Delivering the Green Gateway to Europe

Our ESG Report 2021/22

Contents

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Foreword

Almost two years on from the publication of our Sustainability Strategy, our mission to deliver the Green Gateway to Europe - the most sustainable transport option for travel from the UK to the Continent - is in full swing.

Dyan Crowther OBE
CEO, High Speed 1 Ltd

This has been a pivotal year for sustainability at High Speed 1 Ltd and, working with our partners, I'm pleased with the progress made and the results achieved.

It has also been exciting to begin work on delivering our ambition to bring about an additional modal shift of 4.9 million journeys from planes and cars to high-speed rail every year. This work is vital for the good of our planet and economy.

We began outlining this position on the global stage when we hosted a workshop at The World Climate Summit: The Investment COP at the United Nations Conference of the Parties (COP26), in November 2021. We built on the success of this a few months later when we hosted the Kent Rail 'COP' in Ashford in March 2022, where local stakeholders came together to discuss how we could achieve a modal shift in Kent specifically. Putting these ideas into action will now be a key focus for the business and HS1 system going forward.

As with our first Environmental Social Governance (ESG) Report, COVID-19 has impacted our progress and reporting, but we continue to focus our efforts on ensuring high-speed rail is at the forefront of a green recovery for the good of the UK's transport system.

I'm looking forward to seeing what the team and our wider network and partners can achieve in the year ahead.

Some of the highlights from the past 12 months

Collaborating with our partners to implement regenerative braking on rolling stock to reduce net energy consumption.

Regenerative braking is expected to deliver around 19,500MWh and 4,155 tCO_2e savings per year on the domestic fleet.

Approval of our net zero plans by the Science Based Targets initiative (SBTi).

Achieved 736 hours of staff volunteering.

"HS1 continues to demonstrate sustainability leadership in its development of initiatives which strengthen the credentials of rail as a sustainable form of transportation. We are highly supportive of HS1's efforts to capture ESG data, establish objectives for improvement, and implement actions to achieve these on an annual basis. This approach is well aligned to our priorities as a responsible investor, and we look forward to engaging on the further development of HS1's sustainability strategy throughout the year ahead."

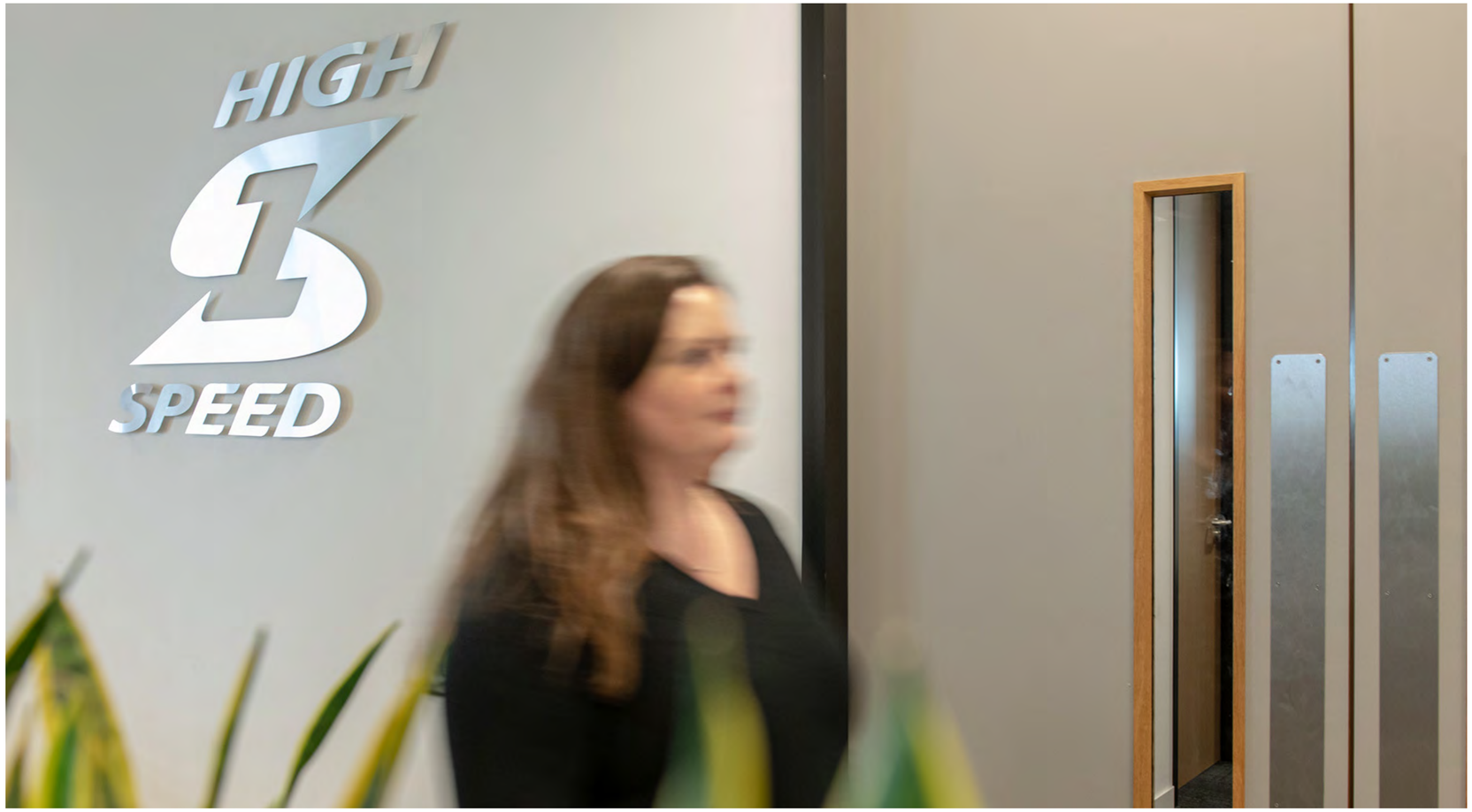
Hugh Crossley
CEO Equitix

"It is very encouraging to see another year of significant progress for HS1 against its sustainability agenda. The company has undeniable social and environmental credentials as it connects communities and provides the UK's only green gateway to Europe. HS1 continues to go the extra mile to integrate sustainability into every aspect of its operations, which is a strategy we endorse wholeheartedly."

Werner von Guionneau
CEO InfraRed Capital Partners

Glossary

BNG	Biodiversity Net Gain
BMS	Building Management System
CCRA	Climate Change Risk Assessment
CCRI	Coalition for Climate Resilient Investment
CPPA	Corporate Power Purchase Agreements
COP26	United Nations Conference of the Parties
EDI	Equality, Diversity and Inclusion
ESG	Environmental Social Governance
ESOS	Energy Savings Opportunity Schemes
EV	Electric vehicle
FWI	Fatalities and weighted injuries
GIS mapping	Geographic Information System Mapping
GRI	Global Reporting Index
HS1	High Speed 1 Ltd
KPI	Key performance indicator
NRHS	Network Rail High Speed
PIUs	Pending Issuance Units
REGO	Renewable Energy Guarantee of Origin
RCP	Representative Concentration Pathway
RSSB	Rail Safety and Standards Board
SBTi	Science Based Targets initiative
SECR	Streamlined Energy and Carbon Reporting
SDG	United Nations Sustainable Development Goals
SIMD	Singlewell Infrastructure Maintenance Depot
SSSI	Site of Special Scientific Interest
TCFD	Task Force on Climate-related Financial Disclosures



OUR PURPOSE

Achieving our vision

High-speed rail is a key enabler to a low carbon economy through mass transport capacity and intercity routes. The HS1 infrastructure provides a low-carbon alternative to air travel and air freight between the UK and Europe and across Kent. At HS1, we aim to be the world's leading sustainable high-speed rail experience and green gateway between the UK and Europe.

To achieve our goal, HS1 created a 2030 Vision based on four key pillars: Contemporary, Agile, Sustainable and Trusted. Within the 'Sustainable' pillar sits our Sustainability Strategy – our plan to deliver the sustainable element of our 2030 Vision. This strategy is designed to create a more sustainable and environmentally friendly future and develop the green gateway to Europe and Kent. We will be working closely with our partners to deliver improvements to the rail industry and promote best practice.

The transport sector is acutely exposed to the risks of climate change. Based on our early evaluation of the transition risk, we are well placed to support the national and regional transition away from carbon intensive transport options. We are setting ambitious targets and working with our supply chain to help limit the future consequences of climate change.

OUR PERFORMANCE

Our performance and priorities

Our annual HS1 ESG report includes data and metrics for all key areas of sustainability and our impact on the natural environment.

This is our second ESG report, demonstrating our commitment to our ESG journey. Our priority areas are where we can make the greatest operational progress and are aligned with the Sustainable Development Goals (further detail is included on page 46). This report highlights each of our six sustainability priorities, detailing what we have delivered, lessons learnt and our objectives for 2022/2023. Each priority area is accompanied by a roadmap which shows our ambitions for the coming years.

It is important to note that COVID-19 continued to significantly impact our business in 2021/22; we have ensured that our metrics are representative and accurate, considering both positive and negative COVID-19 influences.

Our 2030 Vision and Sustainability Strategy outlines how we will operate in a sustainable manner. We are clear about what we want to deliver and will be working closely with partners to promote best practice and provide improvements to the rail industry. We will support our customers in providing more sustainable travel, facilitating a modal shift from planes and cars to high-speed rail.

Our sustainability priority areas

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

Our Sustainability strategy

This timeline displays our sustainability targets through to 2030.

2022

2023/24
- 90% recycling of operations and project wastes
- Estate wide energy performance reports
- Commence TCFD reporting

2024/25
- Climate adaptation and mitigation plans developed
- No net loss assessed
- TCFD compliant

2025/26
- Measurable social impacts reported publicly
- Traction energy 100% net renewable
- Broader circular economy opportunities
- Report biodiversity net gain through to 2030

2030
- Deliver 20% biodiversity net gain by 2030
- Net zero carbon

Our 2021/22 performance at a glance

The table outlines HS1's progress against our current strategy, split by sustainability priority. Progress is qualitatively evaluated against the level of implementation of our previous strategy. HS1 will continue to monitor our progress and update the strategy in line with best practice and industry standards.

Key facts and figures are included in Appendix 1.

Sustainability priority	2021/22 performance	Progress against our sustainability strategy	Commentary
Transparency	Reported **zero environmental incidents** **Developed** our Task Force on Climate-related Financial Disclosures (TCFD) reporting mechanisms	●●○○○	We disclose information on our performance and report at regular intervals to our stakeholders. We have developed our internal mechanisms to report against TCFD ahead of our requirement to be fully compliant in 2024/25.
Climate change and adaptation	**58% decrease** in net carbon emissions compared to 2020/21 (including REGOs) **15% reduction** in Scope 1 emissions (location based, not including REGOs) **77% increase** in scope 2 traction based emissions (location based, not including REGOs) **67% increase** in scope 3 wider emissions (location based, not including REGOs)	●●●○○	We are making good progress in reducing emissions and our reliance on non-renewable forms of energy following increases in footfall to almost pre-pandemic levels.
Energy management	**15% reduction** in gas use due to system optimisation **95% increase** in electricity use due to traction infrastructure losses now being included in Scope 2 boundary*	●●●○○	We are making progress to reduce energy use and increase energy efficiency overall, against a backdrop of an increase in travel following the easing of lockdown restrictions. In addition, we are progressing Corporate Power Purchase Agreements (CPPA) to purchase renewable energy.
Biodiversity	**135 biodiversity habitat areas (tiles) assessed,** condition improvement of 5 tiles which is equivalent to 4 ha **1.2% biodiversity net gain** (BNG) against 2020/21 baseline	●○○○○	We are currently at the start of the new biodiversity programme, in collaboration with the Kent Wildlife Trust. We are in the first year of a ten-year programme to support and enhance the habitat in which we operate and build on the 2020/2021 baseline.
Resource use and waste impacts	**721 tonne increase** in waste generated compared to 2020/21 **54%** of waste is recycled **231% increase** in water consumption since 2020/21 due to increase passenger numbers	●●○○○	As we experience the easing of lockdown restrictions, we are engaging further with our supply chain to reduce waste production and increase the % of waste recycled. We will continue to investigate ways to improve water efficiency.
Social value	**16** Senior Management Team Safety and Security Tours undertaken. **736 hours** of staff volunteering, 48% employee participation in volunteering **100%** of respondents in the 2022 employee survey believe HS1 takes sustainability seriously	●●●●○	We have successfully reached our target volunteer hours in contributing to local communities. We will review these targets to contribute positively to social value in the future including supporting our staff, improving social mobility, engaging with our communities and protecting HS1's assets.

*The reporting boundaries have changed, and traction losses are now included within the Scope 2 boundary and will remain within this scope from hereon.

Task Force on Climate-related Financial Disclosure reporting

Over the past year, HS1 has been creating and developing internal mechanisms to report against the Task Force on Climate-related Financial Disclosure (TCFD).

The HS1 Board provides oversight on climate-related risk and opportunities, as a strategic risk for the business to manage. The Board endorses the business strategy and stated purpose, which unambiguously prioritises sustainability. For HS1, sustainability includes climate change and adaptation, which comprises both our net-zero ambition and ensure that our infrastructure remains resilient to the impacts of extreme weather.

HS1 has developed a Transparency Roadmap to meet this upcoming statutory requirement, reporting against the following: governance, strategy, risk management, and metrics and targets. This proactive approach will enable us to report against these requirements and takes steps towards being fully TCFD compliant in 2024/25. TCFD metrics have been incorporated within our key performance indicators (KPIs) to ensure we are aligning our performance with this framework.

TCFD disclosures are centred around four themes, including Governance, Strategy, Risk Management and Metrics and Targets. HS1 are reporting against 9 of the 11 recommended disclosures within these themes. Further detail on progress against TCFD is included in Appendix 2.

HS1 TCFD Reporting

TCFD Disclosure	
Governance	
Disclose the organisation's governance around climate related risks and opportunities.	
a) Describe the board's oversight of climate-related risks and opportunities.	✓
b) Describe management's role in assessing and managing climate-related risks and opportunities.	✓
Strategy	
Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.	
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.	✓

TCFD Disclosure	
Risk Management	
Disclose how the organisation identifies, assesses, and manages climate-related risks.	
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	
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	
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) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (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.	✓

✓ Successfully implemented ○ In progress

SPOTLIGHT: OUR SIX PRIORITIES

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

Our six priorities: Transparency

We aim to clearly disclose the impact of HS1 on our local environment and communities through regular reporting. To ensure transparency, we have robust monitoring systems that measure and track our progress and monitor performance.

Transparency

Our ambition

HS1 has developed strong values to help mould its culture and guide its actions. Ethics are at the heart of HS1's relationships with our employees, partners and stakeholders and we are adopting a strong framework to fulfil the Group's integrity and transparency responsibilities.

We report our progress annually to our investors, partners and stakeholders, demonstrating how we are achieving targets with collective action.

Targets

- Ensure full compliance with relevant environmental regulatory requirements and underpin with monitoring systems.
- Report progress annually to inform investors, partners and stakeholders.
- Embed Resilience Plan reporting, including TCFD reporting requirements.

Actions taken in 2021/22

- Published our first annual ESG report and shared our sustainability progress in periodic reports and Board meetings and undertook periodic KPI reporting.
- Undertook dashboard reporting across themes and directorates.
- Reported zero environmental incidents.
- Investigated sustainability-linked finance products and completed a horizon scan of other green finance requirements.
- Developed our TCFD reporting mechanisms.
- Undertook GAP analysis for ISO 20400: Sustainable Procurement.

Focus for 2022/23

- Continue to mature dashboard reporting across the Sustainability Strategy themes and directorates and continue to create mechanisms to further mature TCFD data collection ready for external reporting in future periods.
- Review of the Sustainability Strategy to ensure it is still relevant and extend it to 2035.
- Explore membership of the United Nations Global Compact.

CASE STUDY

Kent Rail 'COP'

As custodians of one of Kent's most significant and most sustainable transport assets, we want to continue leading the debate on driving the modal shift to sustainable travel.

Local Kent politicians, business leaders and green groups convened in Ashford in March 2022 to discuss ways to increase passenger usage on the HS1 line and remove cars from Kent's roads after new independent research found that if the high-speed line in Kent reached its full potential, HS1 would remove an additional two million car trips from the roads of Kent and East Sussex. This change would bring enormous environmental benefits to the region, including better air quality and reduced greenhouse gas emissions equivalent to over 18,500 tonnes of CO_2e, or £47 million of environmental benefits, from 2025 to 2035.[1]

Hosted by HS1, Southeastern and Damian Green, MP for Ashford, attendees documented their ideas on our World Climate Summit 'ideas wall', which encompassed themes such as the customer experience, ticketing, cost incentives, end-to-end journeys, route, product and partnerships. Since the summit, we have taken several of these suggestions and started to explore ways to address them.

1 Steer, 'HS1 supports Kent in achieving its net-zero objectives', March 2022

“Operating our railway in a sustainable way is key to our business but doing so in a credible way is essential, and there is continual challenge to make sure we have delivered what we said we would. We have now embedded our ESG Report into how we do business, and I am proud to tell people about the great work HS1 is doing to further improve our sustainability credentials.”

Richard Thorp
Engineering and Sustainability Director, HS1 Ltd

CASE STUDY

COP26

HS1 was immensely privileged to participate in the Conference of the Parties (COP26) World Climate Summit, held in Glasgow in November 2021.

HS1 was a partner of the World Climate Summit: The Investment COP, a side event that runs in parallel with COP. The Investment COP is a leading forum for business and investment-driven solutions to climate change, supporting the UN Global Climate Action Agenda. The event included a call for a modal shift of 4.9 million people from planes and cars to high-speed rail per year to prevent 450,000 tonnes of CO_2 from being released. It brought together investors, policymakers and activists across the public and private sectors. These groups aim to drive solutions, investment and legislation to tackle the climate crisis, providing HS1 with an opportunity to build on its ongoing commitment to provide a sustainable transport in the UK and into Europe.

Our CEO, Dyan Crowther OBE, also took part in a panel discussion looking at pioneering approaches to decarbonising the transport system – specifically highlighting the important role high-speed rail has as one of the most sustainable modes of transport already and the need to focus on encouraging more people and businesses to use it.

Roadmap to 2030: Transparency

Operating transparently is important to us to ensure we are demonstrating the impact of our organisation on our environment and the communities in which we operate.

Our regular reporting, against accredited benchmarks and standards, demonstrates our commitment to monitoring. Sharing key metrics allows us to track progress for years to come.

Monitoring systems

To underpin all our sustainability targets, we will have monitoring systems set up and in operation.

100% compliant

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

Report and inform

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

Insight: Adaption Power Reporting Phase 3

HS1 has voluntarily reported under Adaptation Power Reporting phase 3 as set out in the Climate Change Act 2008.

The reporting required a full Climate Change Risk Assessment to be undertaken and submitted to DEFRA so that our climate risks, mitigations and adaptations could be considered at a national level to understand the UK's overall climate resilience.

HS1 engaged and supported cross industry groups in the development of best practice for climate change risk assessments across transport infrastructure owners. This also provided the opportunity to understand our interdependencies.

Sustainable Rail Strategy
We are delivering on the Sustainable Development transparency and maturing TCFD reporting mechanisms.

2022/2023
Set up TCFD framework and publish TCFD-aligned disclosures.
Explore UN Global Compact membership.

2023/2024
Customer and supplier sustainability charters published.
Progress TCFD reporting.

2024/2025
TCFD compliant.

2025/2026
Reassess and identify further best practice (linked to procurement and green financing).

2027/2028
Implement further best practice.

2030
Ensure reporting remains effective and is aligned with best practice.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Our six priorities: Climate change and adaptation

We understand that our railway has an impact on the environment. Therefore, we strive to operate to the highest sustainability standards to minimise our environmental impacts. Over the past year, HS1 has implemented policies and strategies to reduce our emissions and maximise our use of renewable energy.

Achilles Carbon Reduce Certified Powered by Toitū Envirocare

Climate change and adaptation

Our ambition

The transport industry was responsible for 27% of the UK's greenhouse gas emissions in 2019, the largest emitting sector[2]. Taking active measures to protect the environment is a strategic priority for HS1 and we aim to lead the way in terms of direct emissions (scope 1 and 2) with a target of net-zero by 2030.

HS1 aims to elevate the sustainability of our activity by working with our supply partners to drive decarbonisation in their supply chains and reduce their emissions (scope 3). HS1 currently has an electric vehicle (EV) strategy for our car parks with plans to install EV charging infrastructure at these locations. HS1 is working with our supply chain partners to develop an EV strategy for their vehicle fleets.

We understand running our railway has an impact on our environment and contributes to the UK's carbon footprint. To try to minimise our impact, we have set ambitious targets to support the Sustainability Strategy themes and directorates and continue to create mechanisms to further mature TCFD data collection ready for external reporting in future periods.

Targets

- Traction and wider energy to be net-zero by 2030
- HS1 non-traction energy use to be net-zero carbon impacts by 2030. HS1 non-traction energy use to be net-zero carbon impacts by 2030.

Our performance

This table summarises HS1's carbon emissions from 2020 to 2022.

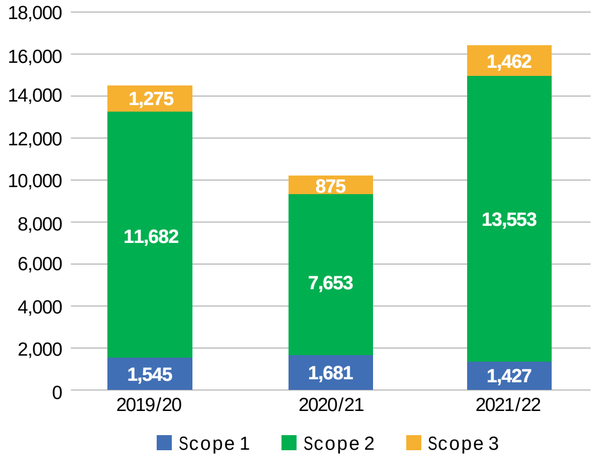
The table and graphs overleaf show changes in location and market based emissions from 2019 to 2022. A location based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data). A market based method reflects emissions from electricity that HS1 has purchased through contractual arrangements, maximising renewable sources where possible. It is HS1's policy to publish location based emissions even at times when we are purchasing renewable energy. This is to ensure that Scope 1 and 2 emissions remain a priority for reduction activities even when the net emissions are eliminated through renewable energy sourcing.

2020/21		2021/22
10,209 tCO_2e	Total gas emissions	2,889 tCO_2e
7,365 tCO_2e	Total carbon offset due to Renewable Energy Guarantee of Origin (REGO)/ CPPA	13,553 tCO_2e
2,844 tCO_2e	Net emissions	2,889 tCO_2e*
80%	Carbon savings with offset	82%
0.362 kg CO_2e	CO_2 per user using net emissions	0.113kg CO_2e
0.271 kg CO_2e	CO_2 per user in non-covid year	0.271 kg CO_2e

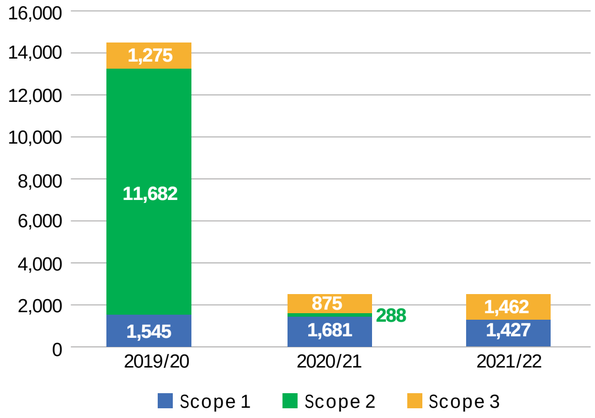
* 2% increase due to an increase in footfall (traction activity and building use after coming out of lockdowns). Traction losses included into Scope 2 emissions (net emissions including effects of REGO purchase)

2 Department for Transport, 2021. Transport and Environmental Statistics 2021 Annual Report. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984685/transport-and-environment-statistics-2021.pdf

Scope 1, 2 and 3 location based emissions, 2019-2022



Scope 1, 2 and 3 market based emissions, 2019-2022



	2020/21		2021/22
Locations based (tCO_2e)	1,681	Scope 1 emissions	1,427
	7,653	Scope 2 emissions	13,553
	875	Scope 3 emissions	1,462
	10,209	Total gross emissions	16,442
Market based (tCO_2e)	1,681	Scope 1 emissions	1,427
	288	Scope 2 emissions	0*
	875	Scope 3 emissions	1,462
	2,844	Total gross emissions	2,889

*Market based scope 2 emissions had net zero values as all electricity was purchased from renewable sources via REGO agreements

Scope 1-3 emissions definitions

Scope 1: Direct emissions from owned or controlled sources.

Scope 2: Indirect emissions from the generation of purchased electricity, steam, heating and cooling.

Scope 3: All other indirect emissions that occur in a Company's value chain.

Carbon management

Our ambition

In 2020/2021, we established our carbon baseline. This allows us to compare our performance to date and understand which areas of our business contribute most to our carbon impact and create carbon hotspots. This information will allow us to develop strategies to reduce our carbon impacts.

Actions taken in 2021/2022

- Commenced development of a renewables plan to transition away from gas at three stations and Singlewell Infrastructure Maintenance Depot (SIMD).
- Continued to implement our EV strategy across our network for supply chain and service users.
- Key projects have begun installing EV charging points at various locations including the St Pancras International multi-story car park.
- Contracts/leases to include a requirement for an ISO14001 compliant Environmental Management System which sets out the criteria for an environmental management system.
- Assessed climate change risks to support the TCFD reporting framework.
- Assessed freight opportunities with the freight community to support a model shift to high-speed rail.
- Pollution reduction plan and pathway implementation underway.
- Progressed CPPAs.
- Science Based Targets validated by SBTi.
- Reduction plan for scope 1 and 2 emissions implemented.

Focus for 2022/23

- Pilot the Rail Carbon Tool on an appropriate project.
- Continue to develop an internal carbon price.
- Continue to roll out the installation of EV charging points in line with our EV strategy.
- Develop costed mitigation and adaptation plans following the CCRA.
- Work with freight operators to develop a solution to support the business case for a modal shift to high-speed rail.

“It has been a busy couple of years developing our Energy Procurement Strategy with delivery partners and progressively working on the long-term approach to securing zero carbon energy for HS1 and our customers. It is satisfying that the reduction in carbon emissions demonstrates that we are playing our part in the transition to a zero-carbon world”

Jon Boucher
Head of Key Supplier Contracts, HS1 Ltd

CASE STUDY

Coalition for Climate Resilient Investment (CCRI)

CCRI led a COP26 initiative to advance solutions for integrating physical climate risks in decision-making. This initiative aims to address the physical climate risks that economies, society and communities are experiencing due to the current mispricing of physical climate risks in investment decision making. The CCRI’s vision is for all investments to integrate physical climate risks by 2025.

The CCRI undertook a HS1 climate resilience study, which involved a climate hazard assessment, a materiality assessment, a scenario analysis, and a scenario costings and benefits exercise. The study developed scenarios for rails buckling due to heat and the railway flooding due to increased rain/coastal flooding. The study identified that the HS1 infrastructure was designed with adverse weather in mind but did identify climate resilience measures for consideration by HS1.

CASE STUDY

Project Peatlands: Support our shops, protect our peatlands

One of HS1's stations St Pancras International has partnered with Forest Carbon to help protect the UK's peatlands through supporting nature-based climate solutions and developing and maintaining peatlands.

Healthy peatlands host a diverse ecosystem of mosses, insects, amphibians, plants and fungi. Peatlands are some of the most carbon-rich terrestrial ecosystems on earth, storing up to 30 times more carbon per hectare than a healthy tropical rainforest. They have a huge role to play in creating carbon sinks which can help mitigate the impacts of climate change.

For every purchase made in shops at St Pancras International since 29th June 2021, HS1 donated to the restoration of the Gameshope Lock peatlands in Scotland through the purchase of Pending Issuance Units. On average, for every four sales at the station, a projected 1kg of carbon dioxide will be prevented from being released into the atmosphere.

In September 2021, HS1 installed a temporary exhibit in the station concourse to allow commuters to visualise a kilogramme of carbon dioxide. The feature helped share the benefits of the restoration project, educating people about the importance of peatland ecosystems for both biodiversity and carbon reduction. HS1 upcycled this installation to demonstrate the carbon benefits of high-speed rail in November 2021, promoting circularity.

Between June 2021 and March 2022, the project has prevented a projected 1,810,979 kg CO2e from entering the atmosphere through the restoration work. The project aims to prevent a projected 3,000,000 kg CO2e from being released into the atmosphere by the end of 2022.

Roadmap to 2030: Climate Change

Over the past year, HS1 has implemented our green energy procurement strategy which includes energy reduction, energy efficiency and sourcing energy from renewable generation.

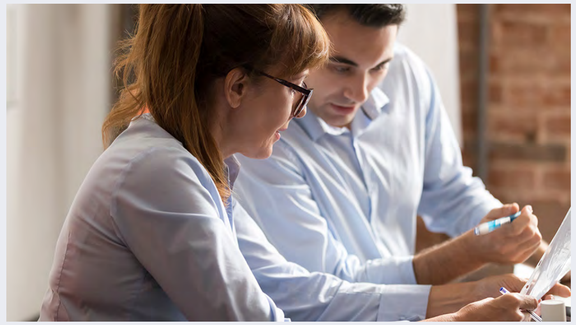
Reporting against TCFD allows us to understand our climate-related financial impacts to ensure we are reducing our impact on an annual basis. HS1 reports net zero emissions for the trains and electricity we use to power our stations.

Net zero carbon

Both traction energy (used to power trains) and HS1 non-traction energy use (wider estates and buildings) to be net zero carbon impact by 2030.

Insight: Coalition for Climate Resilient Investment (CCRI)

The CCRI have been undertaking a climate resilience case study for HS1. This study identified climate hazards and undertook scenario analysis and scenario costing. The study resulted in identifying practical measures against climate change and more extreme weather.



2022/2023

All projects over £1m undertake an embodied carbon impact assessment.

Optimising the railway

We are delivering on our Sustainable Rail Strategy to minimise the impacts of climate change.

2024/2025

Climate adaptation and mitigation plans developed.

Embodied carbon target to be developed.

2025/2026

Traction energy 100% zero carbon.

Scope 3 carbon footprint measured.

2026/2027

Reduction plan for Scope 3 implemented.

Decarbonisation of heating.

Review and update Climate Change Risk Assessment.

2030

HS1 net zero carbon energy.

13 CLIMATE ACTION

Our six priorities: Energy management

HS1 is committed to reducing electricity used to power HS1 trains and through our portfolio. We continue to embed programmes into our business and supply chain to reduce our energy consumption and improve energy efficiency. HS1 is also transitioning to Corporate Power Purchase Agreements (CPPA) to ensure we use certified renewable energy sources, improving the sustainability credentials of our energy.

Energy Management

Our ambition

Electricity used to power our trains (traction energy) is the biggest contributor to our energy use. We aim to reduce traction energy per passenger by 25% by 2030 thereby reducing our impact on the environment.

We are also undertaking energy reduction projects to decrease energy wastage and increase efficiency of our assets. Projects have been run at St. Pancras, Stratford and Ebbsfleet international stations and have helped to reduce CO_2 emissions by approximately 236 tonnes per annum.

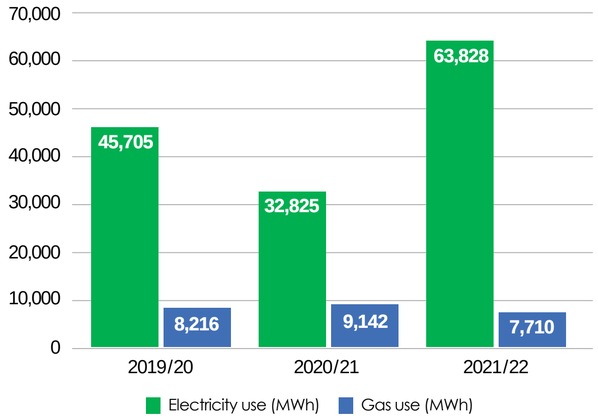
Targets

- Reduce traction (train movement) energy per passenger journey by 25% by 2030.
- Reduce traction energy per train journey by 10% by 2030.
- Reduce non-traction (estates and buildings) energy drawn from the grid by 10% by 2030.
- Reduce non-traction energy consumption per m2 in our estates by 10% by 2030.

Our performance

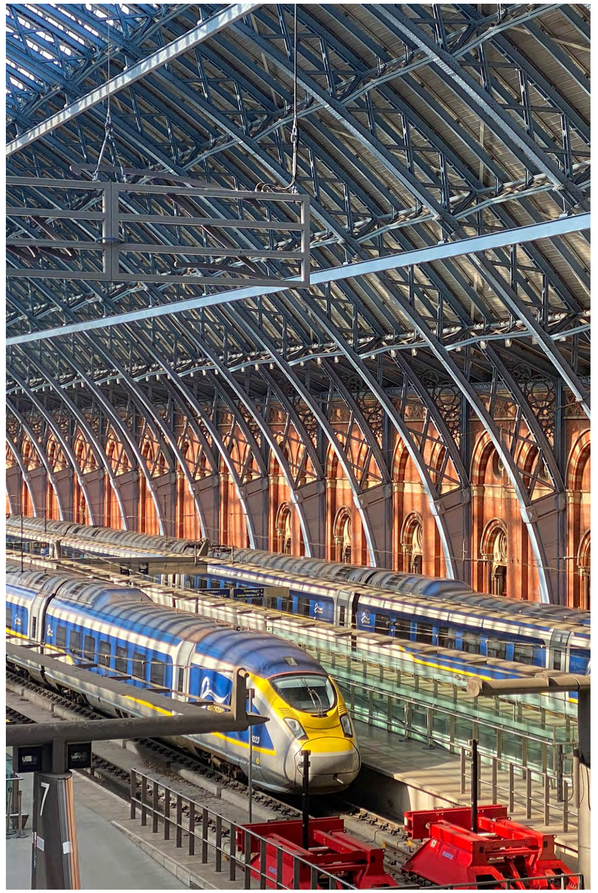
The table and graph show electricity and gas use from 2019 to 2022. HS1's electricity use increased in 2021/22 due to a change of boundary as HS1 takes responsibility for the losses on the traction electricity infrastructure that supplies power to the trains. We will continue to use this as our baseline going forward. HS1's gas use has decreased due the optimisation measures implemented throughout the stations.

Electricity and gas use 2019-2022



2020/21		2021/22	
32,825 MWh	Electricity use	**63,828** MWh	**+94%** Increase due to a change of boundary*
9,142 MWh	Gas use	**7,740** MWh	**-15%** Reduction due to optimisation measures in stations

*We will continue to use this as our baseline going forward. The boundary change consists of HS1 taking responsibility for the losses on the traction electricity infrastructure that supplies power to the trains



Actions taken in 2021/2022

- Reporting against Energy Savings Opportunity Schemes (ESOS). Two reports have been completed to date and we have implemented three initiatives in 2021/22 including: Building Management System (BMS) optimisation, LED lighting installation and air handling unit upgrades.
- Undertook energy metering. Metering units have been installed at all retail units in St Pancras International to collect data, create energy benchmarks and improve energy standards.
- Several initiatives identified in the 2020/21 energy awareness and behaviour change programme, including the need to raise awareness of energy and carbon management.
- Set a requirement for energy metering and energy efficiency in the HS1 tenant fit-out guide.
- Evidence-based energy reduction plan in action across traction, lineside and stations.
- Worked in collaboration with our partners to drive the implementation of regenerative braking on rolling stock to reduce net energy consumption.
- Explored the construction and operation of renewable energy generation solutions and energy storage within the restrictions of the planning system.
- Started development of a 10-year energy management plan. Initiative database and site-specific plans have been completed and implementation planning is underway.

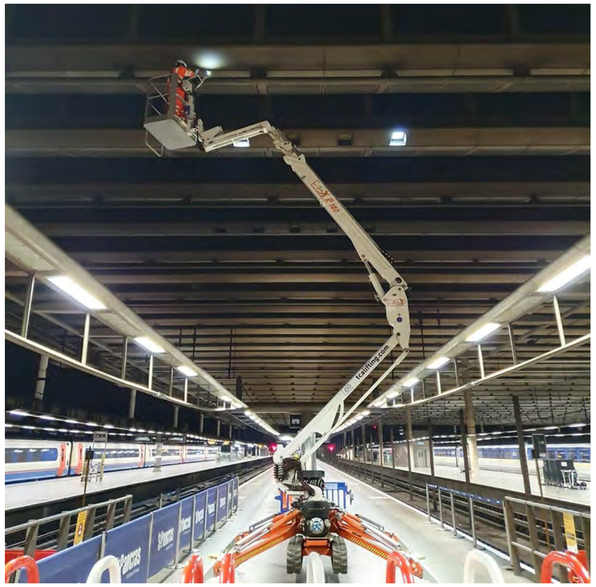
Focus for 2022/23

- Continue to support and lead the implementation of energy reduction at stations.
- The following initiatives are planned for 2022/23:
  - St Pancras International substructure lighting Phase 2.
  - BMS settings optimisation.
  - Plant room light and controls upgrade.
  - Fan coil unit controls review.
  - Site-wide upgrades to include presence detection.
- Ongoing development of energy efficiency and monitoring standards embedded into procurement of future estates, new builds and refurbishment programmes.
- Ongoing progress towards energy targets.
- Establish and embed an energy reduction group for traction and lineside energy.
- Manage tenant performance against energy requirements and drive future reduction through league table performance.
- Execute further CPPAs.
- Continue to support and lead the implementation of energy reduction on the route. The following initiatives are planned for 2022/23:
  - SIMD – BMS deep-dive.
  - Insulation upgrades.
  - Heating and cooling pumps into parallel operation.
  - Supply and extract fans running in parallel with air quality controls (Corsica Street and London West Portal).
  - Rationalise chiller setpoints (Corsica Street and London West Portal).

CASE STUDY

LED lighting

For safety reasons, it is important that rail tunnels are adequately lit. However, lights are often left on unnecessarily as long arrays are typically controlled by switches located far apart. An energy efficiency project is underway at St Pancras International and involves installing LED lighting and presence-detection control systems in the tunnels. Through implementing these measures, HS1 has optimised energy use of access lighting to provide a more consistent quality of light and save energy through installing presence detectors.



CASE STUDY

Energy procurement strategy

As part of our work to ensure as much of the electricity used on the line as possible is renewable, we have recently activated our first trade using a CPPA with Statkraft and Squeaky Energy Ltd. This deal allows for up to 10MW – around 40% of the line's electricity use – of green energy to be purchased by HS1 at a fixed price for 10 years, until 2032 starting with 5MW.

Building on this, we are currently looking to secure our second CPPA (CPPA2). These CPPAs are part of our broader green energy work through which HS1 is moving away from securing green electricity through general REGOs – which are subject to wild price volatility – to securing a majority of our green energy through CPPAs, which provide more price certainty than REGOs.

By 2024, we hope to have built up our portfolio of CPPAs for renewable electricity to level that covers the majority of our baseload requirements.

The diagram shows how HS1 plans to transition away from REGOs and implement PPAs. In October 2022, HS1 will receive 5 MW from a PPA, doubling to 10 MW by April 2023. During this time, residual energy will be sourced from the national grid. From 2025 onwards, two PPAs will be in place to supply HS1 with sufficient energy, with REGOs considered to flex supply, depending on affordability.

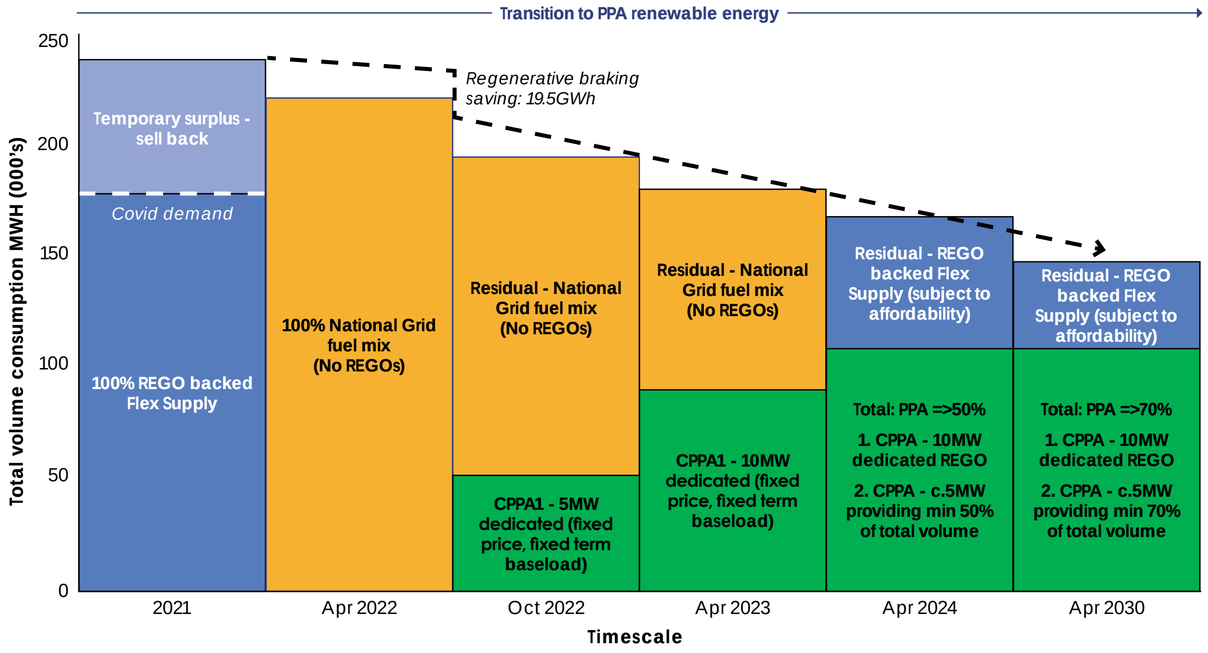
Regenerative braking

Regenerative braking is an energy recovery mechanism that slows down a moving train by converting kinetic energy into a form that can be reused or stored. Regenerative braking is currently not enabled for the trains currently operating on HS1. However, during 2020, the Department for Transport reached agreement for HS1 to implement regenerative braking on HS1 for the South-eastern Class 395 train fleet and this is known as Phase 1 Regen.

Regenerative braking will allow the domestic and international fleet to generate power that is exported back to the National Grid, hence the step down in consumption when it is enabled. Between 2022 and 2025, regenerative braking will play an important role in reducing total energy consumption, as shown in the diagram.

To enable the introduction of regenerative braking, a detailed assurance and testing programme is underway to determine there are no adverse impacts on the electrical distribution system that feeds HS1 and the wider HS1 infrastructure. Initial indications show the regenerative braking system is operating successfully, measurements have been collected from the test train operations and these will be analysed and presented to the Network Rail High Speed (NRHS) Safety Review Panel. Once the Safety Review panel has given its approval, regenerative braking can be enabled upon the Class 395 train fleet in a staged approach and be fully implemented by the end of October 2022. Regenerative braking is expected to deliver around 19,500MWh and 4,155 tCO_2e savings per year on the domestic fleet.

Impact of Our Energy Procurement Strategy



Key features of the energy strategy

1. Demand reduction - total consumption reducing 30% by 2030.

2. Full renewable sourcing with REGO backing across the HS1 electricity portfolio* and the majority of Baseload requirements sources through PPAs with dedicated REGOs by 2025.

Roadmap to 2030: Energy management

Traction energy is our biggest power consumption and impact. Therefore, we are continuing to work with our employees, partners and suppliers to identify and implement measures to reduce energy use.

Across our estate and stations, we are working with our partners to identify and implement energy efficiency measures and ensure these are embedded into procurement of future estates, new builds and refurbishment programmes.

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

-10%
Reduce traction energy per train journey by 10% by 2030.

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

-10%
Reduce non-traction energy consumption per m_2 in our estates by 10% by 2030.

Insight: Corporate Power Purchase Agreements (CPPAs)

To increase transparency, HS1 is increasing its use of CPPAs. To ensure we have a certified source of green energy we have reached an agreement to provide 10 MW of baseload power for 10 years, approximately 40% of the line's electricity use. This will be our first CPPA and we will increase CPPA coverage. Electricity will be sourced from three wind farm including Altwalis, Baillie and Berry.

Carbon smart
We are working to achieve net zero greenhouse gas emissions by 2030.

2022/2023
Establish a line side and traction energy reduction group.

2023/2024
Develop an energy strategy.
Estate-wide performance reported.

2025/2026
All new trains incorporate energy monitoring.
Commercial relationships developed to incentivise energy minimisation on rolling stock.

2026/2028
Regenerative braking impacts measured and published.

2028/2030
Energy use is clearly reported and minimised across our track and estates.
Energy targets achieved:
- 25% per passenger journey
- 10% per train journey
- 10% non-traction energy
- 10% per m2 reduction in estates.

Our six priorities: Resource use and waste impacts

HS1 strives for continual improvement in minimising water usage and waste produced and increasing the efficiency of materials used in construction and operation. We are moving towards embedding circular principles and discussing these with our supply chain to ensure we continue to reduce our environmental impact and operate in the most sustainable manner.

Resource use and waste impacts

Our ambition

HS1 aims to reduce its environmental impact. To do so, we manage the type and quantity of resources we use and minimise the waste we produce daily, both during construction, during day-to-day operations and through our supply chains.

Given the growing scarcity of natural resources, HS1 is embedding circular principles and running workshops with our stakeholders. We are also aiming to reduce the extraction of virgin raw materials, implement more efficient techniques, and adopt effective behaviour patterns, including reusing and recycling.

Targets

- Zero non-hazardous waste to landfill from regular operations and projects by 2022/23.
- 90% recycling of operations and project wastes by 2023/24.

2020/21		2021/22
510 tonnes	Waste generated	1,231 tonnes
54%	Waste recycled	54%
1.6%	Waste to landfill	0.4%
9,613m³	Water use	31,909m³

We have experienced an increase in waste generation and water use following the easing of lockdown restrictions and increase in passenger numbers.

Waste

Actions taken in 2021/2022

- We recycled 54% of waste.
- Collated current waste compositions and quantities for our stations.
- Developed and implemented a project waste standard.
- Created a plan to divert all of our direct construction/fit-out waste from landfill and roll this out through procurement contracts.
- Worked with our key suppliers to ensure all waste is diverted from landfill and where this is not the case, credible plans are in place.
- Identified opportunities to achieve 90% recycling of operations and project waste.
- Assessed where we need to install additional drinking water dispensers in stations and retail areas.
- All projects over £300,000 have a waste management plan.
- Developed waste action plans for activities that fall within HS1's area of influence.
- Waste minimisation workshops held for projects over £1m.
- All major projects set resource use and waste reduction actions.
- Working with the supply chain to place contracts that will increase positive waste management.

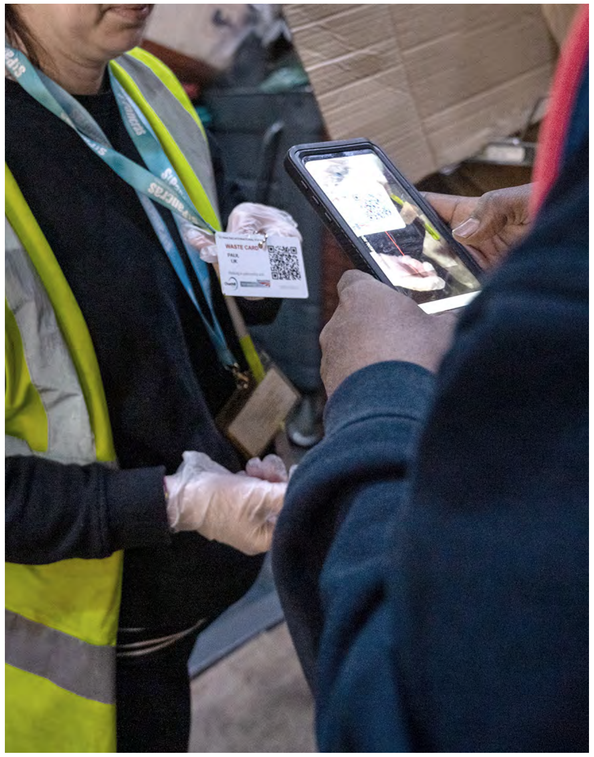
Focus for 2022/23

- Identify primary non-construction waste streams (using 80:20 rule) and develop initiatives to improve recycling across the estate, for example, plastic cups and coffee capsules.
- Support the supply chain to embed contracts that will increase positive waste management.
- Identify and assess broader circular economy opportunities in partnership with stakeholders.

CASE STUDY

Tagging system project waste, circular business models for stations and depots

HS1 has set a challenging target to reach 90% recycling of all waste produced to help manage its environmental footprint. One method to increase the recycling volume is through setting up a new system for waste separation and waste tagging at the Midland Road Service Yard (MRSY). Therefore, allowing the volume of waste produced to be monitored and further recycling opportunities to be identified. The diagram shows the process for waste tagging at MRSY which will enable data to be collated and reviewed. In the longer term, this will help improve recycling rates and performance.



Materials

We are mindful of the materials we use in our construction and refurbishment projects to ensure efficiency, always following best practice.

Actions taken for 2021/22

- Reviewed industry standards (CEEQUAL, BREEAM, FSC) and developed a HS1 standard for projects incorporating industry best practices and allowing innovation.

Focus for 2022/23

- Continue working towards reducing resource use and zero waste to landfill by 2023/24.
- Hold circular economy workshops with the supply chain to develop initiatives and share knowledge.
- Continue to actively select lower-impact resources for projects.

CASE STUDY

Holland and Barrett

Holland & Barrett is one of Europe's largest health and wellness stores and aims to provide consumers with a healthy and convenient shopping destination. Holland & Barrett opened a 732 sq. ft. store in HS1 station, St Pancras International, in December 2021 that has been fitted out using 100% recyclable materials to reduce carbon emissions for shoppers. The store exemplifies efficient material use in a retail environment and HS1 is working with our partners to adopt similar approaches.

Water

Climate change is increasing pressure on scarce water resources and will continue to exacerbate this issue. Therefore, HS1 is embedding strategies to preserve water resources and ensure that our activity reflects this.

Actions taken for 2021/22

- Engaged with supply chain regarding water reduction plans.
- Completed a horizon scanning activity for emerging water pollution policy.
- Emerging water risk mitigation strategy in place with monitoring.

Focus for 2022/23

- Continue to undertake a horizon scan of guidance and best practice in the water sector.
- Develop water reduction plans to reduce our water consumption.
- Identify opportunities for greywater recycling and rainwater harvesting schemes.
- Seek to better understand our water pollution pathways and continue efforts to prevent water pollution.

Roadmap to 2030: Resource use and waste impacts

Given the growing scarcity of natural resources, HS1 is limiting its impacts by moving towards a circular economy.

This includes improving our designs and maintenance programmes, reducing extraction of virgin raw materials, implementing efficient techniques, adopting effective behaviour patterns, and reusing and recycling.

To reduce our environmental impact, we aim to reduce waste throughout our assets and through our supply chain, including waste generated from construction and operations.

We are acutely aware of the importance of our watercourses and the need to safeguard these to mitigate against climate change. We have set water usage targets to reflect this.

Zero
Zero non-hazardous waste to landfill from regular operations & projects by 2022/2023.

90%
90% recycling of operations and project waste by 2023/2024.

Insight: Waste minimisation
The waste and material standards have been developed collaboratively with the supply chain.

These will be used on all relevant projects going forwards.

Our environmental impact
We are embedding circular economy principles and continue to work with partners to use resources in the most efficient manner.

2022/2023
Identify top non-construction waste streams.

2023/2024
Progress against resource use and waste targets (incl. zero to landfill & 90% recycling).

2024/2025
Climate adaptation and mitigation plans ongoing and internal carbon price to be developed.

2025/2026
Broader circular economy opportunities identified and assessed.

Beyond 2030
Our resource use is minimised, all preventable waste is avoided and we actively select lower-impact resources.

6 CLEAN WATER AND SANITATION
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Our six priorities: Biodiversity

HS1's estate covers a wide area, from central London to Kent, and we are committed to protecting and enhancing these natural environments. Our work with partners, including the Kent Wildlife Trust, ensures we monitor species progress, update our biodiversity baseline, and ensure our lineside habitats support and enhance biodiversity.

Biodiversity

Our ambition

HS1 manages a diverse landscape and we are committed to protecting and maintaining these habitats, working with organisations such as the Kent Wildlife Trust.

Over the past year, we have undertaken surveys to understand the landscape and better support the 235 ha of managed area.

Our survey periods have been adjusted so that we undertake these at the optimum time of year, coupled with the hard we have undertaken it has resulted in a 1.2% increase in Biodiversity Net Gain (BNG). Over the coming year, HS1 will spatially map the whole route and gather metrics for each habitat area. The mapping will assist HS1 in delivering our ambitious programme of habitat restoration, enhancement and creation set out in our Biodiversity Action Plan.

Network Rail High Speed hold the Biodiversity Benchmark Award for the HS1 infrastructure and are one of only 13 organisations to hold this award. The Biodiversity Benchmark is designed to test the design and implementation of a business management system to achieve continual biodiversity enhancement and protection on their landholdings and we are proud to support NRHS with this award.

Biodiversity tiles

The area along our track is divided up into 136 'tiles': these are areas of habitat which are divided into sections for ease of identification and management. Each tile is surveyed and assessed individually based on the type of habitat, the plants, trees and its wildlife.

Targets

- Deliver 20% BNG by 2030, based on the 2020 baseline.
- To support our 2030 target, we will continue to assess the quality of 135 areas of habitats, referred to as tiles. Each tile will be graded from poor to good, with the aim of increasing their quality.

"At HS1 we believe that biodiversity is important. We look after a lot of land which equates to 135 nature plots and I was able to directly protect a declining plant species called the Lizard Orchid by enhancing one of the plots so that the Lizard Orchid has a real chance to flourish. We do this with Kent Wildlife Trust and their experts, so we know what we are doing supports the whole of Kent."

Julian Albert
Project Controls Manager, HS1 Ltd

Actions taken in 2021/2022

- Finalised the biodiversity baseline including tile assessment and biodiversity review.
- Completed a biodiversity property strategy for lineside assets and habitats.
- Completed the Landscape Focus Areas habitat surveys and four protected species surveys.
- Completed coppicing and scrub management plans.
- Continued working towards 20% BNG target by 2030.
- Completed outline generic management plan for BNG.
- Completed two volunteering days, one with HS1 staff supporting Lizard Orchid sites and one in partnership with NRHS on land adjacent to our infrastructure.
- Improved the quality of 'moderate' biodiversity tiles to 'good' and 'poor' biodiversity tiles to 'moderate'.

Our performance

135 tiles

135 habitat and biodiversity habitat areas (known as tiles) assessed.

Biodiversity improvement

5 biodiversity tiles experienced a condition improvement equivalent to 4 ha of land.

£1,000

£1,000 capital spend on biodiversity projects and Biodiversity Action Plans to encourage BNG plus volunteering time invested in additional biodiversity spotlight projects which deliver real enhancements to the biodiversity asset.

+1.2%

Confirmed HS1 BNG target of 20% by 2030, HS1 achieve a 1.2% increase in BNG in 2021/22.

+76%

76% increase in the nationally protected Lizard Orchid surveyed.

Focus for 2022/23

- Complete the St Pancras International to Ebbsfleet habitat survey.
- Focus on enhancing hedgerows and providing further habitat for foraging bats and further feeding and nesting areas for priority bird species.
- Identify indicator species to support our target of 20% BNG.

CASE STUDY

Vegetation Monitoring

HS1 is proud to have worked alongside NRHS on a joint volunteering project near Ashford, Kent. We undertook vegetation management to improve biodiversity through clearing grassland for ground-nesting birds. This critical work supports conservation efforts near our high-speed line to enhance critically endangered wildlife ecosystems, including plants, invertebrates, reptiles and birds. The site also contains an area that is a Site of Special Scientific Interest (SSSI) owing to its rare plant species. This project directly supports our social value and biodiversity aspirations and is a great way to engage with our partner organisations.

CASE STUDY

Lizard Orchid

Last year, protecting the Lizard Orchid featured as a case study. Over the past year, HS1 has continued to protect this significant species and its habitats. HS1 supports the Kent Wildlife Trust in developing a haven for the Lizard Orchid, previously thought to be an extinct species in the UK, in a designated biodiversity site identified lineside to HS1.

Volunteer days have been run to help maintain and preserve the optimum habitat for Lizard Orchids along the HS1 route. On one volunteer day, ecologists were delighted to find more than 25 new orchid plants starting to grow, which is an excellent addition to last year's figures (a 76% increase). Volunteers helped clear buddleia from the embankments and opened the undergrowth to create an environment where the Lizard Orchids could further establish themselves and flourish. The railway corridor creates a huge undisturbed linear nature reserve, providing dark highways for bats and bees, and is home to many undisturbed habitats where rare plants can hopefully thrive.

"The identification of the orchids habitat in 2021 was a great find and supported the area of protection that HS1 is working alongside Kent Wildlife Trust to support. When we visited the site again in early 2022, we could already see the proliferation of plants, showing how our positive intervention is helping this rare species develop alongside the highspeed line."

Ben Olney
Planning and Consents Manager, HS1 Ltd

Roadmap to 2030: Biodiversity

We manage a diverse estate and are committed to ensuring our spaces are healthy and biodiverse.

Under the Channel Tunnel Rail Act 1996, we are proud to protect and enhance the lineside habitat. Over the past year, we have worked in partnership with the Kent Wildlife Trust Consultancy to carry out a natural assets survey, revise our biodiversity baseline, and develop a property strategy for lineside assets and habitats. We will measure against this baseline to assess net-gain by 2030/31.

The survey confirmed that BNG is achievable by 2030/31 and outlined plans to achieve this, for example, by completing the coppicing and scrub management plans. We continue to monitor enhancements to habitats identified as 'strategically significant'.

Deliver

Deliver 20% BNG by 2030, based on the 2020/2021 baseline.

135 areas

To further support our 2030/31 target, we assessed the quality of the 135 areas of habitat, known as 'tiles', that we have for HS1.

Insight: Lizard orchid

HS1 has continued to take measures, in collaboration with Kent Wildlife Trust Consultancy, to develop a haven for the lizard orchids. Surveys have shown a 76% increase in the number of these plants found, a testament to the work being undertaken to protect and enhance their habitats.

2022/2023

Pollution reduction plan/pathway implementation underway.

Biodiversity baseline set (tile assessment and partnership assessment).

Seek to continually improve biodiversity tiles.

Enhancing biodiversity

We are working with partners to increase biodiversity and contribute positively to the habitats in which we operate, alongside improving air quality.

2023/2024

St Pancras to Ebbsfleet habitat survey complete.

2024/2025

Biodiversity no net loss assessed, and further enhancement plan agreed.

2025/2026

Report annually on BNG through to 2030.

2027/2028

Second round of improvement actions completed.

2030/2031

Achieve 20% BNG based on the 2020/2021 baseline.

Beyond 2030

BNG plan in place and measured regularly.

3 GOOD HEALTH AND WELL-BEING

15 LIFE ON LAND

Our six priorities: Social value

HS1 recognises the importance of understanding and contributing to our communities. Initiatives have been undertaken with organisations to support the local community and undertaking regular volunteering. HS1 is committed to the development and wellbeing of our employees and seeks to create a thriving workspace for all, as reflected in our People Strategy.

Committed Member of Inclusive Employers

INVESTORS IN PEOPLE We invest in wellbeing Gold

INVESTORS IN PEOPLE We invest in people Gold

Social Value

Our ambition

At HS1, engaging and supporting our communities is of the utmost importance. HS1 has identified the social value as a key component of our renewed strategy and will be focusing efforts to improve social mobility. We contribute our time, expertise and knowledge to local communities and strive to understand how we can further support partner organisations.

Heritage was an important consideration when designing and building the HS1 stations and route and continues to be a priority in our management and use of the Grade I listed St Pancras Station. We are working hard to protect and we continue to raise awareness of the importance of heritage within our station teams, our staff and tenants. We currently conduct tours of the station for the general public and also for students and academics and are looking to develop and implement new media in the station to develop awareness further….watch this space!

We recognise the importance of strengthening the diversity of our workforce and have developed an automated process to capture Equality, Diversity and Inclusion (EDI) data. EDI questions have been added to our employee survey to gather information, therefore enabling us to monitor and track progress on a regular basis. Feedback sessions have also been set up to discuss these results with our colleagues and understand our performance at an organisational level.

A number of EDI initiatives have been undertaken including developing a menopause policy, benchmarking our family friendly policies to remain competitive in the EDI space and we are rolling out inclusive language training to our team.

Targets

- Contribute 700 hours of staff time each year to local communities and charity activities related to HS1's activities by the end of 2022.
- Report measurable social impacts delivered by end 2025.

CASE STUDY

Staff volunteering

As part of our Sustainability Strategy, we set a target of 700 hours of volunteering to be delivered by the end of the 2022/23 financial year. This target was highly ambitious, given that it was set when the level of volunteer hours was 435. With the support of the Senior Management Team, we established a set of volunteering guidelines and provided greater clarity about the volunteer approval process. In addition, we gave staff a flowchart demonstrating how the business would assess proposed volunteering opportunities. Staff welcomed the clarity that the flowchart provided and, on the back of a COVID-restricted year, secured a considerable increase in volunteer hours during 2021/22. 736 volunteer hours were registered, enabling us to meet our 2022/23 target a year early.

Our performance

736

736 hours of staff volunteering, a year ahead of the target.

48%

48% of HS1 employees participated in volunteering.

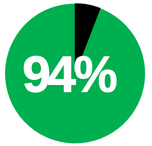
£77,000+

Over £77,000 donated to charitable causes and value in-kind.

2022 employee survey

100% of respondents believe HS1 takes sustainability seriously, an increase of 15% since 2020.

98% of respondents believe HS1 takes health and safety seriously.



94% of respondents believe HS1 takes health and wellbeing seriously.

94% of respondents believe HS1 takes equality, diversity and inclusion seriously.

Actions taken in 2021/2022

- Contributed 736 hours of staff time to local communities and charity activities.
- Developed a wellbeing programme for HS1 staff.
- Progressed our Equality Diversity & Inclusion Charter and implemented wellbeing programmes.
- Researched and agreed an impact methodology to measure the benefits of our activities and assess our social value outcomes. We will pilot this methodology in 2022/23.
- Embedded sustainability impacts into staff personal objectives.
- Tested and enabled the tracking of sustainability personal objectives through our Performance Management System.
- Undertook a company-wide employee survey including questions related to sustainability, equality, diversity and inclusion.

"When I recently joined HS1, I was impressed by the amount of work put into Social Sustainability. From the HS1 People Strategy to supported volunteering, the office is not simply producing objectives, it's delivering action plans, sharing successes and supporting staff who want to engage with our local communities"

Chloé Barton
Senior Legal Advisor, HS1 Ltd

Focus for 2022/23

- Develop and implement noise reduction plans.
- Aim to complete 700 hours of community engagement.
- Embed our social value KPIs to demonstrate progress.
- Consider the feasibility of adopting a social value tool to measure social value from 2023/2024 with the potential to report in 2025/2026.
- Continue to deliver health and wellbeing initiatives to our team and activities included in HS1's People Strategy.
- Embed the Mental Health Charter.

CASE STUDY

Urban Partners

In November 2021, HS1 worked with Urban Partners, a voluntary business partnership made up of organisations in the Euston, King's Cross and St Pancras International area, and other partners, such as Eurostar, to bring passengers to the COP26 climate change conference in Glasgow via rail, the most sustainable way to travel to the conference. The 'Climate Train' arrived at St. Pancras International with over 500 passengers onboard the train making their way to Glasgow.

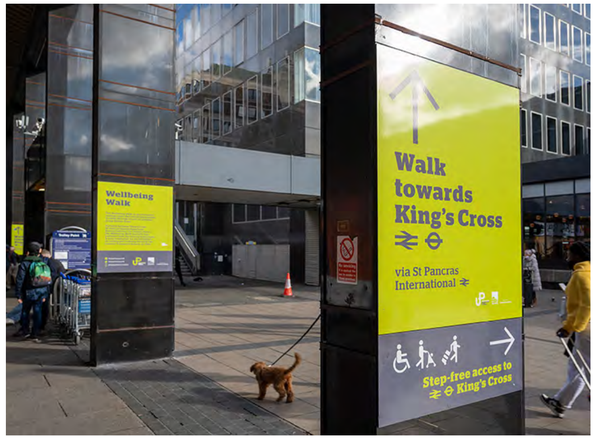
HS1 has also long championed Urban Partners' Wellbeing Walk and through collaboration with them on the train's arrival, we were able to showcase the route and the merits of using it to the Climate Train's passengers. This is the alternative walking route Urban Partners launched in 2015 that allows people in the area to avoid the high levels of pollution on Euston Road. The walk, which runs between St. Pancras International Station and Euston Station (via Somerstown) has 50% less pollution than the traditional route and was nominated for an excellence in cycling and walking award at the London Transport Awards in 2016. Urban Partners will launch an additional walking route between King's Cross and Euston stations in Spring 2022 to complete a circular wellbeing route for all those visiting, living and working in our area.

500+

Over 500 passengers onboard the train

Wellbeing walk

The walk has 50% less pollution than the traditional route.



CASE STUDY

British Transport Police work

Safeguarding within communities

HS1 has been working with The Children's Society to launch training programmes and upskill individuals in the Medway area. As a result, a safeguarding project was established in 2020 to train station staff, bus drivers and taxi providers to recognise signs of possible abuse or neglect and report any concerns regarding community safeguarding and intervention. This training has been successfully rolled out to include Medway taxi drivers and bus company employees. Additionally, safeguarding training has been offered to businesses throughout Kent to bolster community safeguarding resilience.

Further initiatives have been undertaken to strengthen safeguarding, including talks at local events to speak to young adults about safety concerns, community issues and their views. In addition, the British Transport Police offered advice about safer travel, reporting issues on the railway, and how to find help while on the railway network.

One new initiative in development is 'Ask for Sam', that would allow young people to ask for help at specific locations, including railway stations and designated shops. The proposition is currently seeking funding, with advisory support from HS1.

Operation Mammoth

Operation Mammoth, spearheaded by the British Transport Police and HS1, aims to work with partner agencies to reduce homelessness, anti-social behaviour including drug and alcohol abuse, and loitering around St Pancras International Station. To try and combat this behaviour, the British Transport Police has joined forces with Camden Community Presence officers and Routes off The Streets to actively engage with members of the street population encouraging them to take support. The joint approach with the Met Police, Camden Council, NRHS and HS1 provides the opportunity to check on individuals' welfare and enforce offences in the area. By doing so, Operation Mammoth helps improve rail passenger confidence and, at the same time, seeks to benefit the street population. This initiative has been recognised with a Neighbourhood Policing Award.

CASE STUDY

Health and wellbeing

Health and wellbeing is a key area of focus in HS1's People Strategy, and we have always prioritised protecting the health and wellbeing of our team. The pandemic further focused our attention on our wellbeing support as we were conscious of the impact of isolation on our team due to remote working. We delivered health and wellbeing webinars on various health topics, including nutrition, exercising at home, signs of cancer and achieving a work-life balance. We also increased the frequency of our team meetings to increase collaboration and engagement.

We invited guest speakers from charities and organisations to attend team meetings to give simple, practical advice and tips on wellbeing. We sent out weekly staff briefings on a range of health and wellbeing subjects and raised awareness of our excellent benefits. Our staff engagement scores reflected our efforts, where we achieved 93% in 2020. We continue to invest and deliver our wellbeing programme to ensure that we continue to signpost and support our team.

93%

93% staff engagement in weekly staff health and wellbeing briefings.

Webinars

Delivered numerous health and wellbeing webinars on various health topics.

Roadmap to 2030: Social value

HS1 volunteer and engage with local communities, both around our stations and lineside, to allow these communities to flourish.

We will continue to support our current partners and seek new opportunities to support local charities and establishments.

We work to implement noise reduction plans to reduce the levels of noise our neighbours experience.

700 hours

Contribute 700 hours of staff time each year to local communities and HS1-related charity activities by the end of 2022/23.

Insight: HS1 People Strategy

Our People Strategy is our roadmap for attracting, developing and retaining our most valuable asset – our people. Our strategy continues to put our people at the very heart of our business as we recognise that the collective talents, input and commitment of our people will keep us on course for the successful delivery of our strategic business objectives. Following the pandemic, we have accelerated our focus on health and wellbeing. As we focus on recovery and beyond, we want our people to feel connected with our vision, and have the skills, motivation and reward for delivering it. We want our people to continue to grow and develop, feel happy and fulfilled and recognise their individual impact in ensuring that HS1 continues to be a fantastic place to work.

2022/2023

Noise reduction plans implemented.

Achieve 700 hours of volunteering and 50% of HS1 staff to engage in CSR activities.

Embed the Mental Health Charter.

Positive social impact

Our work helps maximise positive social outcomes of rail, protect our communities and contribute to our local environment.

2023/2024

Mobility-as-a-Service options for passengers identified.

Consider the viability of to measure social value.

Embed the Equality, Diversion and Inclusion Charter.

2025/2026

Measurable social impacts reported publicly.

Beyond 2030

Set social impact targets for beyond 2030.

Health and safety

Health and safety is part of everyone's role at HS1, as highlighted in our core values.

We believe that safety is no accident, we all have our part to play. Operating in a safe manner is vital at HS1 to ensure employees, customers and our supply chain are protected.

- 0.059 Workforce /contractor fatalities and weighted injuries (FWI) MA[3]
- 0.021 Passenger/ MoP FWI[4]
- 16 HS1 safety and security tours undertaken by our senior management.

CASE STUDY

Track inspection carts

During a joint safety tour with HS1 and NRHS, whilst engaging with front line workers it was identified that the battery-powered rail vehicles used by the track inspection team to facilitate visual inspections, were in need of updating to reducing risk to our workers. The carts are used to monitor the quality of the track infrastructure and ensure that we meet quality and safety standards.

As protecting workers is of paramount importance; NRHS identified several recommendations following discussions with the HS1 team, NRHS and frontline workers to enhance operating safety. To reduce the manual handling risks posed by the movement of the carts, the NRHS team replaced lead-acid batteries with lithium batteries, which are 50% lighter. In addition, extra handles have made the carts easier to transport, and health and safety consultants provided guidance on the safest way to carry the carts to avoid injury.

"Following a site visit we identified that the team using inspection carts had some suggestions around improving and reducing the manual handling risks associated with moving and assembling the vehicles. In partnership with the frontline team we took practical measures such as fitting handles to the vehicle, to assist with lifting and new batteries have been sourced which are a lighter weight. We also created new manual handling training material to ensure our team know how to move the vehicles safely. This is one example of how we continuously look to provide improvements for our workforce."

Martin Joblings
NRHS – Health and Safety Manager

3 FWI is calculated by the harm caused per 1 million hours, averaged over the reporting year. For further information, please visit the Rail Safety and Standards Board's (RSSB) website https://www.rssb.co.uk/safety-and-health/risk-and-safety-intelligence/annual-health-and-safety-report/evaluating-safety-through-fatalities-weighted-injuries

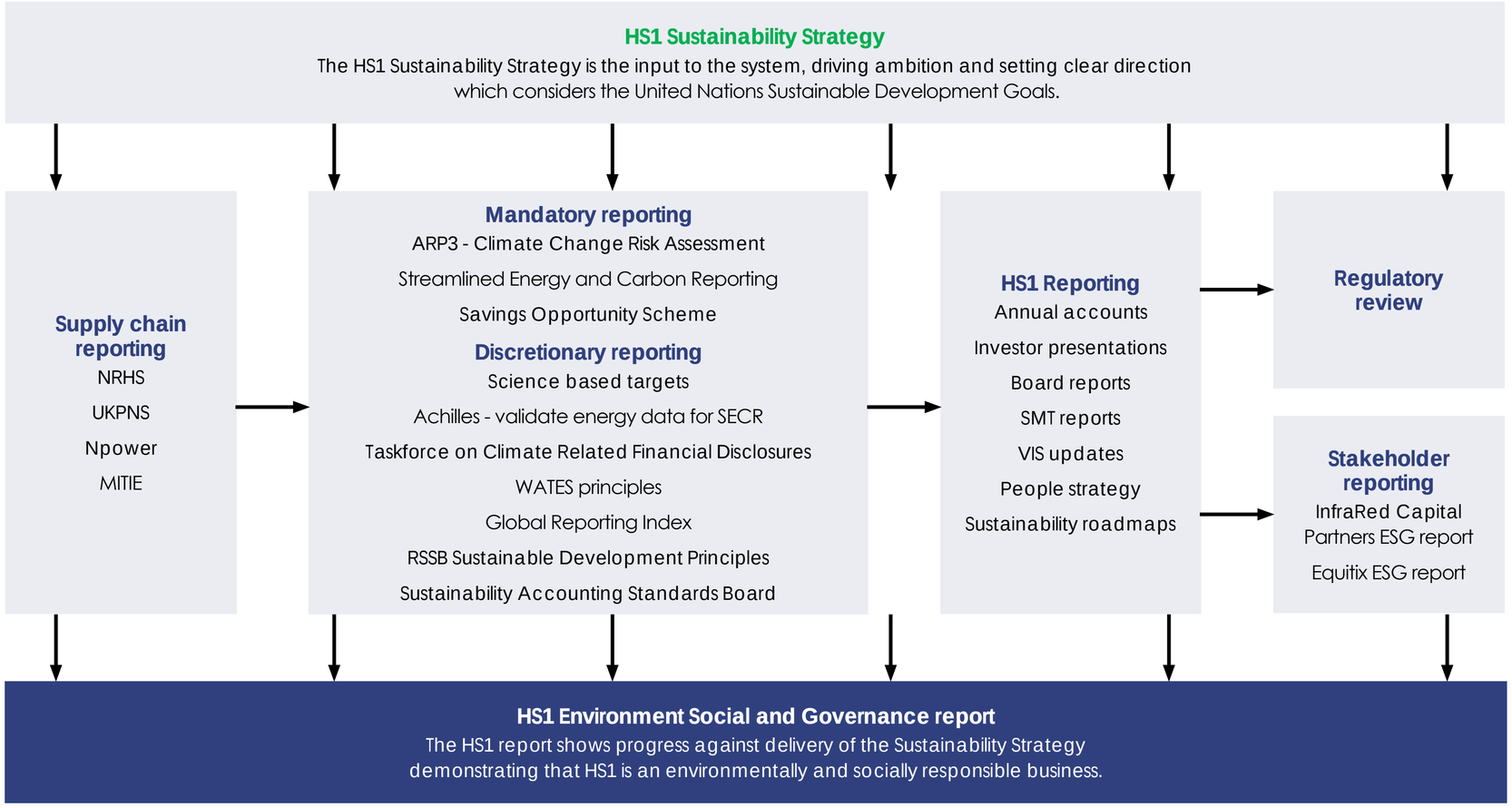
4 Passenger FWI is calculated by the harm per 10 million passenger journey, averaged over the reporting year. For further information, please visit RSSB's website https://www.rssb.co.uk/safety-and-health/risk-and-safety-intelligence/annual-health-and-safety-report/evaluating-safety-through-fatalities-weighted-injuries

STANDARDS AND BENCHMARKS

Standards and benchmarks

Standards and benchmarks enhance our ability to improve our performance, drive ambition and set a clear direction.

This ESG report shows progress against the delivery of our Sustainability Strategy and demonstrates that HS1 is an environmentally and socially responsible business, with robust governance practices. HS1 has developed KPIs referencing industry standards and benchmarks included in the diagram. These are not an exhaustive list, however, demonstrate HS1's reporting journey to date. The following diagram demonstrates how our Sustainability Strategy drives our internal reporting environment and the standards and benchmarks that the report has been aligned with.



United Nations Sustainable Development Goals

The United Nations Sustainable Development Goals (SDG) are a blueprint to attaining a more sustainable future through operating efficiently, protecting our local environments, engaging with our supply chain, stakeholders and communities, and looking after our employees.

The following table shows the specific SDGs that HS1 contributes to through our day-to-day operations. We will continue to monitor and review the goals we contribute to on an annual basis.

Transparency

Our ambition to be transparent throughout the business clearly links and contributes to **SDG 16** both strategically and operationally. Our Transparency Roadmap contributes to this goal through operating as a responsive, transparent and inclusive institution. Our work specifically relates to the SDG targets 16.2, 16.5, 16.6 and 16.7.

Climate change and adaptation

Our ambition to reduce our impact on our climate and achieve net-zero carbon by 2030 links to **SDG 13**. Our Climate Change & Adaptation Roadmap shows how we aim to reduce our impact on the environment, strengthen resilience against climate-related risks and reduce our carbon intensity. Our work specifically relates to the SDG target 13.2.

Energy management

Our ambition to reduce the impacts of energy consumption relates to **SDGs 7, 12 and 13** in a strategic and operational sense, specifically to the SDG targets 7.3, 12.2, 12.5, 12.6, 12.7 and 13.2. Our Energy Management Roadmap contributes to these goals through reducing energy used for traction and across all assets, responsibly consuming resources and strengthening our adaptive capacity to climate-related hazards.

Resource use and waste impacts

Our ambition to improve efficiency of resource use, reduce waste and increase efficiency supports **SDGs 6, 9, 11 and 12**, alongside future proofing against climate risks. Our Resource Use and Waste Impacts Roadmap contributes to the following goals through using resources responsibly and efficiently, and reducing waste where possible, specifically contributing to SDG targets 6.3, 6.4, 6.5, 9.1, 9.4, 11.2, 12.2, 12.5, 12.6 and 12.7.

Biodiversity

Our activity, including taking urgent action to reduce the degradation of natural habitats, prevents biodiversity loss and delivers BNG, therefore contributing to **SDGs 3 and 15**, and specifically SDG targets 3.9, 15.1 and 15a. By reducing hazardous air pollution, water pollution and contamination, HS1 contributes to SDG 3.

Social value

HS1 contributes to **SDGs 8 and 11** through screening suppliers against social and environmental criteria and engaging with our local communities and stakeholders through volunteering and outreach. Our activities relate specifically to targets 8.5 and 11.2.*

*HS1 volunteering activities support a range of SDGs and encourage staff to undertake community engagement which contributes to social value

Looking ahead to 2022 and beyond

Our progress

Across our six priority areas, 2021/22 has been another strong year of progress for HS1's mission to become the leading sustainable transport system in the UK and beyond.

My personal highlights include achieving our SBTi validation and developing a roadmap to meet statutory requirements for TCFD reporting, which will enable us to report against the criteria when the reporting becomes mandatory.

Steven Van Niekerk
Head of Assurance and Sustainability, HS1 Ltd

Focus for the coming year

Importantly, our 2021/22 report sets out our action plans for 2022/23, which is shaping up to be another action-packed year that will take us one step closer to becoming a truly sustainable piece of infrastructure. In the coming year, we plan to refresh our corporate values to align with HS1's Sustainability Strategy which will be reviewed within the forthcoming reporting year.

Having made huge strides internally last year, we are now starting to turn our attention to our wider impact as a business, mainly through our supply chain. So, for example, to meet our commitment to be net-zero by 2030, in the year ahead, we will start to work more closely with our supply chains to help them reduce their emissions (also referred to as HS1's scope 3 emissions).

Another key theme for the year will be embedding circular business models and principles throughout the business to reduce our resource across all our assets. In addition, we want to develop new initiatives to increase the amount we recycle across the estate and work with our supply chain to create contract conditions related to waste.

Engaging and supporting our local communities continue to be of the utmost importance. Looking ahead, we will be focusing our efforts on developing and implementing noise reduction plans and seeking to complete 700 hours of community engagement each year.

A 'green recovery' and providing a truly sustainable mode of transport remain at the forefront of our minds. For that reason, this year, we are looking forward to collaborating with our partners to progress the ideas discussed at our modal shift workshop series in Glasgow and Ashford to encourage more people to choose high-speed rail.

Most significantly, though, the year ahead will see us undertake a review of our Sustainability Strategy. We recognise that global context and priorities shift, and we want to make sure that our sustainability goals reflect that and remain relevant. The review will also incorporate a plan for our sustainability journey beyond 2030 up to 2035, illustrating HS1's long-term commitment to taking positive climate and social action.

Once again, I sign off this report proud of the work we have achieved and the exciting opportunities that lie ahead for HS1 to deliver on its sustainability commitments.

I would like to thank Richard Thorp for his support in driving forward our plans for our Green Gateway to Europe.

Appendix 1: Key facts and figures

KPIs sit under the targets outlined in the table below and these are aligned with best practice including the Global Reporting Initiative (GRI), TCFD and the Streamlined Energy and Carbon Reporting (SECR). KPIs are reviewed and reported on an annual basis.

We have identified an increase in a number of figures due to easing of lockdown restrictions and increases in footfall to almost pre-pandemic levels.

		HS1 targets	2019/2020 financial year	2020/2021 financial year	2021/2022 financial year
Location based	**Scope 1 emissions**	- Traction and wider energy to be net-zero by 2030. - Reduce traction per passenger journey by 25% by 2030. - Reduce traction energy per train journey by 10% by 2030. - Reduce non-traction energy drawn from the grid by 10% by 2030. - Reduce non-traction energy consumption per sq. ft in our estates by 10% by 2030.	1,545 tCO_2e	1,681 tCO_2e	1,427 tCO_2e
	Scope 2 emissions		11,682 tCO_2e	7,653 tCO_2e	13,553 tCO_2e*
	Scope 3 emissions		1,275 tCO_2e	875 tCO_2e	1,462 tCO_2e
	Total location based carbon emissions		14,502 tCO_2e	10,209 tCO_2e	16,442 tCO_2e
Market based	**Scope 1 emissions**		1,545 tCO_2e	1,681 tCO_2e	1,427 tCO_2e
	Scope 2 emissions		11,682 tCO_2e	288 tCO_2e	0 tCO_2e*
	Scope 3 emissions		1,275 tCO_2e	875 tCO_2e	1,462 tCO_2e
	Total market based carbon emissions		14,502 tCO_2e	2,844 tCO_2e	2,889 tCO_2e
Carbon offset due to REGO/PPA			-	7,365 tCO_2e	13,553 tCO_2e
CO_2 per user using net emissions			0.270 kg CO_2e	0.362kg CO_2e	0.113kg CO_2e
Change in net carbon emissions				33% increase	58% decrease
Intensity ratio: kg CO_2e (gross Scope 1, 2 & 3) per user**			-	1.299 kg CO_2e	0.6454 kg CO_2e
Electricity use			45,705 MWh	32,825 MWh	63,828 MWh
Gas use			8,216 MWh	9,142 MWh	7,740 MWh

* All Scope 2 emissions had net zero values as all electricity was purchased from renewable sources via REGO agreements

**Users are counted using gateline footfall as ORR data is one year in arrears

	HS1 targets	2019/2020 financial year	2020/2021 financial year	2021/2022 financial year
Waste arisings	- Zero non-hazardous waste to landfill from regular operations & projects by 2022. - 90% recycling of operations and project wastes by 2023.	3,124 tonnes	510 tonnes	1,231 tonnes
Waste recycling		52%	54%	54%
Waste to landfill		4 tonnes	8 tonnes	5 tonnes
Water use	- Minimise water consumption.	46,997 m^3	9,613 m^3	31,909 m^3
Volunteer hours	- Contribute 700 hours of staff time each year to local communities and charity activities related to HS1's activities by the end of 2022.	538	435	736
Traction energy per passenger	- Reduce traction per passenger journey by 25% by 2030. - Reduce traction energy per train journey by 10% by 2030. - Reduce non-traction energy drawn from the grid by 10% by 2030. - Reduce non-traction energy consumption per sq. ft in our estates by 10% by 2030.	3.4 KWh/pax	20.3 KWh/pax	6.6 KWh/pax
Traction energy per train journey		2,426 KWh	2,295 KWh	3,159 KWh
Non traction energy total (electricity and gas)		46,410 MWh	41,966 MWh	71,568 MWh
Non traction energy per m^2		263 kWh/m^2	237 kWh/m^2	242 kWh/m^2
Biodiversity tiles assessed	- To deliver a 'Biodiversity Net Gain' (BNG) by 2030/31, based on the 2020/21 baseline.	27	29	135
Biodiversity net gain		Baseline assessment completed	+0.6%***	+0.6%****

***5 tiles presented an uplift from a poor to a moderate condition including mostly scrub mosaic habitat

**** 5 tiles presented an uplift from a poor to a moderate condition including scrub mosaic habitat and poor semi-improved grassland

Appendix 2: TCFD progress

The following pages outline HS1 progress against the core elements of the TCFD assessment.

Core element of TCFD
Governance

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

As an organisation, HS1 is a regulated business and is overseen by the Department for Transport and the Office for Rail and Road. HS1's climate-related risks and opportunities are overseen by the Main Board, Executive and Non-executive directors including the shareholders and meet every 6 weeks to discuss a specific sustainability agenda.

The Boards oversight of and monitoring against goals and targets for addressing climate-related issues is through quarterly reports which provide updates on progress. Over the last year they have been focussed on the development of the CCRA.

We are in the process of developing our plans for our next regulated control period (2025-2030) and have included a specific workstream on sustainability. A key enabler is the CCRA which will be considered as we update and develop the 40-year asset management plan and strategic asset management plans. We will encourage our key supplier to consider the findings of our CCRAs as they develop their own asset management strategies.

For the implementation of climate mitigation and adaptation recommendations and actions, a management team meeting called the Investment Governance Committee provides oversight. The committee oversees all capital investments and sustainability is being built into the decision-making process.

Although objectives are not specifically focussed on climate change, they are focussed on our sustainability strategy and its six priority areas, one of which is climate change and adaptation.

b) Describe management's role in assessing and managing climate-related risks and opportunities.

The HS1 Investment Governance Committee are responsible for managing climate related risks and have oversight of the organisation's climate adaption and mitigation plans. This committee oversee capital investments and ensure sustainability is at the core of the decision-making process. The Engineering & Sustainability Directors role is to develop and deliver the climate adaption and mitigation plans. The HS1 Audit and Finance Committee has committed to meeting the TCFD external reporting deadline which will be disclosed along with the year end 31 March 2024 financial statements.

A full CCRA is undertaken every 5 years under the Adaption Reporting Power which is set out within the Climate Change Act 2008. HS1 voluntarily contributes to this national study and HS1's climate mitigation plans are regularly reviewed and updated in accordance with discussions with infrastructure owners to allow HS1 to better understand our interdependences.

Core element of TCFD
Strategy

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

In 2021/22 we supported the CCRI CCRA across various asset investments. The intent of this was to pilot a methodology for CCRAs. Alongside this study, HS1 commissioned a full CCRA for all of the HS1 infrastructure. Once finalised we will review the risks and opportunities in full and against the risk and opportunities outlined in the 2021 TCFD Implementing Guidance Appendix 1. The risks and opportunities within the CCRA were identified through climate modelling, GIS mapping of the infrastructure combined with technical expert workshops which validated the desktop review. The next step is to compare the report findings (based on modelling and workshops) with the physical assets in person - this will be planned over the coming years. From the CCRI and CCRA work that was undertaken, it is clear that the HS1 infrastructure was designed to be resilient to climatic changes. The most impactful climatic conditions would be groundwater and coastal floods in the short term and sea level rise in the longer term. As part of the next steps for the CCRA, we will be reviewing the designed-in flood defences and adjacent flood defence capabilities where interdependencies lie.

For both studies we sought to align scenarios so that we could compare and amalgamate the learnings from both studies. To streamline further, we sought to understand the scenarios that our Shareholders were assessing against at a portfolio level but also Network Rail Infrastructure Limited so that our joint studies would complement each other. For HS1 we set a short-term horizon of 2040 - 2050 which aligns with the HS1 concession end date of 2040, and a longer-term scenario of 2070 - 2100 which the asset's lifespan is expected to extend beyond. Both horizons had a low carbon scenario (Representative Concentration Pathway 'RCP' 2.6 close to current climate conditions ~ 1.5°C global warming) and a business as usual 'hothouse' scenario ('RCP' 8.5 ~ >4°C global warming) applied.

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

HS1 commissioned a CCRA on the full HS1 infrastructure. The report is nearing complete and is being consulted with our strategic partners to ensure it is accurate and provides a clear identification of the climate-related risks and opportunities. Once the report has been completed, we will have a greater and more up to date understanding of the present climate-related risks and opportunities. The report will support HS1 in evaluating the risk and opportunities of the organisations business, strategy and financial planning. From the initial findings of the study and when considered alongside the CCRI study, the risks are expected to be minimal as the HS1 infrastructure is a modern designed and built railway.

To support our management of climate-related risks and opportunities, we are developing an R&D and innovation workstream which will integrate with our standard R&D processes. We will use the workstream to develop adaptation and mitigation where applicable.

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

High Speed rail is a key enabler to a low carbon economy through mass transport capacity and city centre to city centre routes. The HS1 infrastructure provides a low carbon alternative to air travel and air freight between the UK and Europe. To support this position HS1 has been reviewing its purpose, vision and values to ensure that sustainability is accurately reflected in all that we do. Based on this and early evaluation of the transition risk, HS1 is well placed and to support the national and regional transition away from carbon intensive transport options.

As part of our CCRA project, we are assessing the transition risk and once the report has been completed, we will make a full disclosure in relation to this requirement.

Core element of TCFD
Risk Management

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

Board level climate risk is included on the HS1 Corporate Risk Register which is reviewed quarterly. Climate risk is approached in line with our existing risk framework which is based on ISO 31000. Our risk tolerances and appetite are predetermined based on several factors and how they impact our business.

A specific CCRA has been undertaken for the physical HS1 infrastructure and an analysis of the transition risk has been carried out. The CCRA will be fully reviewed and updated every five years and takes into consideration any emerging and legislation that is relevant to climate change. Between the five-year reviews we continually horizon scan for risks (both physical and transition) and ensure we respond effectively and proportionately.

We are in the process of finalising our CCRA and once done, we will publish the findings which will outline the process we are taking along with the definitions of risk terminology used and/or references to existing risk classification frameworks used.

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

Once the CCRAs have been completed we will review the recommendations against our Strategic Asset Management Plan and our long-term Asset Management and Renewals Plans. Alongside our delivery partners and customers, we will consider how best to address the recommendations.
We will review the risk and opportunities tables against our specific CCRA to ensure that all relevant risk and opportunities have been considered as appropriate and where gaps are identified, they will be addressed appropriately.

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

By including a Board level climate-related risk linked to a detailed CCRA, climate risks and opportunities are embedded in our risk processes, outlined in this TCFD report.

HS1 has a mature risk management culture which drives business decisions both within the management team and at Board level.

Core element of TCFD
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) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (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 ESG Report published annually includes data and metrics for all key areas of sustainability and our impact on the natural environment. We have used the TCFD metrics to define our targets and KPIs which are referenced throughout this report. Key metrics are focused within the climate change and adaptation and energy management sections of the report. Once we have reviewed our CCRA we will better under our risks, and which are material for HS1. At this point we will review our current metrics and amend or include further relevant metrics.

HS1 has not set an internal carbon price but we are developing one which will support how we consider carbon internally. As set out in our Sustainability Strategy, we will be considering how we drive a modal shift from air and road to rail and will look to develop a modal shift metric as our understanding improves.