability & Environmental Manager, HS1 Ltd

Highlights from the year

HS1 recognises the correlation between sustainability action and business objectives. Our focus on minimising the environmental impact of our operations aligns with our aim to reduce operational costs, thereby delivering value to our customers, investors, and wider society alike. The sustainability initiatives that we have delivered throughout the year are testament to this correlation, none more so than our energy reduction schemes. Having facilitated regenerative braking on the Southeastern fleet in 2022, this year we achieved another significant milestone by implementing the N-1 Energy Saving Scheme. These two schemes alone have reduced annual emissions from traction electricity by over 1,700 tonnes CO_2e, whilst also reducing electricity costs by over £3m per year. We must not overlook the impact of smaller scale energy reduction schemes either. Our multistakeholder stations and route energy reduction groups continue to identify energy efficiency opportunities across our assets and have had another successful year. The average payback period of energy savings schemes implemented in our stations this year was just four months.

We have also launched on-site waste segregation at St Pancras International in the form of a MSU. Our partners, Network Rail High Speed, and the HS1 team have put a huge amount of work into this project, so it is great to see the process in action. The unit has already delivered a 69.2% station recycling rate in the final month of the financial year, a figure which is set to increase further over the coming months.

Focus for the coming year

Over the past year, we have developed several key strategies and standards to complement our overarching Sustainability Strategy. These include the Energy and Carbon Project Standard, the 2024 Energy Strategy, the 2024 Circular Economy Implementation Plan and the 2024 Social Value Framework. I look forward to working with our supply chain to embed these documents over the coming year, further enhancing HS1's sustainability credentials.

We have also committed to producing a fourth round ARP4 report in 2024. Understanding the potential impact of future climate scenarios on our infrastructure is critical for HS1 as responsible asset stewards. We will continue to engage with the wider rail industry as we develop this report and accompanying adaptation plans.

Finally, 2024 is set to be another exciting year as we deliver against our Energy Strategy. The team are currently developing detailed designs for station heat pumps which will eliminate gas from our energy mix. In addition, this year we will complete our third ESOS assessment which will help guide future investment opportunities.

I thank my colleagues for all their support this year, and I am excited to see what next year has in store for HS1.

Appendix 1: Key facts and figures

This reporting year, HS1 has refined data collation and analysis. We have applied updated calculation methodologies and reporting boundaries to previous years' data, to allow for annual data comparisons.

See page 17 for details.

		2020/2021 financial year	2021/2022 financial year	2022/23 financial year	2023/24 financial year
Location-based	Scope 1 emissions	1,681 tCO_2e	1,427 tCO_2e	1,144 tCO_2e	974 tCO_2e
	Scope 2 emissions	14,025 tCO_2e	13,553 tCO_2e	12,015 tCO_2e	12,759 tCO_2e
	Scope 3 emissions	875 tCO_2e	1,462 tCO_2e	1,297 tCO_2e	1,312 tCO_2e
	Total location-based carbon emissions	16,581 tCO_2e	16,442 tCO_2e	14,456 tCO_2e	15,046 tCO_2e
Market-based	Scope 1 emissions	1,681 tCO_2e	1,427 tCO_2e	1,144 tCO_2e	974 tCO_2e
	Scope 2 emissions	131 tCO_2e	0 tCO_2e	23,528 tCO_2e	13,206 tCO_2e
	Scope 3 emissions	875 tCO_2e	1,462 tCO_2e	1,297 tCO_2e	1,312 tCO_2e
	Total market-based carbon emissions	2,687 tCO_2e	2,889 tCO_2e	25,969 tCO_2e	15,492 tCO_2e
Carbon offset due to REGO/PPA[11]		13,918 CO_2e	13,553 CO_2e	1,309 CO_2e	5,619 CO_2e
CO_2 per passenger using net emissions[12]		0.342 kg CO_2e	0.113 kg CO_2e	0.626 kg CO_2e	0.326 kg CO_2e
Intensity ratio: kg CO_2e (gross Scope 1, 2 & 3) per passenger[13]		2.109 kg CO_2e	0.645kg CO_2e	0.348 kg CO_2e	0.316 kg CO_2e
Traction energy per passenger		20.334 KWh	6.629 kWh	3.873 kWh	3.345 kWh
Traction energy per train journey		3,309 KWh	3,297 kWh	2,781 kWh	2,650 kWh
Non traction energy total (electricity and gas)		69,300 MWh	71,568 MWh	68,396 MWh	66,902 MWh
Non traction energy per m^2		392 kWh/m^2	405 kWh/m^2	387 kWh/m^2	379 kWh/m^2

11 Using National Grid emission factor

12 Net means market-based emissions

13 Gross means location-based emissions. Immaterial changes to previous data are a result of a reduction to the percentage of estimated energy data.

	2020/2021 financial year	2021/2022 financial year	2022/23 financial year	2023/24 financial year
Electricity use	60,158 MWh	63,828 MWh	62,131 MWh	61,616 MWh
Gas use	9,142 MWh	7,740 MWh	6,265 MWh	5,286 MWh
Waste generated	510 tonnes	1,231 tonnes	2,507 tonnes	2,696 tonnes
Waste recycling	54%	54%	59%	63%
Waste to landfill	8 tonnes	5 tonnes	1.1 tonnes	0.1 tonnes
Water use	9,613 m^3	31,909 m^3	21,851 m^3	69,252 m^3
Volunteer hours	435	736	809	713
Biodiversity tiles assessed	29	135	11	We have taken the decision to re-baseline our biodiversity baseline in line with UKHab surveys and will continue to make progress to achieve 20% BNG by 2030.
Biodiversity net gain	+0.6%	+0.6%	+0.89%	

Appendix 2: TCFD progress

HS1's Task Force on Climate-Related Financial Disclosures (TCFD) Report for the year ended 31 March 2024.

HS1 operates the UK's only high-speed railway line, providing sustainable transport as an essential piece of regional and national infrastructure, supporting mobility and economic growth across the South of England and Europe. We play an important role in offering low-emission transportation and are continuously looking to further reduce our contribution to climate change and increase the resilience of our infrastructure to account for future climate change.

As an infrastructure manager we operate in a heavily regulated environment. The terms of our contracts mean that the cost of some climate risks may rest with other parties. However, our analysis considers the value chain to ensure an aligned strategy. This includes HS1, our customers and suppliers of which NRHS is a key stakeholder.

We have assessed our compliance with the TCFD recommendations. Within the framework's 4 core pillars the recommendations are:

Governance

A. Describe the board's oversight of climate-related risks and opportunities.

B. Describe management's role in assessing and managing risks and opportunities.

Strategy

A. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

B. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

C. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Risk Management

A. Describe the organisation's processes for identifying and assessing climate-related risks.

B. Describe the organisation's processes for managing climate-related risks.

C. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.

Metrics and targets

A. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

B. Describe the organisation's processes for identifying and assessing climate-related risks. Metrics and Targets disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.

C. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

The HS1 disclosures, included within this report, are compliant with 10 of the 11 recommendations. As a company we acknowledge that we are in the early years of reporting, with further progress planned in future years.

The HS1 disclosures only partly comply under the Strategy Pillar (recommendation B) as the organisation's financial planning, and statutory reporting, do not currently consider the long-term impact of climate. This is due to the fact our external risk assessment ranked HS1 on the lower end of the risk spectrum with the direct business risk for HS1 of climate-change being deemed not material. Over 2024, we will embed the impact of climate into our long-term financial planning processes and as part of this work, we will look to forecast the implications for long-term demand.

Our 2023/24 achievements

Within the framework's 4 core pillars the noted achievements were:

Governance

- We improved the frequency of climate reporting to the Executive Leadership Team (ELT), through ensuring that climate change is an agenda item at key meetings.
- We enhanced the level of oversight through the Audit & Financial Committee and Board.
- We made progress in building sustainability into procurement and contracts, enhancing the sustainability credentials and assessment of new suppliers. This will consider ISO 20400 and ESG further in contract tenders.

Strategy

- We began to develop a Climate Change & Adaptation strategy ahead of our ARP4 report, to be published by the end of 2024. In line with the Climate Change Act 2008, the report will detail how HS1 is managing climate risks and our proposals for adapting to climate change.
- We are working on a Climate Risk Management Plan, recognising the influence of climate change on our infrastructure and its users.
- We completed procurement of a CPPA, resulting in 40% of electricity being procured from zero-carbon sources and are exploring options to secure up to 80% of systems baseload requirements through renewable agreements by April 2025.

Risk management

- We enhanced reporting of climate related issues in each directorate through the monthly risk reviews.

Metrics and targets

- We conducted a full spectrum CFA to identify our largest emission sources.

Governance and oversight

Our reporting and governance cycles are formally defined and support the regulatory framework in which HS1 operates. Our governance procedures allow executive committees and senior management to evaluate the climate-related risks and opportunities and integrate these into strategy and decision-making.

The HS1 governance structure, as shown in Figure 1, illustrates the cross organisational system and support from sector bodies. These internal and external structures feed into the HS1 board, ensuring oversight and effective management of climate-related risks and opportunities.

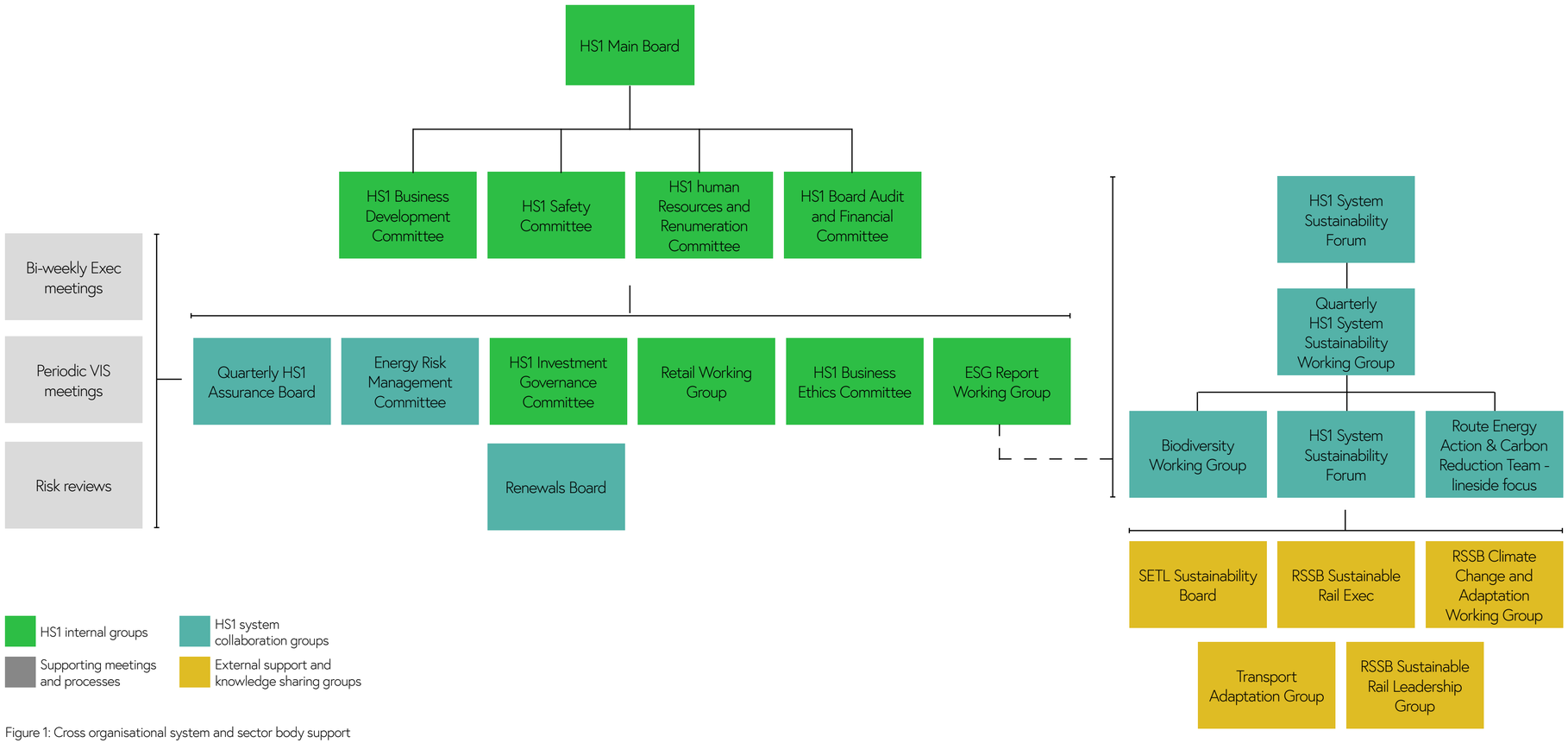


Figure 1: Cross organisational system and sector body support

Owner	Roles and responsibilities	Activity during 2023/24
HS1 Main Board	Oversees and reviews the effectiveness of HS1's policies, strategies and systems for sustainability performance and reporting. Considers climate change and sustainability in the approval of major expenditure and capital projects. Responsible for the approval of climate change related goals and targets. Meets 8 times per annum with 6 shareholder representatives and 2 non-executive directors.	Noted the Sustainability Strategy update. Discussed climate issues. Reviewed the FY24 ESG Report, including progress against targets and approach to TCFD.
HS1 Board Audit and Finance Committee	Oversees the Corporate Risk Register, which is managed by the Senior Legal Advisor.	Introduced climate related risks as a fixed agenda item. Debated the impact of climate on the HS1 system.
Safety Committee	Oversees asset risk reviews, including the impact of climate change. The impact of extreme weather events are considered.	Climate reporting a key theme in the strategic assurance look ahead in February 2024 which will be reported against.
HS1 Investment Governance Committee (IGC)	Provides Senior Management level project oversight. Chaired by the CEO with accountability held by the Engineering & Sustainability Director, who is supported by the Heads of Department (Assurance and Sustainability; Stations, Route and Projects). Project scopes include developing and delivering climate adaptation and mitigation plans in collaboration with the supply chain.	Climate change adaptation and mitigation plans are managed through asset strategies, and the committee oversees capital investment spend and renewals spend.
Renewals Board	HS1 and NRHS meet every four weeks, with the aim of providing project governance and assurance for the asset renewals projects. The board considers environmental factors when determining the scope of renewals required for the infrastructure. This is divided into three sub-forums which meet across the period consisting of the Change Panel, Data & Controls, and Progress & Milestone forums.	Continued to provide oversight for renewals on HS1's infrastructure, covering both route and stations.
HS1 System Sustainability Forum	An annual meeting between sustainability professionals and senior executives from HS1 and NRHS. Senior executives are updated on progress against the Sustainability Strategy and strategic direction. Other system collaboration groups feed into this, including the Station EAG and REACT, both of which are focused on managing and reducing energy use across the HS1 estate. Other HS1 system groups include the quarterly biodiversity working group and the quarterly system sustainability working group between HS1, NRHS, and TOCs, focused on identifying collaboration opportunities, sharing knowledge, and promoting best practice.	Continued to chair various system sustainability working groups to feed into the annual system sustainability forum meeting.
External Groups	HS1 participates in a number of external groups to help develop an approach to climate risks and share knowledge, these include: - RSSB Sustainable Rail Executive – champions an industry approach to making rail the leading mode of sustainable transport. - RSSB Sustainable Rail Leadership Group – enabling the rail industry to deliver a more sustainable railway through the adoption of the Sustainable Rail Blueprint. - RSSB Climate Change Adaptation Working Group – leads to a collaborative approach to weather resilience and climate change. - Transport Adaptation Steering Group – (TASG) TFL chaired group aiming at understanding and managing the risks of climate change in London.	Representatives from HS1 attended all the meetings held by these groups throughout the year. This included contributing towards a TASG project on climate change risk interdependencies. The output report will help inform future HS1 climate change risks and thus adaptation plans.

Table 1: Governance processes and key roles and responsibilities

Senior management have a core role in assessing and managing climate-related risks and opportunities. These are analysed by the engineering team and assessed by management in weekly dynamic risk reviews. The CCRA, undertaken by Willis Towers Watson (WTW), captures the external assessment of the impact of climate change on the HS1 infrastructure. This report is internally reviewed by management. Relevant updates on climate-related risks, mitigations, plans, metrics, and targets are included in various management reports at varying levels of the organisation and supply chain.

Strategy

HS1's strategy is to offer a low carbon travel option from London to Kent and onto Europe, this is reflected in our updated Sustainability Strategy which outlines how we work towards our 2030 vision.

HS1's CCRA considered the full HS1 infrastructure and value chain. This feeds into our asset management strategy. HS1 is regulated by the ORR on asset management and cost, which includes the climate change considerations. We report against our 5-year asset management strategy (5YAMS) and produce an Asset Management Annual Statement (AMAS) which is available on the HS1 website. The 5YAMS reassess the operating environment every 5 years. This ensures our climate-risk assessment is updated regularly, and our renewals plan is aligned. The station and railway infrastructure renewals are pre-funded by the train operators, based on the renewals program and anticipated investment requirements.

Within the 5YAMS, HS1 commits to being responsible asset stewards and we document how we will secure the asset as if it were our own for the next 40 years, beyond the life of the concession.

Our most recent 5YAMS assumed a 1.5 degree temperature increase over the next 40 years, to ensure we factored in the effects of the increase of temperature in our plans. This temperature increase assumption will be reassessed at the next regulatory review based on the latest climate data and projections.

Climate-related risks and opportunities

HS1 is ranked on the lower end of the risk spectrum. The direct business risk for HS1 of climate change is not deemed material with protections from the long-term asset funding model as described above. In our assessment of climate related risks and opportunities, we draw conclusions on behalf of the HS1 value chain over a 40-year time horizon. This includes NRHS, with whom we have a contract to operate, maintain and renew the railway. NRHS consider our risk assessment when planning their work.

Scenarios considered

Our CCRA considered various time scenarios for identifying and assessing climate-related risks:

- Short term (now to 2030): HS1 aims to reach net-zero energy emissions by 31 March 2031, and may incur costs of transition risks during this period.
- Medium term (2030 – 2040): HS1's concession expires in 2040, at which point the asset will return to the UK Government.
- Long term (2040 and beyond): This considers the useful life of the assets and infrastructure.

Using these time horizons, HS1 undertook scenario analysis in 2022 considering transition and physical risks for the whole system. This took place in workshops with WTW, who assisted Management. HS1 collaborated with NRHS to validate the underlying assumptions for this climate risk assessment.

HS1 identified and assessed 6 climate hazard exposures and potential risks to HS1's infrastructure, these include:

- Acute Hazards: Coastal Flood, River Flood, Windstorm
- Chronic Hazards: Heat Stress, Drought & Precipitation

HS1 considered a variety of potential temperature increases to assess physical risks. These were based on the Representative Concentration Pathway 'RCP' 2.6 = Shared Social Economic Pathway SSP1 (~ close to current climate conditions ~ 1.5 degree global warming) and the 'hothouse' scenario RCP 8.5 = SSP5(~ > 4deg C global warming).

Impact of climate-related risks and opportunities

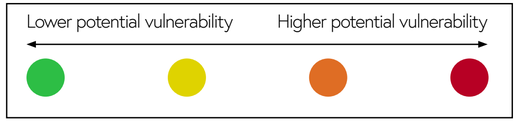
The assessment concluded that HS1's infrastructure has been designed to be resilient against severe low likelihood events (physical risks). However, it noted that we must review any potential vulnerabilities as such events may become more frequent in the future.

Overall, flooding (coastal and inland) was identified as the greatest risk, with coastal flooding driven by rising sea levels.

The following table summarises the physical climate hazard exposure to HS1 infrastructure assets. This shows that risk only becomes material in the longer term at the higher warming scenario.

	Current climate Now-2030	Low carbon world scenario (>1.5°C) 2040-50 and beyond	High greenhouse gas emissions scenario (>4°C) 2040-50 and beyond
Heat stress	Heat-stress is currently not a material exposure to HS1's infrastructure and the SE of England. Assets with potentially 1-5 days of heatwaves on an annual average	Heat-stress will pose a slightly higher exposure to HS1's infrastructure assets, but will broadly remain within the low exposure ranges	Hotter summers would expose many of HS1's infrastructure assets to potentially 5-20 heatwave days
Drought	Prolonged drought stress is currently not a high exposure to HS1's infrastructure	Prolonged drought stress will likely not evolve to become a material exposure	Prolonged drought stress will likely evolve to become a more material exposure. Potentially 3-4 months of drought conditions
Inland flooding	Localised exposure to HS1's infrastructure	Localised exposure to HS1's infrastructure	Potentially more widespread exposures to HS1's infrastructure, also owing to stronger tidal induced strain coupled with coastal sea level rise in regions close to the coast
Windstorm	Wide-spread winter and autumn storm exposure, which is typical for SE England and the UK as a whole	Likely broadly similar to the current climate exposures with a signal of climate change impact overridden by natural weather variability	Likely broadly similar to the current climate exposures with a signal of climate change impact overridden by natural weather variability
Coastal flood and sea level rise	Sea level has already risen 16cm since the start of the century with potentially localised exposures to HS1's infrastructure Infrastructure located in more central areas of London benefit from the current potential by the Thames Barrier	Further 10-30cm of sea level rise. This additional strain will likely reduce the overall protection by the Thames Barrier to central areas in London	Further 30-50cm of sea level risk around the UK. Additional strain on the Thames Barrier and a reduction in its protection for London

Table 2: Physical climate hazard exposure to HS1 infrastructure assets



Physical risk scenario analysis

HS1 conducted scenario modelling and considered the physical risks posed by hazard weather events with high severity, i.e. during a catastrophic (1 in 100) year.

The climate hazard vulnerability workshop assessed the vulnerability of certain assets within our infrastructure to these hazard scenarios. Although this is not based on a specific temperature increase, we expect such events to become more likely as global temperatures increase.

The impact on our asset and business was assessed using an empirical scoring system from 1 to 5 in Table 3.

Based on this assessment, it was found that for physical damage, trackwork type assets have the highest potential vulnerability to flood. This could be from either coastal or river floods, both identified as acute hazards by our scenario analysis.

We identified overhead lines and train stations as potentially vulnerable to physical windstorm damage. HS1 also indicated that Electrification Assets as well as cutting and retaining walls might potentially be vulnerable to physical damage caused by chronic hazards such as heat and drought stress. Cuttings and retaining walls may also exhibit precipitation stress.

We identified potential operational vulnerabilities to flood hazards for some of the tunnels, trackwork and lineside buildings. We also identified potential operational vulnerabilities to chronic hazards such as heat, drought and/or precipitation for trackwork, electrification and tunnels. However, HS1 mitigates the potential vulnerabilities to these more chronic hazards with stringent design measures.

Operational potential vulnerabilities to chronic hazards such as heat, drought and precipitation were particularly relevant for trackwork, electrification and tunnels. The results of the assessment are included in Table 4.

Potential vulnerability		Physical asset damage (% damage of replacement value)	Business disruption (days per annum)
Very Low (1)	0-5%	Easily repairable	>1
Low (2)	5-10%	Localised damage, short term repair possible	1-5
Medium (3)	10-20%	Considerable damage, parts needing realignment	5-10
High (4)	20-40%	High costs for repair. Inspections and tests required	10-30
Very High (5)	>40%	Most parts damaged beyond repair	>30

Table 3: Physical asset damage

		Physical asset damage				
	Aggregated asset classes	Flood	Windstorm	Heat stress	Drought stress	Precipitation
1	Tunnels	3	1	2	2	2
2	Cutting and retaining wall	3	1	3	3	3
3	Viaducts	2	1	1	1	1
4	Bridges and culverts	3	1	1	1	1
5	Signalling and telecommunications	2	2	1	1	2
6	Electrification (OHLE or ground electrification where applicable)	2	3	3	3	2
7	Trackwork (track, crossings, embankments, drainage)	4	1	2	2	2
8	Depots	2	2	2	2	2
9	Stations, buildings general and other structures	2	3	2	2	2
10	Line building	4	2	2	2	2

		Business interruption disruption impact				
	Aggregated asset classes	Flood	Windstorm	Heat stress	Drought stress	Precipitation
1	Tunnels	4	2	3	3	2
2	Cutting and retaining wall	3	1	2	2	3
3	Viaducts	1	2	2	2	1
4	Culverts	4	1	1	1	1
5	Signalling and telecommunications	3	3	2	2	2
6	Electrification (OHLE or ground electrification where applicable)	3	3	3	3	2
7	Trackwork (track, crossings, embankments, drainage)	4	2	4	3	3
8	Depots	3	3	2	2	2
9	Stations, buildings general and other structures	3	2	1	1	1
10	Line building	4	2	1	1	3

Table 4: Vulnerabilities to physical risks by asset class

Transition risks and opportunities

Transition risks relate to the HS1 system becoming carbon neutral by the end of 2030, in line with our targets. Based on the assessment, the high-speed line is considered to have a low to moderate level of residual transition risk exposure and could access several opportunities associated with the move to a low carbon economy.

The main scenario used for the transition risk assessment aligns with projections to keep global warming below +1.5°C above pre-industrial temperatures by the end of the century in line with the Paris Agreement. This follows the Intergovernmental Panel on Climate Change (IPCC) SSP1-1.9 scenario and is further supplemented by other low carbon scenarios, including the Network for Greening the Financial System (NGFS) and International Energy Agency (IEA).

We assessed key impacts of climate related risks as increased costs (profit and loss) and increased capex costs (balance sheet) for building energy efficiency upgrades such as air source heat pumps, and other energy efficiency / reduction projects. Due to the regulated environment in which HS1 operates, most of these identified costs are passed onto the train operators.

We concluded that the opportunities from energy transition, particularly through growth in demand for sustainable travel, outweighs potential physical and transition risks. However, risks cannot be eliminated entirely; increased costs (e.g. through energy prices or repairs from extreme weather events) would challenge the affordability of the infrastructure. We summarise these transition risks and opportunities in Table 5.

Table 5 summarises the financial impact of the risks and opportunities considered. Following the detailed CCRA, the risks were concluded as minimal for HS1 as a business. As we consider these risks immaterial, we have not considered climate risks in the preparation of our year end accounts.

Over 2024, we will embed the impact of climate into our long-term financial planning processes where material, and, as part of this work, will look to forecast the implications for long-term demand. This will be partially based upon our sustainability strategy, where we have already considered the impact of climate change. This indicated that there is also a major potential opportunity for HS1, through changing consumer preferences driving demand for sustainable travel.

Principle	Impact	Risk	Opportunity
Policy and legal			
Pricing of GHG emissions	HS1 is focused on constant reduction of GHG emissions, with our 2030 net-zero carbon energy target This includes replacement of gas boilers with electric boilers for 2025-30 and working with TOCs to reduce emissions through implementation of regenerative braking systems. Note that this would form part of energy costs passed onto TOCs.	Moderate (P&L)	
Enhanced emissions-reporting obligations	HS1 currently reports under TCFD voluntarily. Future obligations may require greater granularity, including on scope 3 emissions, increasing administrative costs for HS1. HS1 will continue to stay abreast of reporting obligations to ensure sufficient resources are in place to meet them.	Moderate (P&L)	
Mandates and regulation promoting a circular economy	Legal obligation to track emissions and waste management. There may be future targeted policies from the Department for Transport, UK, to help in directing research and investment to aid the rail industry to achieve net-zero by 2050. These costs would be considered as part of our 5-year regulatory submission.	Moderate (P&L)	Moderate (P&L)
Climate change litigation	HS1 places a high emphasis on regulatory compliance and is a relatively low emission business. The risk is considered to be low. These costs would be considered as part of our 5-year regulatory submission.	Low (P&L)	Low (P&L)
Technology			
Substitution of existing technology to lower emission options	This presents a risk and opportunity for HS1 including cost savings from greater energy efficiency. The risk is increased capex costs for building energy efficiency upgrades such as air source heat pumps. Alternative technology solutions that may become more viable relatively soon could help de-carbonise the rail network. These costs would be considered as part of our 5-year regulatory submission.	Moderate (P&L)	Moderate (P&L)
Market			
Changing consumer preferences	This presents a significant opportunity to HS1, based on the assumption that customers become increasingly climate conscious, leading to an increase in passenger numbers and revenue. This would occur through a modal shift from aviation to rail.		High (P&L)
Cost of capital	Credit rating agencies may factor sustainability into their scoring and lenders are increasingly considering environmental credentials in their decisions. HS1 is likely to benefit from a positive sustainability reputation, which may make it easier to attract investment and obtain better rates due to environmental credentials. HS1 may explore sustainability backed loans for future refinancing as this space develops over time.	Low (P&L)	Low (P&L)
Emissions Offset	HS1 is developing a strategy for carbon emission offsets. This is deemed to be a minor risk as HS1 is in the process of reducing emissions. Note that this would form part of energy costs passed onto TOCs and the strategy is assessed as part of the regulatory review.	Moderate (P&L)	
Increased cost of raw materials risk	HS1 continues to work with our supply chain to identify lower carbon materials. Crucial raw materials for HS1 such as steel and concrete will be heavily affected. This would be passed onto TOCs but could result in higher prices for passengers. To mitigate this, HS1 plans to review materials, to develop energy efficiency standards in construction, operation and maintenance and to purchase PPAs and REGOs. This form of renewable energy procurement ensures price security.	Moderate (P&L)	
Reputation			
Investment risk/ opportunities	Deemed to be moderate as a risk and opportunity. HS1 operates in a low emission sector and investors increasingly factor sustainability into their decisions. HS1 is investigating green financing options and actively works with partners to promote best sustainability practice.	Moderate (BS)	Moderate (BS)
Employee risk/ opportunities	HS1 is deemed to have a good approach to sustainability and climate change, which could help attract and retain talent.	Low (P&L)	Low (P&L)

Table 5: Transition risks and opportunities

Resilience of HS1's strategy to climate related scenarios

Our infrastructure, providing a low carbon travel option, supports the national targets to reduce carbon emissions. Research has shown that HS1 uses around 5.8 times less energy per passenger than an aircraft. This improves HS1's resilience to transition risks, as we anticipate increased demand for sustainable travel.

We have also considered our strategy's resilience to physical risks. The infrastructure on the HS1 route has been designed to a high standard and to withstand a 1-in 100-year event at time of design. This is reassessed as part of our 5-yearly regulatory review cycle where HS1 looks forward on a rolling 40-year basis and considers the climate risks as part of the renewals planning, we engage with several external organisations to identify methods to increase the resilience of our assets. The regulator ensures HS1 maintains a sustainable asset. This process minimises the risk of an unexpected impact from climate change.

Energy use and reduction

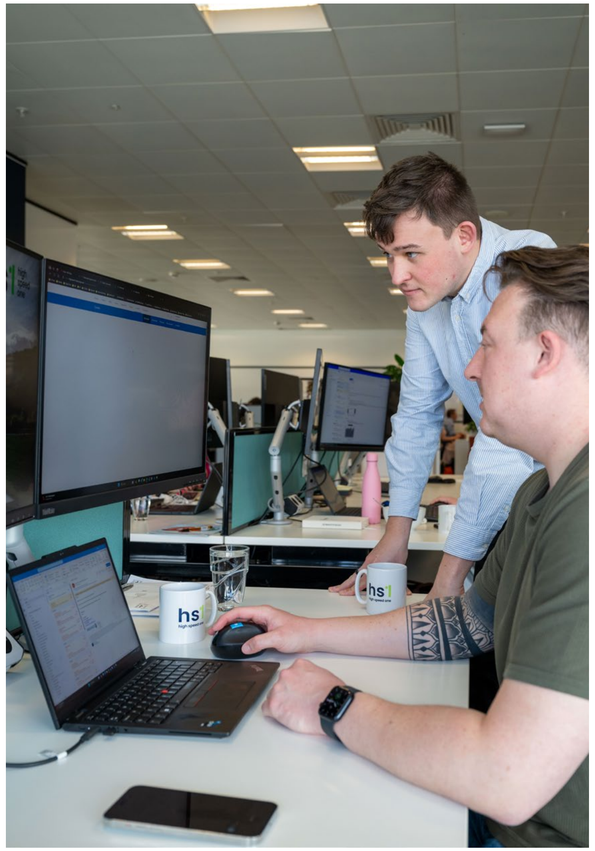
HS1 aims to mitigate the risk of increased energy prices for the TOCs by improving energy use efficiency. We continue to make good progress implementing the HS1 Sustainability Strategy. REACT is a collaboration between HS1's key supply chain partners, including NRHS and UKPNS, drawing on specialist knowledge from across our assets to support the implementation process for lineside energy reduction initiatives. HS1 also chairs an equivalent group focused on station energy reduction initiatives.

We are working with NRHS to implement station energy saving schemes including BMS optimisation and lighting and control upgrades. One of the measures introduced at St Pancras International this year included a demand-based supply of LTHW and CHW from secondary pumps. This enhancement alone resulted in a 47% reduction in energy usage for LTHW pumps and a 5% reduction for CHW pumps. This demonstrates the strategic and effective use of BMS enhancements for substantial energy conservation. We are also finalising our ESOS Phase 3 report which will help direct energy efficiency scheme funding for both route and stations.

HS1 is delivering its Electricity Procurement Strategy: we continue to reduce carbon from the energy we use to power the system, with 40% of our electricity secured via a CPPA. We are working to increase this over the rest of the decade with a second CPPA expected to be procured, subject to pricing. If the market conditions allow, this second CPPA will ensure that c.80% of the portfolio will be sourced from zero-carbon electricity by April 2025. HS1 is also investigating direct private wire and micro-generation (solar) schemes to further support its renewable sourcing. It is intended that any residual volume will be REGO backed (subject to affordability).

Research and Development (R&D)

We started a 1-year project in Summer 2023 with the University of Southampton to develop a mathematical model for track behaviour during high temperature events. The University has devised a laboratory experiment to build and test a track panel in a controlled laboratory. The results will inform a standard change around the track management in hot weather. There is an opportunity to interface with equivalent Railway Industry Association Network Rail Infrastructure Limited (NRIL) and Société Nationale des Chemins de Fer Français (SNCF) projects to benchmark performance and standards to address risk of extreme heat, which were identified as a potential vulnerability through our risk assessments.



Risk management

HS1 has a well-established risk management procedure that includes a weekly dynamic monitoring of emerging risks and a formal risk review process, as noted in Figure 2.

The Corporate Risk Register includes the consideration for climate change. Climate risk is approached in line with our existing risk framework which is based on ISO 31000. This initially occurs through quarterly monitoring at a directorate level and this feeds into regular reporting to the Audit and Financial Committee and the Board.

In line with the Climate Change Act 2008, HS1's CCRA report details how HS1 is managing climate risk and our proposals for adapting to climate change.

The report will be updated every five years and will take into consideration relevant emerging legislation. HS1 will undertake an external review of climate-related risks and opportunities and also assess progress against any recommendations made in the previous submission.

The review cycle is in line with the Climate Change Act's Adaptation Reporting Power (ARP) cycle. We completed our first transition and physical risk assessment in 2022. We intend to report under ARP4 noting that the cycle has been amended so that there is only four years between phases 3 and 4, before returning to a 5-year cycle. The change in the reporting cycle is of benefit to HS1 as it will closely align with our regulatory review planning cycle which is how system funding is determined. Between the five-year reviews, we horizon scan for risks and opportunities (both physical and transition) annually and ensure we respond effectively and proportionately to assessed climate related risks.

We are developing a Climate Change & Adaptation strategy ahead of our ARP4 report, to be published by the end of 2024.

Figure 2: HS1 risk register governance process

Metrics and targets

The ESG report contains all metrics, targets and their rationale. Electricity use was the largest contributor to our carbon footprint in FY24 and addressing this has been our priority in reducing our overall emissions. Under the Paris Agreement, the UK is committed to reducing emissions by 68% compared to 1990 levels and reaching net-zero emissions by 2050. HS1 has a target achieve net-zero carbon energy by 2030/31, which is ahead of the Paris Agreement.

Our Energy Strategy includes robust plans to tackle scope 1 and 2 emissions and plans are being developed to reduce scope 3 emissions based on our CFA alongside an Adaptation Strategy based on the results of our CCRA. We are also focused on reducing carbon emissions from traction energy through R&D projects, such as regenerative braking.

Scope 1 emissions account for 6.5% of the emissions under HS1's direct operational control (SECR boundary). This year, scope 1 emissions decreased by 15% to 974 tCO2e as a result of ongoing Building Management System enhancements across our estate.

HS1's Scope 2 location-based emissions represent 85% of emissions under our direct operational control (SECR boundary). As discussed in the Strategy section, we continue to progress energy reduction initiatives, working with our partners to identify and implement energy efficient measures. This year scope 2 emissions increased by 6% despite a decrease in electricity consumption. This is due to an increase in the national grid emission factor.

Scope 3 emissions account for c.70% of our entire carbon footprint (extended scope analysis). The target net-zero date for scope 3 emissions is to be confirmed, as we are wholly reliant on our supply chain to deliver this reduction. We will continue to refine our method of scope 3 calculation, and reduction plans, over the coming years.

HS1 obtain emissions data from an independent contractor (Ascentia Carbon Management Limited) and Achilles, a leading Environmental Information Services provider, who issue a Carbon Reduce certification. This includes an independent audit to verify the information is accurate and complete. This is a continuation of the process that HS1 has been following for its SECR within the financial statements. For energy use, HS1 obtain figures directly from energy suppliers. HS1 obtain data on energy use directly through meter readings.

Performance data

See Appendix 1. Further information on our FY24 emissions performance is detailed in the ESG report and Sustainability Report published on the HS1 website.

Appendix 3 – United Nations Global Compact Alignment

The following pages outline the progress that HS1 has made against the Ten Principles of the United Nations Global Compact (UNGC). We continue to develop our governance and reporting approach around human rights, labour, environment, and anti-corruption, and will explore submitting an enhanced Communication on Progress to the UNGC in future years.

Principle	Actions/activities
Human rights	
1. Businesses should support and respect the protection of internationally proclaimed human rights.	HS1's operations are exclusively within the UK where human rights compliance is robust through legal and enforcement frameworks. Our Tier 1 supply chains are based in the UK with some extended supply chains reaching into Europe, predominantly France. HS1's internal Business Ethics Committee is developing a Business Ethics Strategy which will dovetail with the Sustainability Strategy, the Safety & Assurance Strategy and the People Strategy. We will also consider how we can improve human rights in the communities we serve as we deliver against our 2024 Social Value Framework. We will use the 10 UNGC Principles to support this process, validate our position and frame our action.
2. Businesses should make sure that they are not complicit in human rights abuses.	HS1 takes human rights seriously. Our direct operations are solely located within in the UK where legislation supports the eradication of human rights abuse. To support this, we have a stringent compliance regime which is monitored by the Business Ethics Committee. This is an internal group with membership from across the business. The group supports the continual improvement of relevant human rights related policies which include providing training to all workers. We also undertake audits of our supply chain in order to confirm that there are no breaches of the Modern Slavery Act. We publish a statement annually regarding our progress to ensure the businesses we work with are not compliant in human rights abuses.
Labour	
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	HS1 directly employs a small workforce of around 60 people and while it doesn't recognise any trade unions, it does consult extensively with its employees. HS1 has established an Employee Engagement Forum which acts as the voice of all employees. The group communicates with all employees through direct and confidential mechanisms and works with senior management to address any concerns.
4. The elimination of all forms of forced and compulsory labour	An internal group, the Modern Slavery Steering Group, has been functioning for several years with membership representing all aspects of the business. Their remit involves monitoring modern slavery compliance, identifying and embedding good practice in the protection of forced labour and in compliance with the Modern Slavery Act. HS1 has an up-to-date modern slavery policy which applies directly to staff and indirectly to our supply chain and we publish an annual modern slavery statement. Our Modern Slavery Group will be absorbed by the Business Ethics Committee in 2024. In our contracts we have either specific clauses requiring compliance with modern slavery laws (where applicable to the subject of the contract) or a general compliance with laws clause. In our contracts, we have contractual commitments from our suppliers to comply with modern slavery laws. We also vet a range of potential supplier's policies and procedures which include those related to ESG as part of the procurement process before they are placed on the HS1 approved supplier list.
5. The effective abolition of child labour	HS1 complies with UK child labour laws and does not condone child labour. Employment practices at HS1 comply with the International Labour Organisation's (ILO) conventions on minimum ages and the elimination of the worst forms of child labour. Our recruitment process involves stringent identity checks which include dates of birth. Our supply chain contracts adhere to the UK law. Should it be identified that a child is working for HS1 or our supply chain, the instance will be investigated, and appropriate action taken. HS1 is actively involved in industry sustainability frameworks from strategic to delivery. We contract with the BTP and through this we maintain a strong relationship with law enforcement. HS1 operates a business ethics committee which addresses a range of topics including the abolition of child labour.
6. The elimination of discrimination in respect of employment and occupation	HS1 has robust people and safety strategies which drive continual improvement and cover all aspects of principle 6. To support these strategies, we have policies and procedures to address recruitment and access to training and advancement. We hold the We Invest in People accreditation and Inclusive Employers certification to demonstrate our commitment to inclusivity. We have recently reviewed our job descriptions and ensure that we encourage applications from all parts of society. Over the last year we have provided soft skill training for our entire workforce in line with our membership with Inclusive Employers. Ensuring that our employees understand how to make use of grievance and whistleblowing procedures to report discrimination in all its forms. We promote personal development and through our social sustainability objectives we will be actively encouraging the development of STEM occupations for the railway of the future. Our safety policies consider the needs of individuals and where necessary we implement specific working practices to support workers and visitors with disabilities. As we develop our community plans for enhanced social sustainability, we will incorporate the UNGC community related principles.

14 htvtps://www.unglobalcompact.org.uk/the-ten-principles/

Principle	Actions/activities
Environment	
7. Businesses should support a precautionary approach to environmental challenges	'Prevention rather than remediation' is the key principle of a precautionary approach. The operational elements of our business are outsourced to competent contractors who all hold ISO 14001 Environmental Management System Requirements certification. In addition, we have developed a suite of standards, governing environmental aspects such as waste production, material selection and energy use in projects and conduct additional assurance activities with our supply chain to ensure that they are meeting with best practice. Our team take an active role in industry environment and sustainability related working and leadership groups and support research, development and innovation in this area. In 2021 we completed a full CCRA for our infrastructure and have committed to submitting a fourth round Adaptation Reporting Power report in 2024. Subsequent adaptation strategies will increase HS1's resilience to the future impacts of climate change. For oversight, the Board Safety Committee includes environment and sustainability within its remit.
8. Undertake initiatives to promote greater environmental responsibility	Sustainability is a core HS1 value and we have a duty to protect and enhance the environment as responsible asset stewards. Our first Sustainability Strategy was published in 2020, outlining six priority areas and targets out to 2030. In 2023 we republished this strategy, having reviewed our targets to ensure that they remain relevant and ambitious. We have established various supply chain working groups focused on key environmental priorities and have established a supply chain sustainability charter for our railway system. We report progress against our strategy within our annual ESG report and TCFD aligned report. We also hold quarterly sustainability meetings with our customers and an annual sustainability steering meeting with senior supply chain partners to share progress and drive continual improvement.
9. Encourage the development and diffusion of environmentally friendly technologies	HS1 stipulates minimum requirements in our contracts and are reviewing our procurement processes to ensure that they align with our sustainability ambitions. In addition, we encourage innovation and horizon scanning for new technology that will help deliver our sustainability strategy targets. In recent years we have facilitated regenerative breaking technology for the Class 395 fleet, installed a Mobile Waste Segregation Unit in St Pancras International and are currently developing detailed designs for heat pumps in our stations. We share best practice through industry publications and working groups.

Principle	Actions/activities
Anti-corruption	
10. Businesses should work against corruption in all its forms including extortion and bribery	We have robust Anti-Bribery and Corruption (ABAC) policies and procedures in place. All our suppliers are required to comply with ABAC laws. When taking on suppliers, as part of the procurement process, we ask to view ABAC policies and procedures. All employees are required to undertake mandatory training relating to (amongst others) ABAC. In terms of our key suppliers, we undertake an annual assessment of their compliance with business ethics which includes modern slavery, labour practices and ABAC. This involves a meeting and a review of their policies and procedures with interaction and debate on any key issues that may have arisen during the year or sharing of best practice and compliance.