

# Delivering the Green Gateway to Europe

Our ESG Report 2022/23



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## Foreword

**While this year has seen us thankfully move further away from the challenges posed by the pandemic, we have instead seen a number of challenges in the wider economy, which have impacted the rail sector.**

Rising energy prices and increasing inflation is causing significant financial pressure on businesses across the UK. This, in turn, has led to challenges for companies in their Environmental, Social and Governance (ESG) goals.

There have also been challenges for our staff. The metric we use to measure accidents on the High Speed 1 Ltd (HS1) system has led to our 'score' more than doubling over the past year – driven by a rise in staff assaults. Combating workplace violence is a priority for us and we are committed to improving the safety of our workers. That is why all frontline staff are now being issued with body-worn cameras as part of our safety improvement plans to reduce workplace accidents.

Nevertheless, there is plenty of room for optimism when looking at high speed rail in the UK. High Speed 1 is working harder than ever to deliver upon our commitments and meet our 2030 vision, and our actions over the past 12 months showcase that ambition and effort.

Last year we introduced regenerative braking technology on our line, and early analysis of the savings secured by this project show that the system is set to save £2.6m in energy costs per year at current prices, as well as generating enough energy annually to power more than 375 homes.

We have also undertaken a full carbon footprint analysis of our 'Scope 3 indirect emissions', to seek hotspots in our supply chain. This will enable us to accurately track progress and hold ourselves to account.

In addition, we have published our updated People Strategy – a roadmap for championing equality, diversity, and inclusion – and I am pleased that we have greatly exceeded our own expectations of the number of staff engaged in volunteering projects this year. Looking ahead, this year we will sign up to RSSB's Mental Health Charter to promote the maintenance of good mental health.

These are just some of the steps I am most proud of the HS1 team for this year in relation to our ambitious ESG programme. Now though, we are entering a vital part of our journey to create a more sustainable railway and achieving further modal shift to rail.

We are more committed than ever and are constantly improving our understanding of how we will achieve all of our net zero goals and I'm already looking forward to seeing the progress the team make next year in our ESG commitments.



**Dyan Crowther OBE**  
CEO, High Speed 1 Ltd



"We are delighted to see HS1's Green Gateway Sustainability Strategy continue to deliver positive outcomes for the environment and local communities. Good progress is being made on the reduction of operational emissions, the efficient use and disposal of energy and resources, and helping ensure HS1 has a positive impact on biodiversity. We strongly support HS1's commitment to engaging with local social initiatives and community activities, and fostering strong stakeholder relations. As an investor in essential infrastructure, we believe that sustainable business practices drive business performance and underpins long-term social and financial value."



Jack Paris  
CEO, InfraRed Capital Partners

"Infrastructure assets such as HS1 play an essential role in providing sustainable connections between communities and across borders by providing a low carbon transportation option. Fostering economic growth and preserving the vibrancy of heritage buildings such as St Pancras station as well as protecting habitats along the line are just some of its wider social and environmental benefits. Partnership, collaboration, ambitious goals and innovation lie at the heart of HS1's demonstrated effectiveness in shaping the future of sustainable high-speed rail in the UK. This latest ESG report reflects the success of HS1's partnership-based approach, working closely with its customers, supply chain, government and wider industry peers with transparent governance. We are highly supportive of HS1's role in continuing to drive positive change in the sector."



Hugh Crossley  
CEO, Equitix

## Glossary

<b>ABAC</b>	Anti-Bribery and Corruption	<b>KPIs</b>	Key performance indicators
<b>BMS</b>	Building Management System	<b>KWT</b>	Kent Wildlife Trust
<b>BNG</b>	Biodiversity net gain	<b>NRHS</b>	Network Rail High Speed
<b>BTP</b>	British Transport Police	<b>PPAs</b>	Power Purchase Agreements
<b>COP27</b>	Conference of the Parties	<b>PR</b>	Price Review
<b>CPPA</b>	Corporate Power Purchase Agreement	<b>REACT</b>	Route Energy Action & Carbon Reduction Team
<b>CCRA</b>	Climate change risk assessment	<b>SECR</b>	Streamlined Energy and Carbon Reporting
<b>COP</b>	Communication on Progress	<b>SIMD</b>	Singlewell Infrastructure Maintenance Depot
<b>EDI</b>	Equality, diversity and inclusion	<b>SNCF</b>	Société Nationale des Chemins de fer Français
<b>ERM</b>	Enterprise Risk Management	<b>TCFD</b>	Task Force on Climate-Related Financial Disclosures
<b>EVs</b>	Electric vehicles	<b>TOCs</b>	Train Operating Companies
<b>ESG</b>	Environmental, Social and Governance	<b>UKPNS</b>	UK Power Networks Services
<b>FWI</b>	Fatalities and weighted injuries	<b>SSSI</b>	Site of Special Scientific Interest
<b>GRI</b>	Global Reporting Index	<b>TCFD</b>	Task Force on Climate-related Financial Disclosures
<b>HS1</b>	High Speed 1 Ltd		
<b>ILO</b>	International Labour Organisation		
<b>IPCC</b>	Intergovernmental Panel on Climate Change		



**hs**<sup>i</sup>  
high speed one

**OUR  
PURPOSE**

## Our purpose

At HS1, our aim is to provide the most sustainable option for transport across the UK and Europe, challenging the status quo and pushing for significant sustainability gains in the market.

We continue to take action and challenge our performance making sustainable decisions in our sector contributing to a shift towards more sustainable travel. This is reflected in Our Green Gateway updated Sustainability Strategy. The strategy outlines how we work towards our 2030 Vision and is underpinned by our values. This report will align with activities in [Our Green Gateway – 2020 Sustainability Strategy](#).

<h3>Purpose</h3> <p>To manage a high speed rail system, connecting London, Kent and Europe that is good for communities, business and especially the environment</p>
<h3>Vision</h3> <p>Rail travel is everyone's number 1 choice</p>
<h3>Mission</h3> <p>Getting people to fall in love with high speed rail travel</p>
<h3>Values</h3> <ul style="list-style-type: none"><li>BE AMBITIOUS</li><li>BE COLLABORATIVE</li><li>BE TRUSTED</li><li>BE SUSTAINABLE</li></ul>



Top speed: 140 mph  
0-London: 17 minutes

**OUR  
PERFORMANCE**

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## Our performance and priorities

**This report outlines our commitment to ESG, our activities to date, and our priorities for the coming years.**

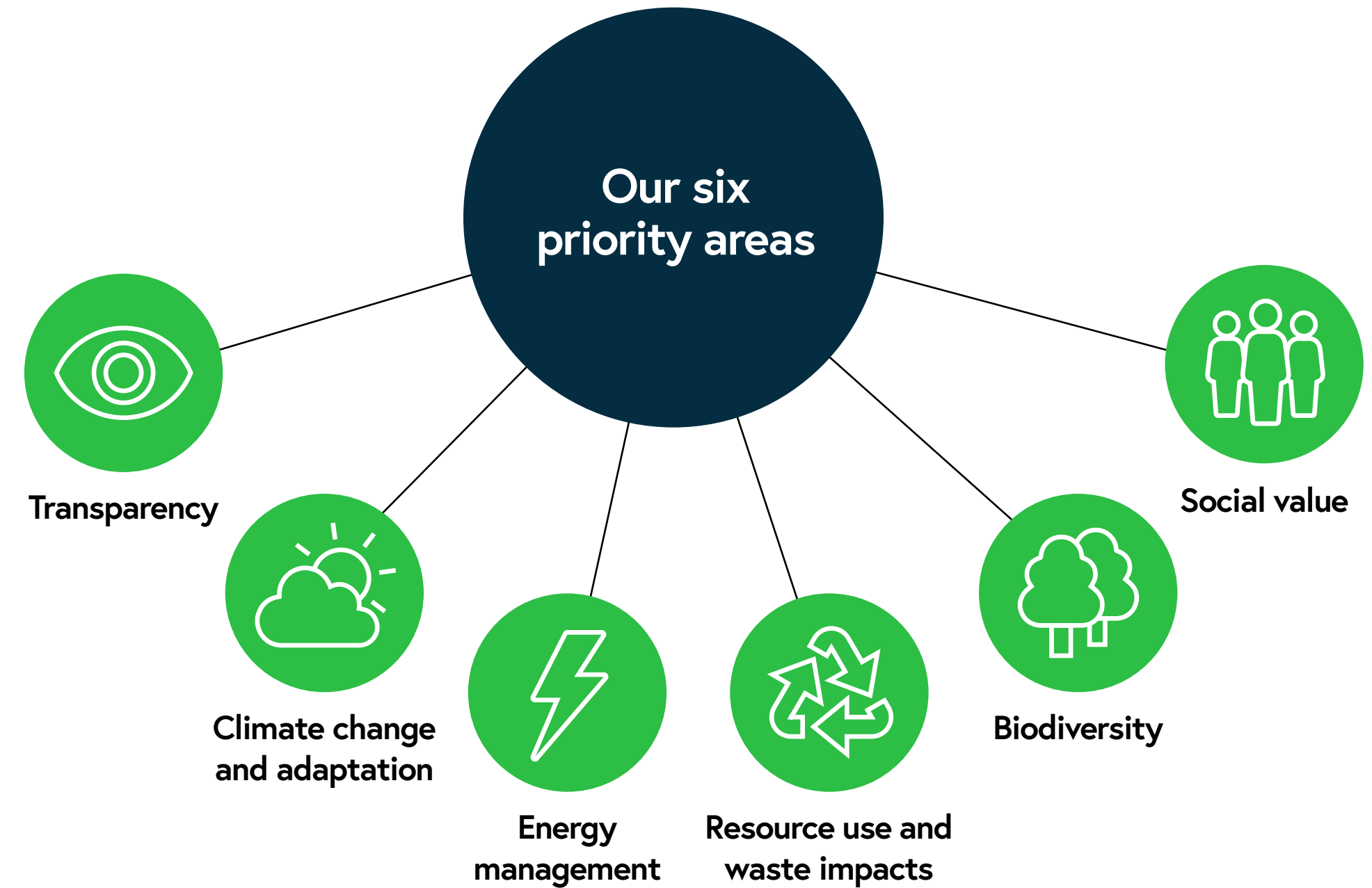
Our work is defined by our priority areas and we seek to achieve continual improvement in these areas annually. The structure of this report is split by priority areas as follows:

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

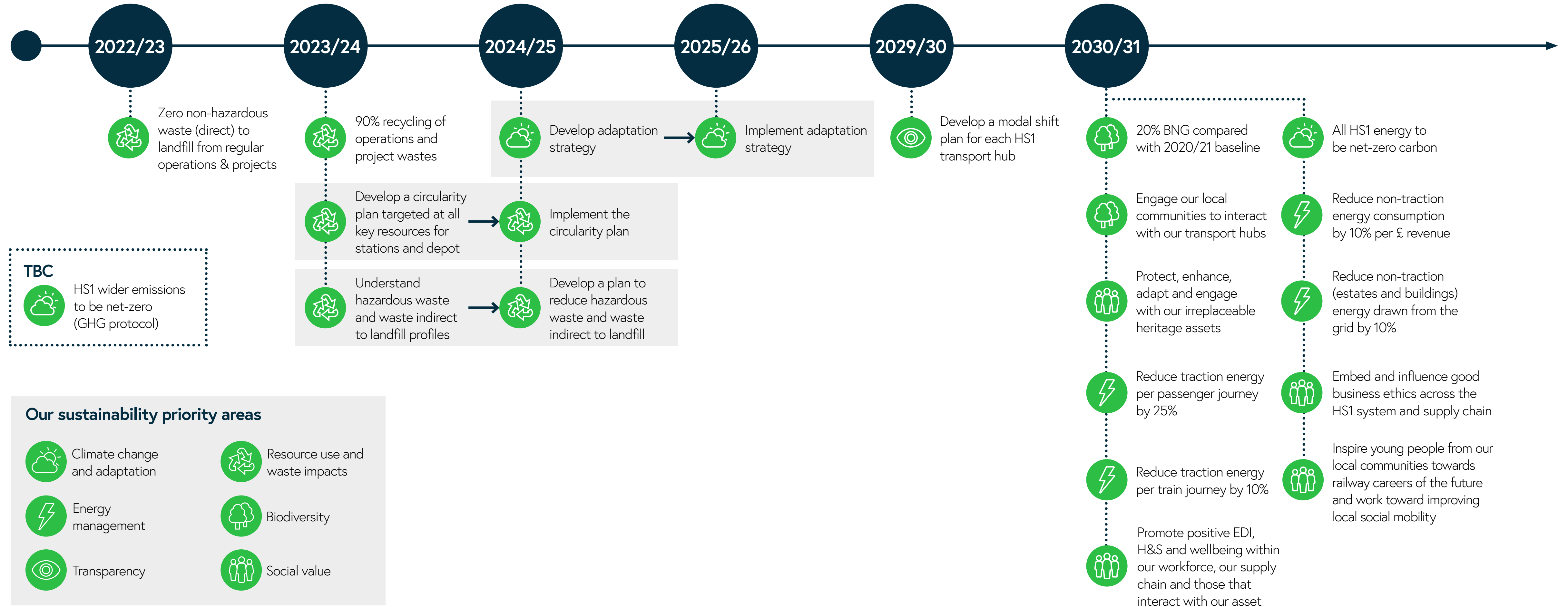


### Our Sustainability Strategy

Our Green Gateway Sustainability Strategy ensures that we continue to deliver the most sustainable form of mass transport from London to Kent and mainland Europe. We work collaboratively with our partners to deliver this strategy and progress towards our vision. Within this report, we will demonstrate progress against our six priority areas. The diagram overleaf shows our sustainability targets through to 2030/31, and highlights our commitment to protecting and enhancing the environment and improving sustainability on the HS1 rail network.



# Targets from 2023 Sustainability Strategy



**Our 2022/23 performance at a glance**

Progress against each of HS1's sustainability priority areas are outlined in the table, compared to the goals in our 2020 Sustainability Strategy, showcasing our activities and performance to date.

**"I am proud of our progress and we will continue to champion sustainability through Our Green Gateway – 2023 Sustainability Strategy to get people to fall in love with high speed rail travel."**



**Richard Throp**  
Engineering and Sustainability Director, HS1 Ltd

Sustainability priority	2022/23 performance				Progress against our 2020 sustainability strategy	Commentary	
<p><b>Transparency</b></p>	Reported <b>zero environmental incidents</b>		Ensured <b>processes and mechanisms are in place</b> to monitor compliance with the UN Global Compact principles (UNGC) and Taskforce on Climate-related Financial Disclosures (TCFD)			We are 100% compliant with relevant environmental regulatory requirements and regularly report performance to our investors, partners and stakeholders. We have progressed UNGC and TCFD reporting.	
<p><b>Climate change and adaptation</b></p>	Compared to 2021/22...		<b>20% reduction</b> in Scope 1 location-based emissions	<b>13% reduction</b> in Scope 2 location-based emissions	<b>13% reduction</b> in Scope 3 location-based emissions		HS1 have continued to make good progress in reducing emissions and our reliance on non-renewables. We have undertaken a carbon footprint audit to understand how our activities contribute to carbon emissions and how we can reduce these in the future.*
<p><b>Energy management</b></p>	Compared to 2021/22...		<b>5% reduction</b> in electricity use	<b>19% reduction</b> in gas use			HS1 have continued to support and lead the implementation of energy reduction at stations and on our route, through REACT Group initiatives and energy reduction initiatives. Regenerative braking has contributed to reducing power consumption.
<p><b>Biodiversity</b></p>	<b>0.89% BNG increase</b> since 2021/22		<b>11 biodiversity habitat area tiles</b> assessed, equivalent to 4.3ha				HS1 have continued to progress in line with targets, enhancing habitats, delivering annual biodiversity spotlight projects and undertaking habitat surveys.
<p><b>Resource use and waste impacts</b></p>	<b>2,507 tonnes</b> of waste generated	<b>59%</b> waste recycled	<b>21,851 m³</b> water consumption				HS1 are working collaboratively with partners to reduce waste and use resources efficiently. We undertook a circularity workshop to identify opportunities to embed circular economy principles in day to day operations.
<p><b>Social value</b></p>	Each HS1 directorate completed a joint <b>volunteering activity</b>	Contributed <b>809 hours</b> of volunteer time	<b>77% of staff</b> undertook volunteering activities, above our target of 50%	<b>£156,011</b> donated to charitable causes and value in-kind.			We have published our updated People Strategy which is a roadmap for championing Equality, Diversity and Inclusion (EDI). From cooking to gardening to mentoring, we have achieved our 2020 Sustainability Strategy social value goals, exceeded our volunteering hours target and the percentage of staff engaged in CSR activities. Our upcoming activities will align with the 2023 People Strategy.

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

**SPOTLIGHT:  
OUR SIX  
PRIORITIES**





## Transparency

HS1 operate in a transparent manner, communicating clearly, monitoring our activities and remaining accountable. Our reporting systems ensure we track our performance and make continual improvements to our operations.

### Our ambition

**HS1's annual ESG report showcases our activities and performance which is underpinned by our sustainability targets. We report against key performance indicators (KPIs) annually in this report and report to our investors, partners and stakeholders, demonstrating performance and areas for improvement.**

### Targets

- Ensure full compliance with relevant environmental and regulatory requirements, underpinned with monitoring systems.
- Report progress annually to inform investors, partners and shareholders.
- Embed Resilience Plan reporting requirements including TCFD and develop UNGC reporting mechanisms.

### Actions taken in 2022/23

- Continued to report progress annually.
- Maintained full compliance with environmental and regulatory requirements.
- Undertaken horizon scans for appropriate reporting frameworks and integrate where appropriate.
- Continued to mature dashboard reporting across the Sustainability Strategy themes and the HS1 railway system.
- Reviewed and republished the Sustainability Strategy to ensure it is still relevant and extend targets to 2030+.
- Signed up to the principles of the UNGC and published our annual Communication of Progress.

### FOCUS FOR 2023/24

- Continue to create mechanisms to further mature TCFD data collection ready for external reporting in future periods to be fully compliant by 2024/25.
- Undertake research to understand how passengers travel to and from our stations.

### CASE STUDY

#### Environmental compliance audit

HS1 has undertaken an environmental compliance audit across the railway system to ensure Network Rail High Speed (NRHS), Mitie, UK Power Networks Services (UKPNS) and HS1 manage environmental compliance obligations relating to the operation, maintenance and renewal of the infrastructure and that associated environmental minimum requirements have been fully addressed.

A compliance dashboard was developed based on the findings of the audit assessments showcasing compliance and opportunities for further improvement. The audit focussed on environmental permitting, waste, air pollution, water, transport, planning and energy.

CASE STUDY

**United Nations Global Compact**

HS1 voluntarily report against the UNGC as we investigate membership. We have undertaken the Communication of Progress that details the work undertaken to embed the Ten Principles into HS1's strategies and operations. The Communication on Progress demonstrates HS1's commitment to sustainability and assurance against universally agreed best practices for topics including human rights, labour, environment and anti-corruption. Further information is available in Appendix 3.

CASE STUDY

**Task Force on Climate-related Financial Disclosures**

TCFD is a framework used by organisations to disclose against climate-related risks and opportunities. HS1 first reported against TCFD in the 2020/21 ESG report and have continued to develop the mechanisms to measure progress and enhance our annual reporting. These activities allow us to understand performance and undertake climate-related financial reporting. We have been developing internal mechanisms to report against TCFD with the aim of being fully compliant in 2024/25. To support the development of our TCFD reporting, we undertook a comprehensive Climate Change Risk Assessment which concluded that the asset is resilient to expected changes in climate hazards due to its modern robust design. Further information on the four disclosures, Governance, Strategy, Risk Management and Metrics and Targets can be found in Appendix 2.

**"Sustainability is at the heart of what HS1 does. It will continue to be embedded further as we enhance our TCFD reporting in the coming year. Within our third annual ESG report we continue to demonstrate the environmental benefits of travelling by high speed rail. Our aim is to improve this by increasing the proportion of our electricity purchased from renewable sources, ensuring we are on track to meet our commitment of Net Zero by 2030."**



**Mark Farrer**  
Chief Financial Officer, HS1 Ltd



# Roadmap to 2030: Transparency

**Operating transparently is important to us to ensure we are recognising 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.

We have included modal shift as our driver for change under transparency and we will look at how we develop our transport hubs to be centres for our communities for years to come.

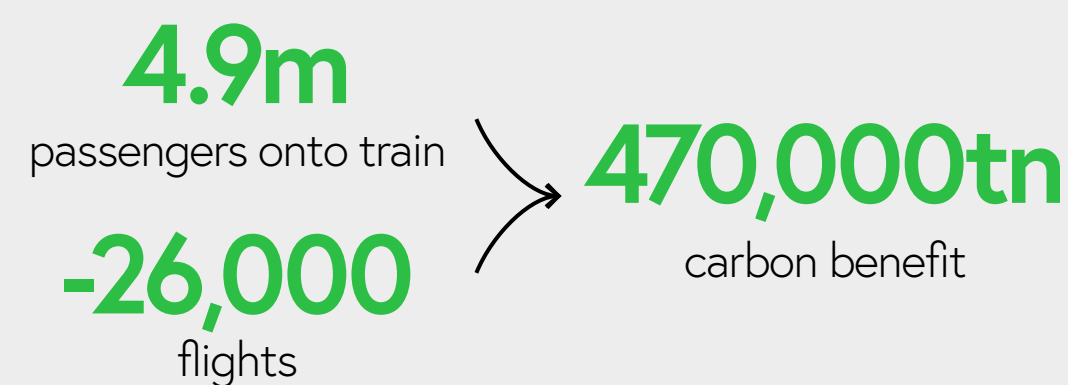
## Modal shift

Develop a modal shift plan for each HS1 transport hub.

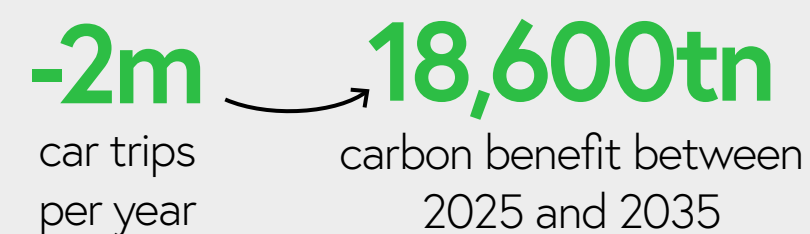
### INSIGHT

#### HS1 annual modal shift opportunity

##### International



##### Domestic

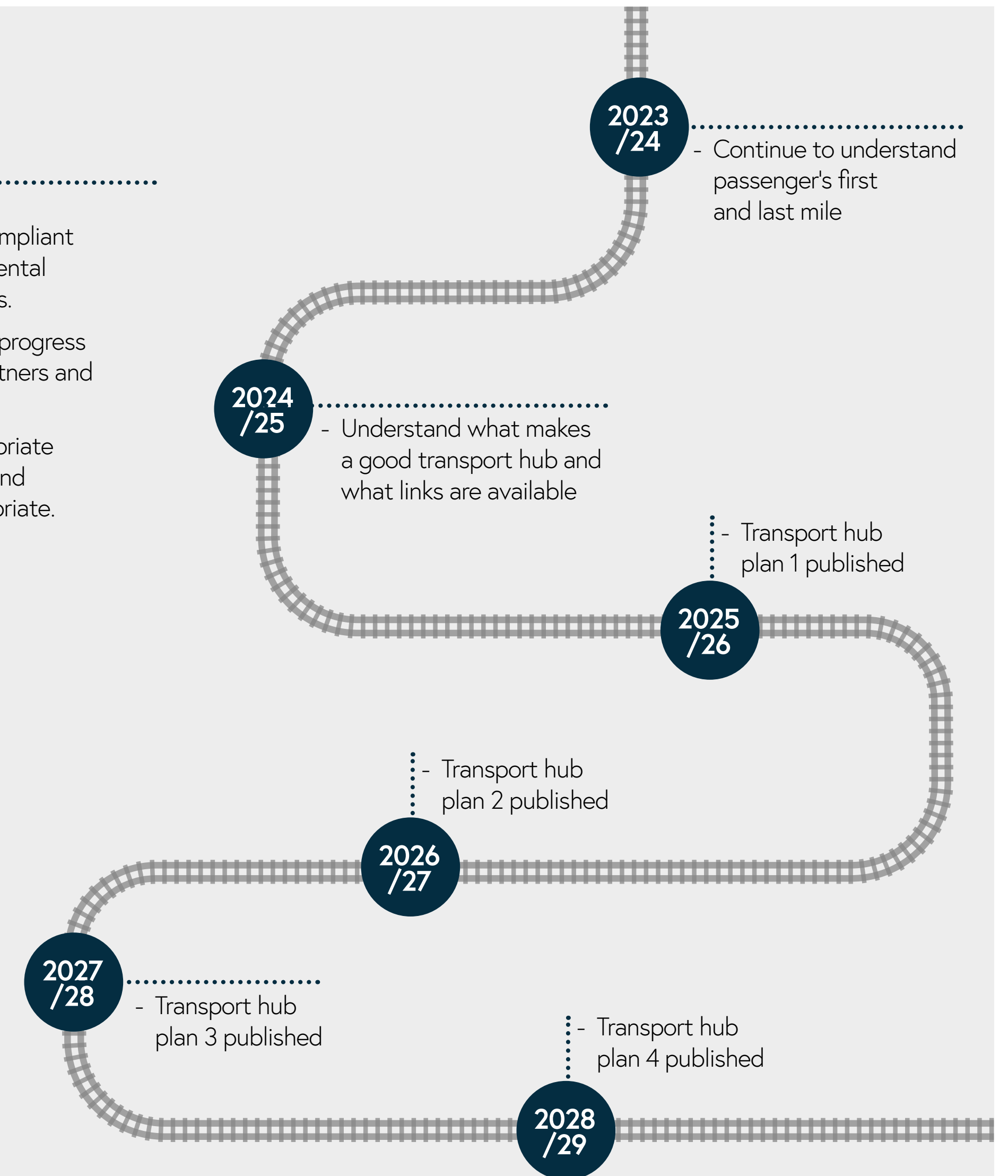


### Ongoing activity

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

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

Horizon scan for appropriate reporting frameworks and integrate where appropriate.





## Climate change

We aim to act in an environmentally responsible manner, reducing our impact on our environment and making the most sustainable choices. We will continue to monitor our performance including measuring carbon emissions to drive efficiencies and respond accordingly.



### Our ambition

**HS1 are taking measures to ensure we operate in a sustainable and responsible manner. We are taking steps to understand the risks that climate change poses to our business through undertaking scenario analysis and 'stress-testing' HS1's resilience to a level of exposure that could arise.**

We have assessed short and long-term time horizons and applied best and worst case temperature rises which allow us to robustly plan for the future.

The phased procurement and implementation of Corporate Power Purchase Agreements (CPPAs) is a key part of our strategy which is on track to deliver the strategic objective of securing the majority (c.80%) of the systems baseload electricity requirements through renewable CPPAs by April 2025. This step compliments targets within HS1's sustainability strategy that traction and wider energy will be net-zero by 2030. External events over the past year have validated and supported HS1's approach to energy purchasing through securing long-term, renewable energy agreements at affordable prices. We have the ambition to purchase 100% renewable energy and will work collaboratively with Train Operating Companies (TOCs) to achieve this.

### Climate change and adaptation

### Targets

- Traction energy to be net-zero by 2030.
- HS1 non-traction energy use to be net-zero by 2030.

### Actions taken in 2022/23

- Continued to develop an internal carbon price.
- Continued to develop our commercial electric vehicle (EV) strategy and started to develop supply chain EV strategies.
- Drafted a climate adaptation strategy following the development of the Climate Change Risk Assessment (CCRA).
- Continued to work with freight operators to develop a solution to support the business case for a modal shift to high-speed rail.
- Completed the implementation of CPPA 1 resulting in 40% of electricity as zero-carbon by the end of the financial year.
- Maintained Achilles Reduce Carbon certification to externally validate energy and carbon data.

### FOCUS FOR 2023/24

- Implement and review potential for carbon 'insetting' via the Kent Wildlife Trust Consultancy Carbon Plus Habitat tool.
- Undertake a full spectrum Carbon Footprint Analysis for previous reporting years and identify our largest emission sources through HS1's expanded scope carbon footprint analysis.
- Consult with the supply chain regarding the CCRA and develop a joint outline Climate Change & Adaptation strategy.
- Commence procurement of CPPA 2.




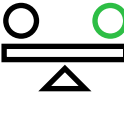
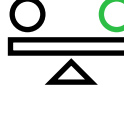

Climate change and adaptation

**Our performance**

This table summarises HS1's carbon emissions from 2020 to 2023. 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 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.

The difference between 2021/22 and 2022/23 market-based scope 2 emissions is almost entirely due to a reduction in the amount of renewable electricity purchased last year compared to this year – down from 100% to 12% – due to a sudden increase in unit rates. To rectify this reduction, HS1 has since invested in CPPAs, increasing renewable electricity supply to 40% across the entire system at the start of the 2023/24 financial year.

In order to maintain consistency in reporting against a common scope and boundary, the emissions reported here are in accordance with the Streamlined Energy and Carbon Reporting (SECR) requirements and include only; Scope 1: gas usage in buildings, Scope 2: electricity usage in buildings and HS1's apportionment of traction power (considered to be system losses), Scope 3: Transmission and distribution losses and diesel used in fleet vehicles by maintenance supplier.

	2020/21	2021/22	2022/23
 <b>Total market-based emissions</b>	<b>2,844</b> tCO <sub>2</sub> e	<b>2,889</b> tCO <sub>2</sub> e	<b>12,812*</b> tCO <sub>2</sub> e
 <b>Total carbon offset due to Renewable Energy Guarantee of Origin (REGO)/ CPPA</b>	<b>7,365</b> tCO <sub>2</sub> e	<b>13,553</b> tCO <sub>2</sub> e	<b>1,351</b> tCO <sub>2</sub> e
 <b>Carbon savings with offset</b>	<b>80%</b>	<b>82%</b>	<b>9.5%**</b>
 <b>CO<sub>2</sub> per user using net emissions</b>	<b>0.362 kg</b> CO <sub>2</sub> e	<b>0.113kg</b> CO <sub>2</sub> e	<b>0.309kg***</b> CO <sub>2</sub> e

\* This reporting year we purchased 12% of our electricity from renewable sources which has zero carbon content. In 2021/22, 100% of the electricity was bought from renewable sources.

\*\* Overall carbon saving by PPAs for total emissions.

\*\*\* The difference between 2021/22 and 2022/23 is almost entirely due to a reduction in the amount of renewable electricity purchased this year compared to last year, which is due to the sudden increase in unit rates.





**"Carbon emissions are important to HS1, and we are focused on implementing strategies to reduce these. HS1 already offers one of the lowest carbon forms of transport, but it is important that our asset management objectives and strategies drive continual improvement in this area."**



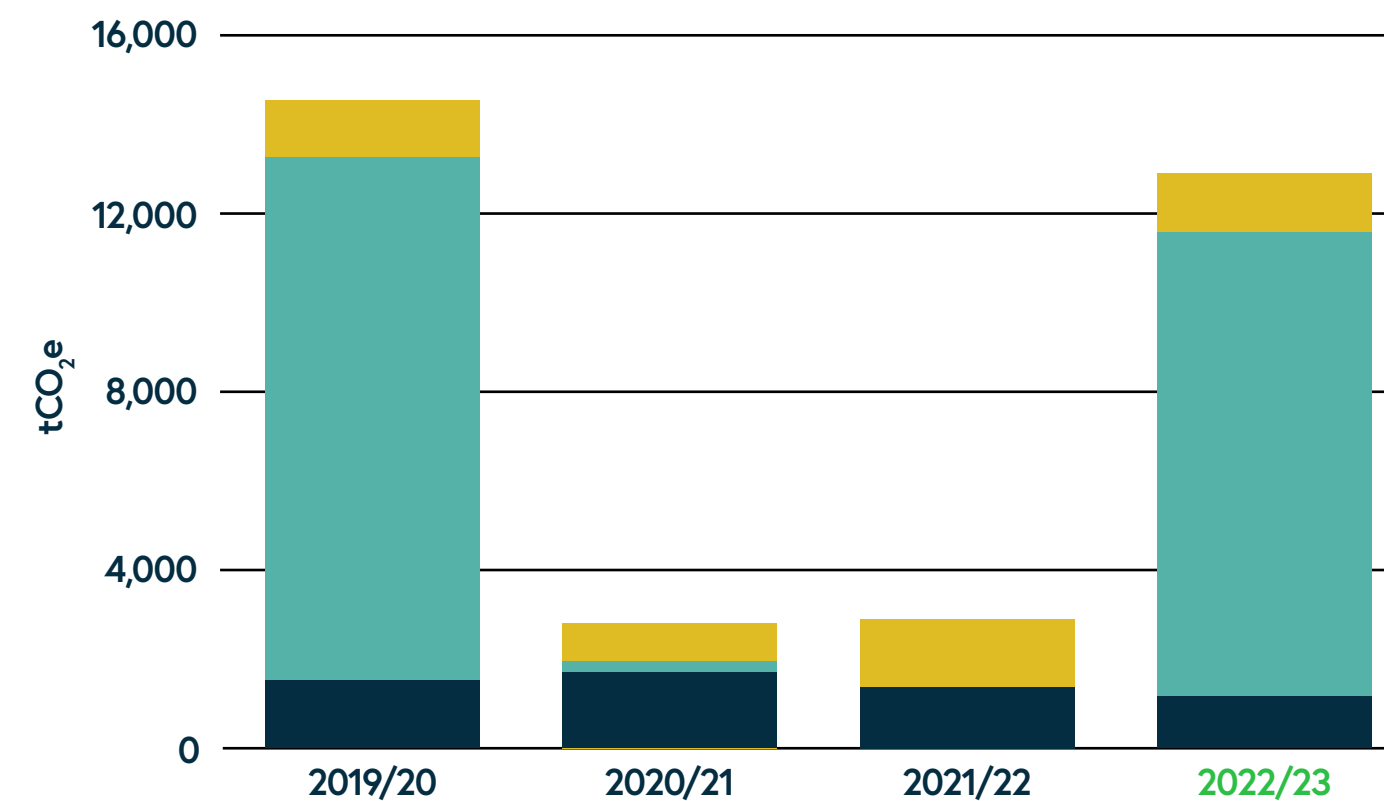
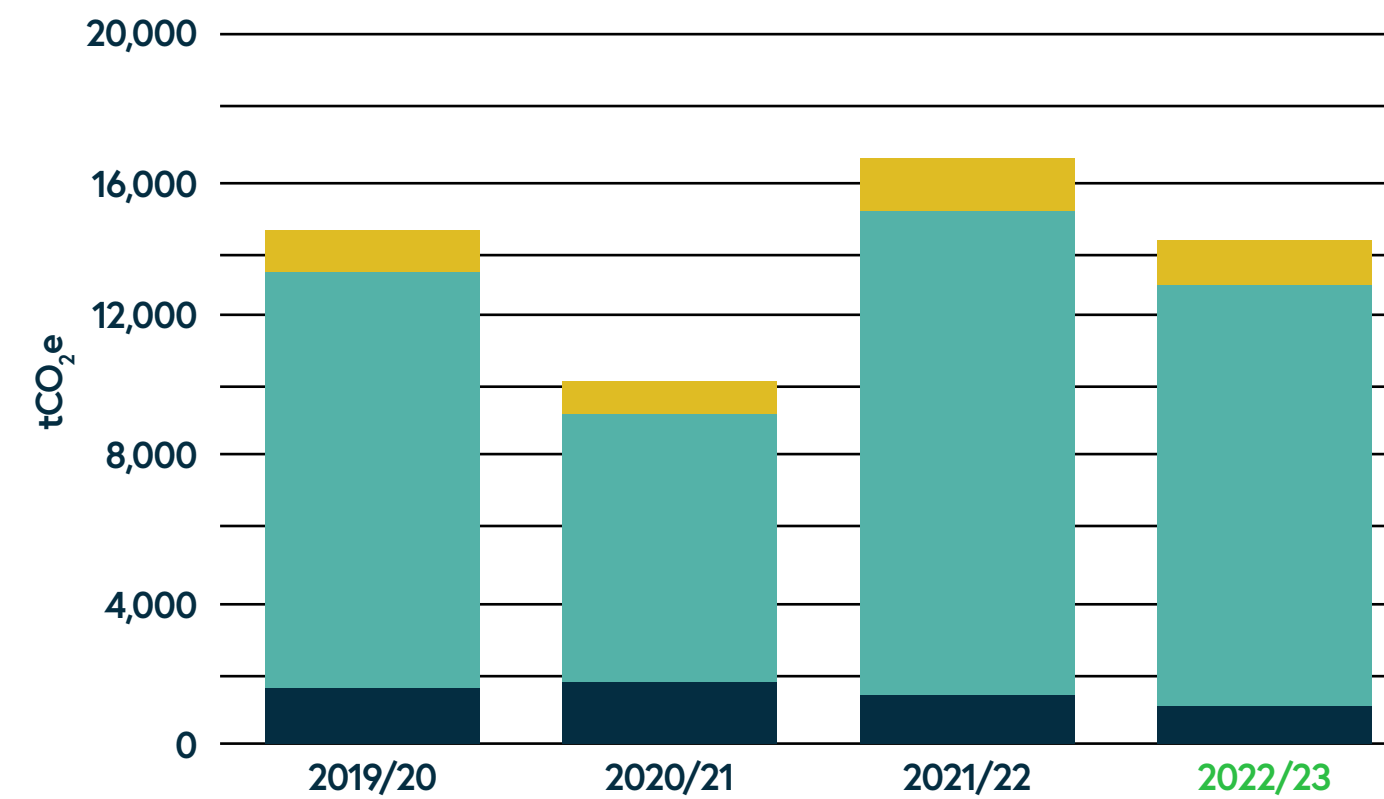
**Jo Parkes**  
Head of Asset Management, HS1 Ltd

Climate change and adaptation

	2020/21	2021/22	2022/23
 Locations based (tCO <sub>2</sub> e)			
Scope 1 emissions	1,681	1,427	1,143
Scope 2 emissions	7,653	13,553	11,747
Scope 3 emissions	875	1,462	1,273
Total gross emissions	10,209	16,442	14,163

	2020/21	2021/22	2022/23
 Market based (tCO <sub>2</sub> e)			
Scope 1 emissions	1,681	1,427	1,143
Scope 2 emissions	288	0*	10,396
Scope 3 emissions	875	1,462	1,273
Total net emissions	2,844	2,889	12,812

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



Scope 1 Scope 2 Scope 3

"CPPAs not only provide renewable energy in line with our Sustainability Strategy but help create price certainty as the UK continues its transition to renewable energy, protecting against on-going volatility of market prices and any future tax on non-renewable energy."



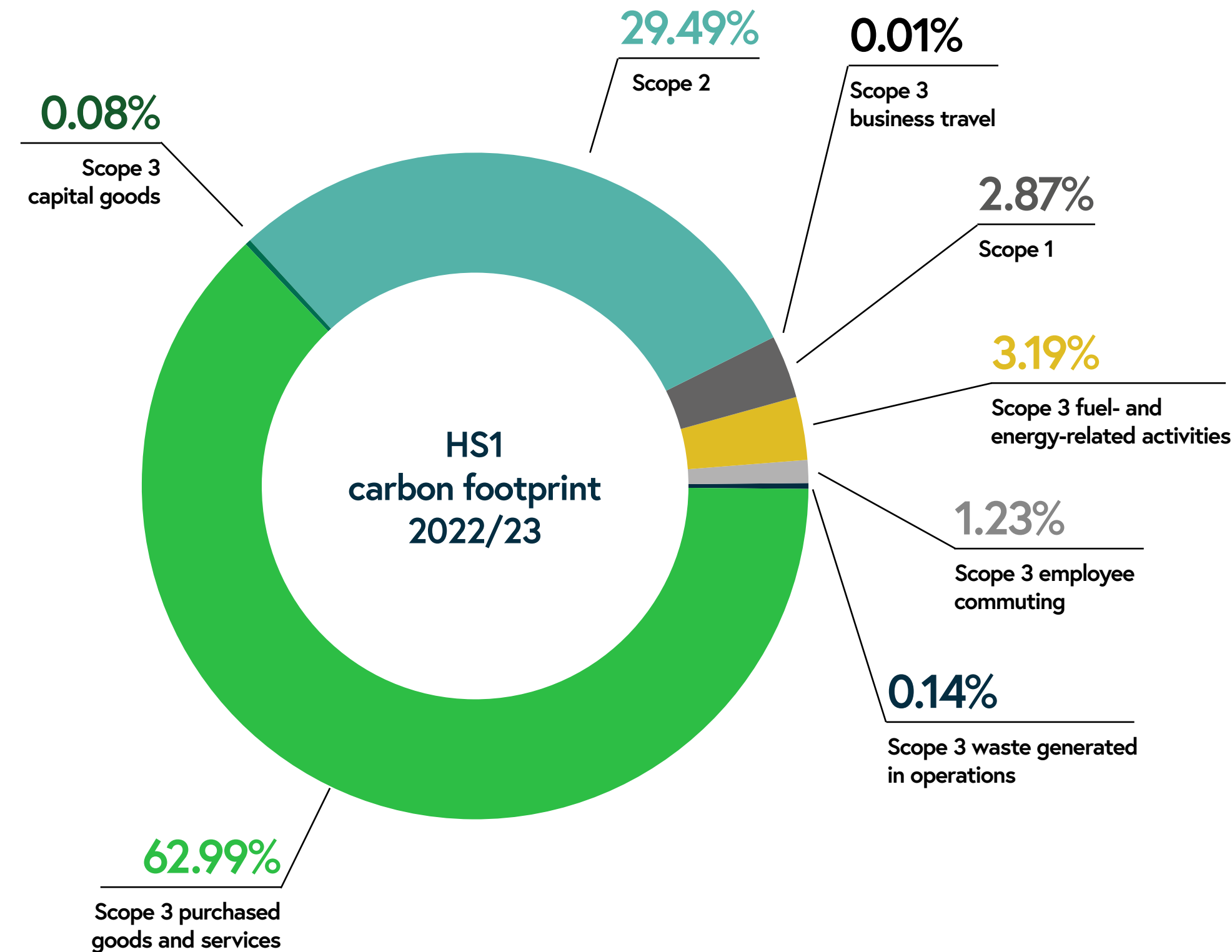
**Jon Boucher**  
Head of Key Supplier Contacts, HS1 Ltd

**Carbon management**

In 2020/21, we established our carbon baseline (based on 2019/20) allowing us to understand the areas of our business that contribute most to our carbon impact and allow us to identify and recognise our carbon hotspots based on our SECR scope and boundary.

**Carbon footprint analysis**

During this financial year, a full-scope carbon footprint audit was undertaken on all emissions attributed to HS1's operations in accordance with the GHG protocol beyond the SECR scope and boundary. The full scope emissions inventory for 2022/23 has been fully audited and is shown. The full emissions inventory for baseline year FY2019/20 to FY2021/22 is underway and will be audited in time for next year's ESG report. To support the full scope disclosure, we will carry out a fine-detail review of previous year's emissions. From then onwards, the full emissions inventory will be reported.



CASE STUDY

**Expanding scope of Achilles Carbon Reduce**

Our 2022/23 carbon footprint data was audited by the Achilles Carbon Reduce programme, the UK's only Accredited Greenhouse Gas Certification Scheme. HS1 have undertaken voluntary audits over the last ten years, and the ISO14064-1 accreditation will give us the absolute confidence that we can stand behind our carbon claims. From 2023, HS1 will conduct full-spectrum greenhouse gas measurement and reporting exercise.

CASE STUDY

**Carbon impact training to the HS1 team**

Embedding sustainability into everything that we do is a key focus for HS1. To this end, HS1 have developed an internal communications plan, providing 'Sustainability Spotlights' on topical subjects throughout the year, ranging from COP27 updates to Christmas time waste. Part of this year's plan included rolling out carbon impact training to the HS1 team, promoting a 'low carbon culture' at work, and offering practical ways to reduce individual's carbon footprint at home. Case studies across the business demonstrate everyone has the opportunity to contribute to a low carbon society, no matter what their job role may be.

CASE STUDY

**Climate risk assessment – transition risks and physical climate risks**

With notable increases in the frequency and severity of extreme weather events, HS1 have been undertaking activities to understand the associated climate and financial risks. The study was conducted in collaboration with the WTW Strategic Risk Consulting team to identify that although weather impacts will become more extreme, the HS1 infrastructure as a modern designed and built system, is resilient.

**Transition climate risks**

HS1 have undertaken an assessment of climate transition risks across the concession period. Scenario analysis has been used to 'stress-test' HS1's resilience to transition risk by considering the level of exposure under a low carbon economy, where temperature rise is limited to 1.5°C by the end of the century. Current activities, planned mitigation and data analysis were reviewed which supported the assessment of the risk and opportunity exposure to a collection of eleven transition risk drivers, classified under the four TCFD disclosures: Governance, Strategy, Risk Management and Metrics and Targets.

HS1 is considered to have a low level of transition risk exposure. This was measured against the company's internal Enterprise Risk Management (ERM) scales.

HS1's risk exposure is driven by anticipated investment requirements to install lower emission technology at stations and upgrade railway maintenance vehicles. It is anticipated to be an investment priority in the coming years. There are great opportunities presented by the transition to a low carbon economy and HS1 are in a unique position to provide a service that can support carbon savings.

**Physical climate risks**

The aims of the physical climate risk study were to identify potential future weather vulnerabilities associated with physical climate change exposures. In addition, the study supported the development of the HS1 TCFD report and the HS1 voluntary Adaptation Reporting Power (ARP) Phase 3 enabled by the Climate Change Act 2008 and will support ARP 4.

Acute hazards including coastal floods, river floods, windstorms and chronic hazards including heat stress, drought and precipitation were assessed as part of the study. Collaboration with HS1 and key NRHS stakeholders identified potential vulnerabilities of physical damage and operational disruption to the HS1 rail network infrastructure and key assets at stations. The next steps build on this knowledge and will identify the potential weather impacts at an asset level and what adaptations, if any, are required.

Recommendations were made to manage HS1's exposure and potential vulnerabilities to physical climate change impacts including floods, windstorm, heat/drought and risk financing. HS1's infrastructure assets have been designed to be resilient against severe low likelihood catastrophic events for example a 1:100 year event. Within the coming years, it is important to ensure HS1's assets can withstand the impact of more.



# Roadmap to 2030: Climate change and adaptation

**Emissions from energy account for one of our largest impacts and addressing this has been our first priority in reducing our overall carbon footprint.**

HS1 have robust plans in place and we are reducing these emissions. We will also start to tackle our wider emissions and, following detailed analysis, we will develop reduction plans.

The HS1 infrastructure is vitally important as the only rail link between the UK and mainland Europe. The infrastructure provides high potential for a reduction in carbon emissions. Ensuring that it remains fit for purpose is essential. We will continue to develop our climate resilience plans based on assessments into potential future weather impacts.

## Net zero carbon

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

## Net zero emissions

All HS1 emissions to be net-zero.

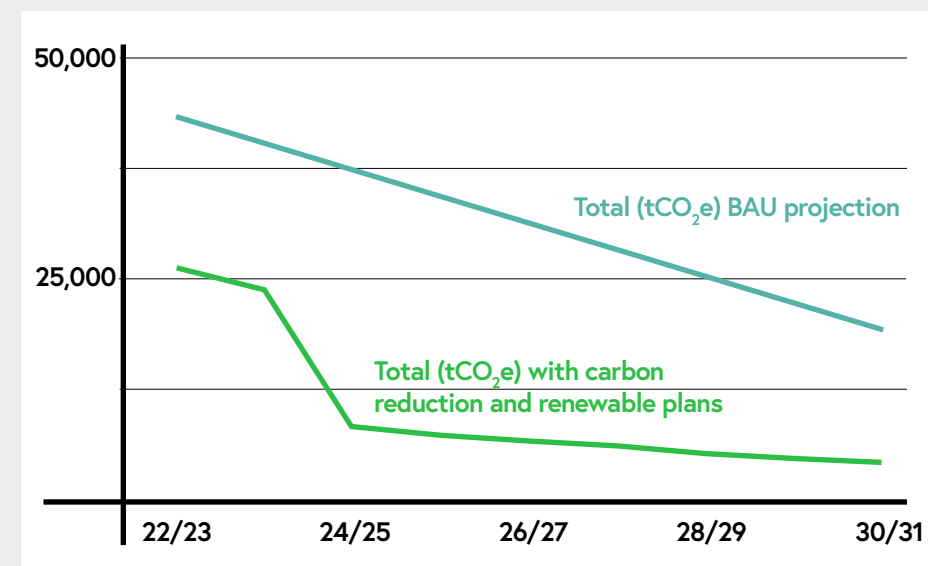
## Adaptation strategy

Develop adaptation strategy and implement.

### GLIDE PATH

#### Net zero carbon energy reductions

Our current plans will see us reduce our energy emissions significantly by 2030/31. We have set a target in 2026/27 to develop a plan to address the residual carbon emissions from energy, once we have implemented our cost-efficient CPPAs and are more progressed in our reduction and onsite renewables plans. In doing so, we will look to reduce our emissions as far as reasonably possible before considering offsetting.



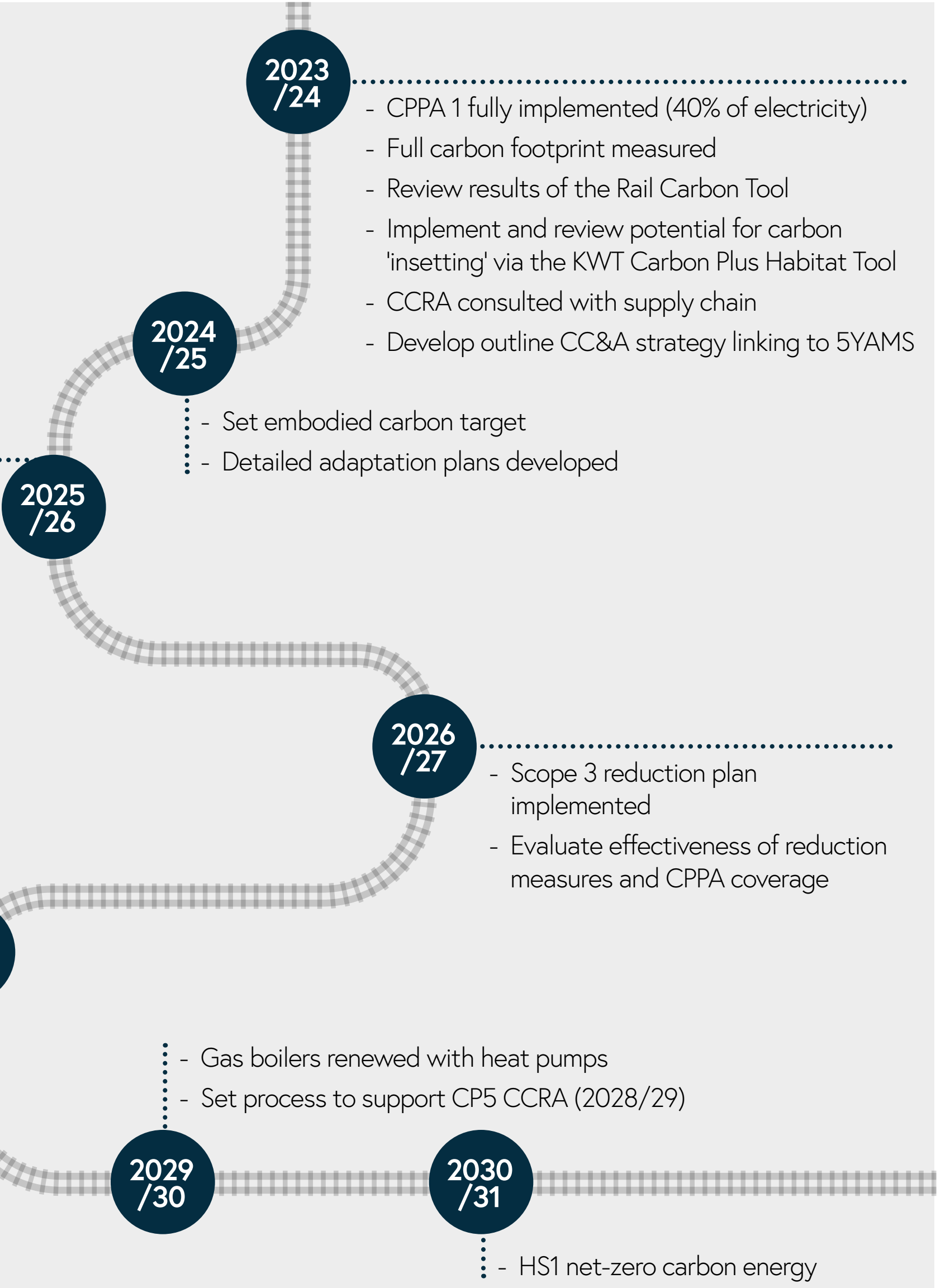
### Climate change and adaptation



#### Ongoing activity

Maintain Achilles Reduce Carbon certification or similar to externally validate energy and carbon data and claims.

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





## Energy management

HS1 are committed to improving energy efficiency and reducing energy usage. We will continue to do so by undertaking initiatives and projects with stakeholders and our value chain.



### Our ambition

**Our current energy use is lower than pre-covid times, given reduced train volumes as the railway continues to recover from the pandemic. We will continue to implement energy reduction initiatives alongside sourcing energy from renewable sources and work towards on-site generation.**

### Targets

- Reduce traction per passenger journey by 25% by 2030.
- Reduce traction energy per train journey by 10% by 2030/31.
- Reduce non-traction (estates and buildings) energy drawn from the grid by 10% by 2030/31.
- Reduce non-traction energy consumption per sq. m in our estates by 10% by 2030/31.

### Actions taken in 2022/23

- Continued to support and lead the implementation of energy reduction at stations.
- Published the HS1 Energy Strategy and progressed towards energy targets.
- Established and embedded an energy reduction group for traction and lineside energy.
- Identified and delivered small scale energy projects across route and stations.

**"No project is too big or small for consideration, and the REACT group is currently working on schemes ranging from simple insulation solutions to more complex solar panel installations on building infrastructures."**



**Gary Warner**  
HS1 Manager for UKPNS

### FOCUS FOR 2023/24

- Analyse regenerative breaking on the domestic fleet and estimate the benefit for the international fleet, to be included in the Price Review 24 (PR24) submission.
- Include funding within the PR24 submission for large scale energy reduction projects.
- Identify solar opportunities and identify potential sources of funding.
- Survey the infrastructure to identify further energy saving opportunities.
- Continue to deliver small scale energy reduction projects.
- Review the tenant fit out and operations guide to ensure they include energy reduction through design and operation.

**HS1 Energy Strategy**

HS1's Energy Strategy was published in 2023 and is based on three principles:

- Projects that reduce energy use
- Use of alternatives to gas
- Greener procurement of the resulting electricity required.

**Traction energy**

HS1 completed the installation of regenerative braking on the Southeastern high speed fleet at the end of 2022. This has significantly reduced traction energy consumption, with predicted annual savings of 5.5 GWh, equating to financial savings of circa £2.6 million per year. A feasibility study is required for the adoption of regenerative braking on the Eurostar fleet and it is estimated this installation would save around 2 GWh per annum. The REACT group was established to drive continual improvement in this area, identifying small scale energy reduction initiatives to compliment larger schemes such as regenerative braking.

**Non-traction energy**

A project is currently underway to replace the station boilers with air source heat pumps at St Pancras International, Stratford and Ebbsfleet International stations. At Singlewell Maintenance Depot and Ashford Station, the boilers are to be replaced with air source heat pumps before 2030. This will remove HS1's dependency on gas and significantly reduce the carbon impact of the station and depot operation, reducing our scope 1 emissions. The phase out of the boilers will enable HS1 to make an 18% reduction in non-traction energy consumption. HS1 have also identified projects that could deliver up to a 23% reduction and the viability is currently being assessed.



Three key projects have been identified to reduce energy consumption and energy drawn from the grid. These include lighting control upgrades in St Pancras International; air handling unit upgrades and control modifications in St Pancras International and large solar panel installations. These initiatives require large scale investment, and would create a 4% saving in non-traction energy. HS1 is currently investigating ways to fund these projects.

HS1 has a number of teams looking at ways of reducing energy use along the route and in our stations. The teams include representatives from HS1 and our suppliers and meet monthly to review the progress of energy saving initiatives. The teams identify energy saving opportunities across a range of lineside and station assets.

CASE STUDY

**Regenerative Braking**

Following the successful conclusion of an 18-month multi-agency project, regenerative braking has been rolled out across the whole Class 395 fleet. HS1 entered a contract with UKPNS to deliver assurance activities and oversee project management activities. Following extensive modelling, operation of test trains and presenting information to the Safety Review Panel, the Class 395 train fleet was permitted to operate in regenerative braking mode. The introduction of regenerative braking on HS1's assets has significantly reduced power consumption, reducing the environmental impact and supporting the HS1 sustainability strategy. This initiative has been hugely successful and is currently producing energy savings which surpass those predicted by the pre-implementation modelling. It should be noted that, if sustained, the recent increases in electricity prices will lead to much greater annual savings that will reduce the payback time. The benefits of regenerative braking include a 10% energy reduction for the Southeastern fleet, equating to a circa £2.6million pound saving in energy costs.

**5.5GWh**

Reduced power consumption per annum.

**1,063kg CO<sub>2</sub>e**

Annual location-based saving.

**£2.6m**



Circa £2.6 million annual savings (using winter 2022 electricity prices).

**Performance in 2022/23**

The table and graphs present the electricity and gas usage across a three year period. In this financial year, electricity consumption reduced at 4 out of 9 key consumption points.

Gas consumption reduced at all sites due to the optimisation of the Building Management System (BMS) and related control systems, delivered through the Energy Action Group and REACT group.

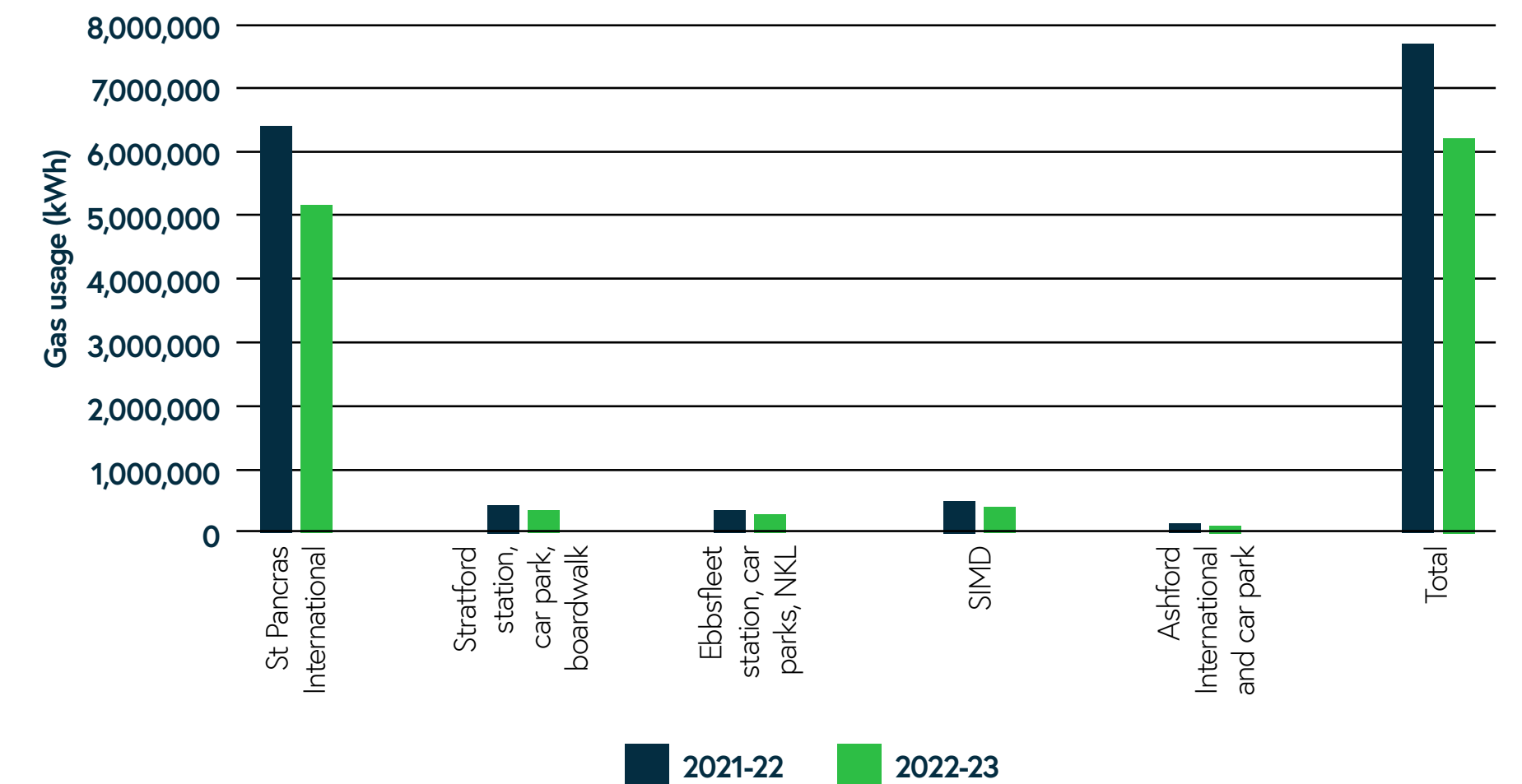
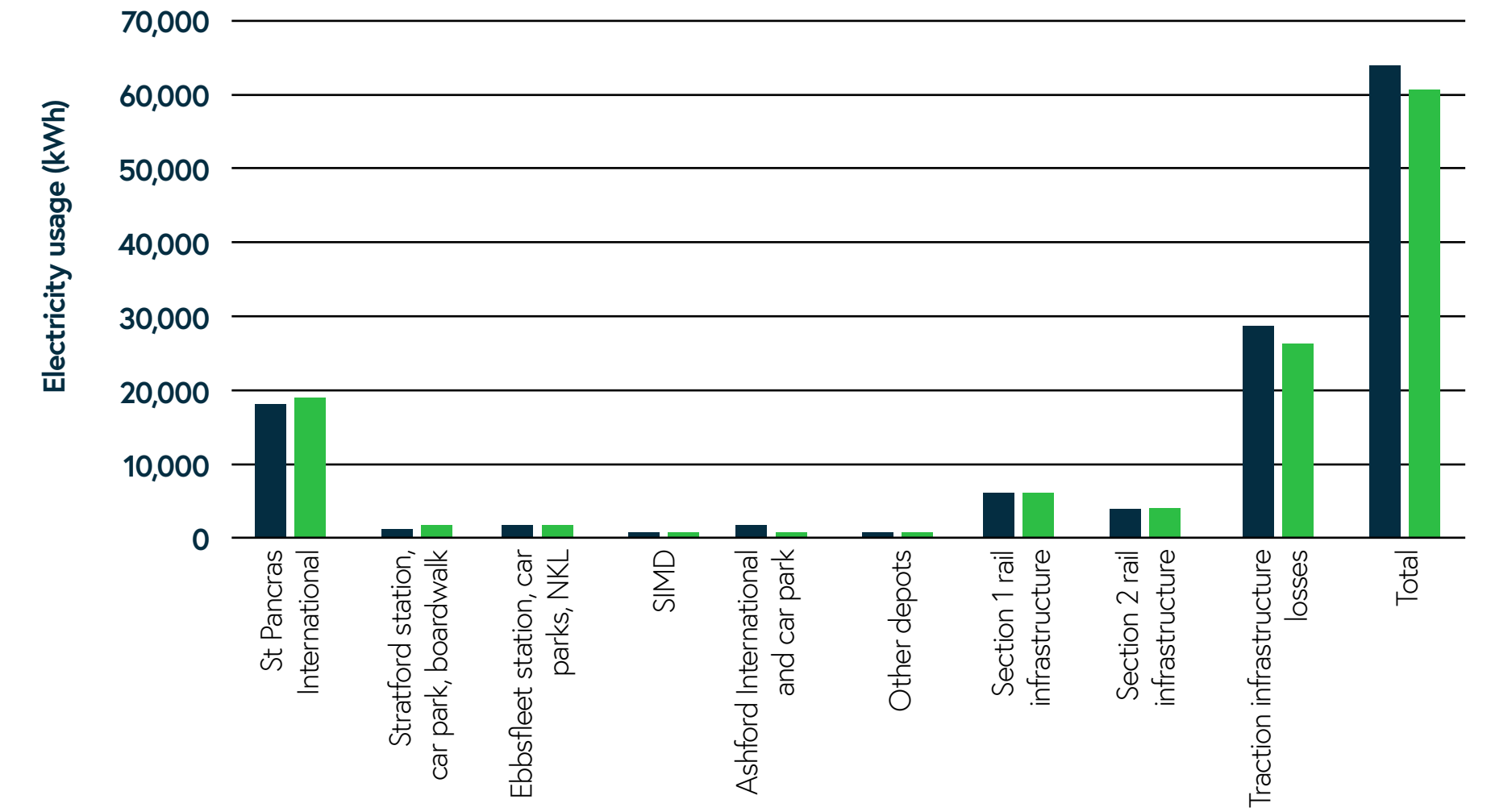
The most significant was the reduction in electricity use on traction power with an increase in passengers. This is attributable to the implementation of regenerative braking on the trains and will see an increase of this effect in 2023/24.

		2020/21	2021/22	2022/23
 Electricity	<b>Electricity use (MWh)</b>	<b>32,825</b>	<b>63,828</b>	<b>60,747</b>
	<b>Electricity use change</b>	94% increase due to a change of boundary and we will continue to use this as our baseline going forward.*		<b>-5%</b>
 Gas	<b>Gas use (MWh)</b>	<b>9,142</b>	<b>7,740</b>	<b>6,263</b>
	<b>Gas use change</b>	15% reduction due to optimisation measures in stations		<b>-19%</b>

\*The boundary change consists of HS1 taking responsibility for the losses on the traction electricity infrastructure that supplies power to the trains

**SPOTLIGHT**

Energy management





CASE STUDY

**REACT Group**

HS1 have established an Energy Working Group focused on delivering lineside energy reduction initiatives titled the Route Energy Action & Carbon Reduction Team (REACT). The group is a collaboration between our key supply chain partners, including NRHS and UKPNS, drawing on specialist knowledge from across our assets, and streamlining the project implementation process.

This year, the group focussed on conducting survey work at several lineside assets. The results of these surveys have been used to develop an implementation plan that delivers the optimum energy efficiency gains for the assets in question. This plan is being delivered, initiatives include optimisation of BMS and insulation improvements on water pipes. HS1 will maintain this momentum next year, and continue to drive efficiencies on our railway.

We have used the results of these surveys to plan future carbon reduction schemes, some of which have already been implemented. Activities included:

**Pump configuration surveys**

A survey of pump operations at Singlewell Infrastructure Maintenance Depot (SIMD) identified a significant energy saving opportunity. As is typical, the heating and cooling water circulation pumps are currently installed in a run/standby pair configuration. In 2023/24, HS1 will install a variable speed drive and controls to operate the pumps in parallel at reduced speed, thus yielding energy savings as well as improving reliability.

**Fan configuration surveys**

Based on the same principle, HS1 trialled reducing the speed of main supply and extraction fans, activating standby fans to maintain sufficient air flow. Operating these fans in parallel reduced energy consumption significantly. In 2023, we will make this a permanent change across several lineside assets. Additionally, we will install carbon dioxide and temperature sensors at these sites, capable of controlling airflow based on real-time air quality data, reducing unnecessary energy consumption.

**Building Management System deep dive**

The amount of energy that a building consumes is highly dependent on the BMS. This year, we investigated the BMS that controls SIMD including reviewing the chiller temperature settings and winter schedules, heating schedules, temperature setpoints, floating setpoints and dead bands. The results have been discussed with a specialist engineer, who has implemented a suite of energy saving measures.



**Solar installation surveys**

This year we have surveyed several lineside sites to determine the viability of installing photovoltaic technology, including undertaking structural surveys, power output modelling and connection feasibility studies. The results are promising, and we hope to progress these schemes in 2023.

These measures will drive efficiencies and guarantee reductions in our energy and carbon footprint, thus supporting HS1's sustainability ambitions across the network.

CASE STUDY

**Energy Action Group**

The Energy Action Group (EAG) is a collaboration between our key supply chain partners and TOCs and focuses on implementing energy saving initiatives in our stations. This year, the group has focused on optimising BMS at St Pancras, Stratford and Ebbsfleet International stations, the optimisation of existing systems can result in significant carbon savings. The group will continue to identify small scale energy saving opportunities within our four key stations, to complement our larger energy saving schemes and drive increased performance.

# Roadmap to 2030: Energy Management

**Traction energy is our biggest source of power consumption and impact. The trains are operated by the TOCs and we will influence them to operate in a more energy efficient way.**

For all other energy, we will 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 the procurement of future estates, new builds and refurbishment programmes.

## Traction energy

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

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

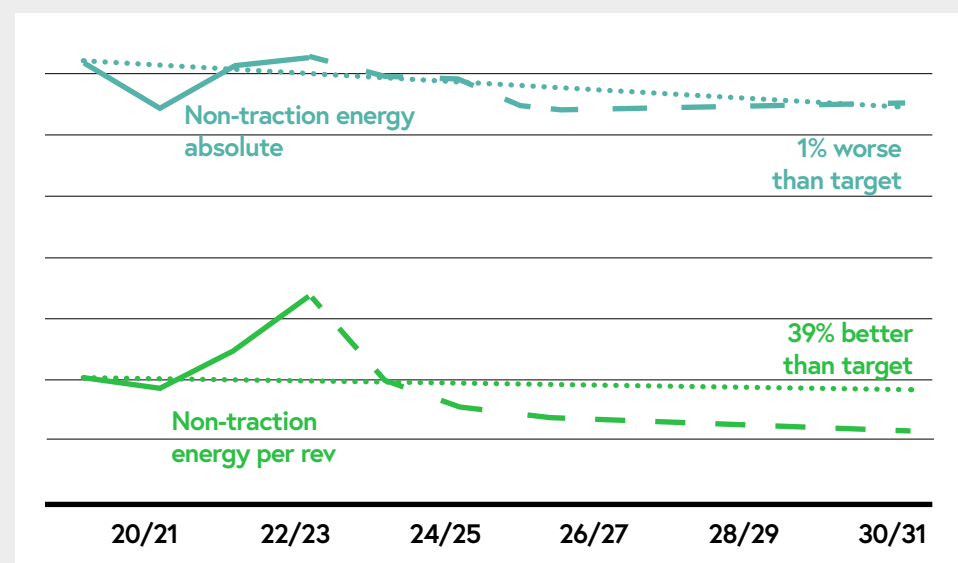
## Non-traction energy

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

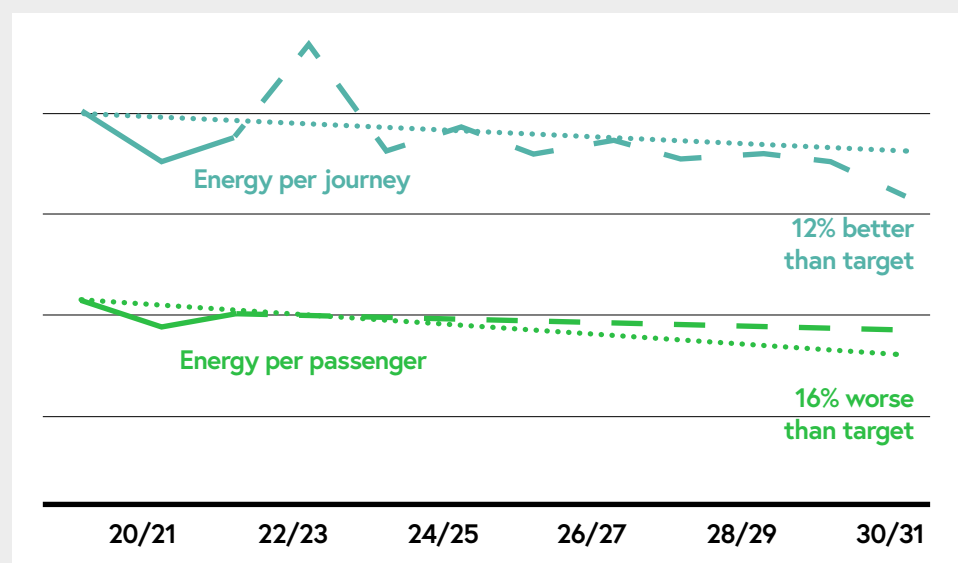
Reduce non-traction energy consumption by 10% per £ revenue by 2030/31.

### NON-TRACTION AND TRACTION GLIDE PATHS

#### Non-traction

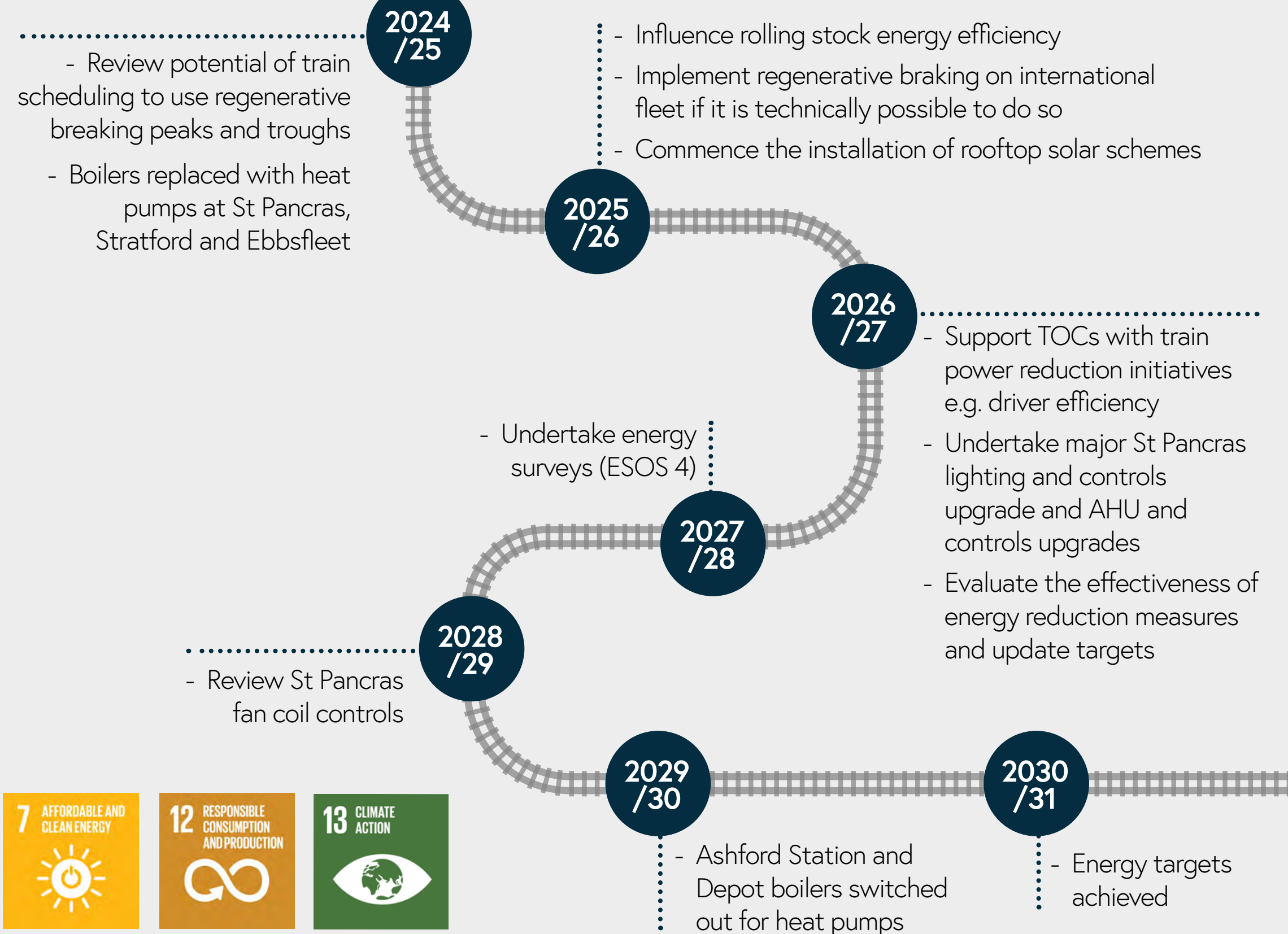


#### Traction



### Ongoing activity

Deliver small scale annual energy reduction initiatives on the route and in the stations.





## Resource use and waste impacts

We continually aim to reduce the number of resources we use, reuse resources efficiently and reduce the amount of waste created. HS1 work in collaboration with partners and suppliers to understand and agree how we can reduce our collective impact on our environment.

### Our ambition

At HS1, we aim to use all resources efficiently and dispose of items correctly in-line with the waste hierarchy. HS1 have undertaken a circularity workshop in collaboration with the supply chain to discuss how to embed circular principles into day-to-day business operations.

### 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.

"We are working collaboratively with NRHS to identify waste reduction and reuse opportunities in our stations, refining processes and building the foundations needed to increase our recycling rate over the coming year. This certainly provides its challenges, but reducing the volume of general waste that the HS1 system produces is an absolute priority for me, and I am confident that we will make progress in this area over the course of the next year!"



Sam Sage  
Sustainability Manager, HS1 Ltd

As shown in the table, we have experienced a significant increase in the volume of waste generated since 2020/21. There are several reasons for this increase, primarily due to a return to pre-pandemic passenger numbers and a greater number of projects completed across our business. We have missed the target of 0 tonnes of waste to landfill due to bottom ash from the incinerators. We are working with our supply chain to reduce the amount of waste to landfill. Whilst we have also increased the volume of material that we recycle, our progress in this area is not as strong as we would have liked. It should however be noted that the waste targets that were set in 2020 factored in several significant renewals projects which include comprehensive recycling provisions. These renewals have since been postponed as we aim to extend the asset life and reduce the volume of virgin raw material that we use.

Initiatives are being identified to reach our target of achieving a 90% recycling rate by 2023/24 including building mechanisms to undertake waste segregation and collaborate with stakeholders to segregate and dispose of waste correctly.

Water usage has reduced by 10,058 m<sup>3</sup> since 2021/22.

	2020/21	2021/22	2022/23
Waste generated (tonnes)	510	1,231	2,507
Waste recycled	54%	54%	59%
Waste to landfill (tonnes)	8	5	1.1
Water use (m <sup>3</sup> )	9,613	31,909	21,851

**Materials**

HS1 are mindful of the materials used within day to day operations and will continue to use these in an efficient manner, implementing our material standards and embracing circular principles and practices where possible. Outputs from our circularity workshop will be considered regarding material usage in the coming years.

**Actions taken in 2022/23**

- Continued working towards reducing resource use.
- Held a circularity workshop with our supply chain to understand our current position, develop initiatives and share knowledge.
- Continued to actively select lower-impact resources for projects.
- Ensured zero non-hazardous waste was sent to landfill from regular operations and projects.

**FOCUS FOR 2023/24**

- Develop a circularity plan targeted at all key resources for stations and depots.
- Understand hazardous waste and waste indirect to landfill profiles.

**Water**

There is increasing pressure on water as a resource and HS1 are embedding strategies to use water efficiently, whilst conserving resources and building in mechanisms to ensure resilience to future climate events.

Through our collection of water data, we have identified some metering issues which are being addressed to fully understand our water consumption profile.

**Actions taken in 2022/23**

- Continued to undertake a horizon scan of guidance and best practice in the water sector.
- Identified opportunities for water reduction and recycling and understand our water pollution pathways in a continued efforts to prevent water pollution.

**FOCUS FOR 2023/24**

- Continue to seek opportunities for water reduction, recycling and preventing water pollution.
- Improve water consumption data quality and granularity to help identify highest impact reduction initiatives.
- Further identify HS1's water profile.



**CASE STUDY**

**Recycling exchange agreement**

Automated fire suppression systems are core safety features within thirteen of HS1's signalling rooms and one of HS1's route control system. In an emergency, these systems release a calculated amount of argonite gas into the room, which reduces the oxygen level to a level which suppresses the progression of any fire outbreak. Therefore safeguarding personnel and property by limiting and restricting fires.

As part of HS1's commitment to the environment, rather than replacing the fire suppressions system outright every 10 years or following the gas usage, a project was developed to replace the life of expired parts through a recycling exchange agreement. This process of exchange and recycling involved:

- **Replacement** of the old system with newly refurbished cylinders by a trained and licenced company whilst ensuring the system remains safe and operational.
- **Transporting** the expired equipment back to the suppliers to extract all gas into a holding cannister for reuse.
- **Refurbishing** the old cylinders by checking for signs of wear, leakage, then pressure testing, refilling with gas and storing ready for future use.

This scheme is a good example of how circularity principles are being embedded throughout the HS1 system.

CASE STUDY

**Circularity workshop**

A circular economy is based on three principles, including eliminating waste and pollution, keeping products and materials in circulation, and regenerating nature. The circular economy involves continuous flows of materials and supports an economy where all assets and materials are fully utilised.

HS1 has extensive supply chains for the major assets and materials it requires, often involving high-value, complex and unique equipment including signalling and track switching equipment. These high-value assets lend themselves to circular models which also make financial sense – following the reuse, repair and remanufacturing processes. There are opportunities to share assets with others in the industry including Eurostar and Société Nationale des Chemins de fer Français (SNCF). HS1 also have a range of fixed-installation engineering systems that could be driven through leasing models to encourage circularity.

A circular economy workshop was undertaken by HS1 with partners including NRHS, Mitie and UKPNS. This brought together industry experts to discuss creating a circular station and depot and stimulate conversation around creating circular business models.

The workshop suggested there are three areas in the system where circular improvements can be made. These include:

- Changes to the supply chain systems
- Operational systems
- Customer/passenger systems.

Specifically for depots, the workshop identified opportunities to investigate alternative procurement approaches for route assets and efficiency in sharing plant equipment with other railways, investigate signalling as a service that could increase efficiency and identify options to procure power transmission and distribution as a service from UKPNS. Within stations, circular economy suggestions included installing EV charging points for customers and van fleets and embedding circular procurement of services in energy management and services.

Going forwards, HS1 are going to investigate these opportunities to understand how the circularity of business activity and operations can be improved. Items from the workshop have been scored on factors including timeframe for implementation, cost and energy savings.



**Waste**

**HS1 take steps to reduce waste within our operations and ensure there are mechanisms in place to dispose of waste correctly.**

**Actions taken in 2022/23**

- Supported our supply chain to embed contracts that will increase positive waste management.
- Identified and assessed broader circular economy opportunities in partnership with stakeholders.
- Progressed the development of a circularity plan to target all key resources at stations and depots.
- Understood the creation of hazardous waste and waste indirect to landfill for 2023/2024.

**FOCUS FOR 2023/24**

- Continue to identify, assess and implement circular economy opportunities within our operations and in collaboration with HS1 partners.
- Strengthen data collection and focus on circularity and waste minimisation.
- Continue to develop a circularity plan to target all key resources at stations and depots.
- Continue to understand hazardous waste and waste indirect to landfill profiles.
- Implement zero hazardous waste to landfill from regular operations and projects.
- Ensure 90% recycling from operations and project waste by the end of 2023/24.

# Roadmap to 2030: Resources 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 design 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.

## Recycling

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

## Landfill profiles

Understand hazardous waste and waste indirect to landfill profiles by end of 2023/24 and then develop a plan to reduce by end of 2024/25.

## Circularity plan

Develop a circularity plan targeted at all key resources for stations and our depot by end of 2023/24 and implement the plan by end of 2024/25.

### INSIGHT

#### How we will achieve our targets

For the last two years we have looked to increase our recycling rates across the HS1 estate. As we start to drive towards a 90% recycle rate, we will move our focus to circularity and resource minimisation.

We will reduce the amount of raw materials we consume and reuse/repurpose where possible.

Through embedding these principles, we will develop further targets and measure our success against them.

Our key activities to achieve our target of 90% recycling rate will be to focus on segregating waste at source and building in the systems across our infrastructure to support segregation.



#### Ongoing activity

Zero non-hazardous waste direct to landfill from regular operations and projects.

2023 /24

- Achieve a recycling rate of 90% for operations and project waste
- Circular economy opportunities identified and assessed
- Circular economy projects selected and implemented
- Collate data on hazardous waste and waste indirect to landfill. Build solutions through circularity and minimisation

2024 /25

- Influence system focus from recycling to minimisation
- Evaluate the success of circularity projects and roll out more widely where appropriate

2026 /27

- Continue to implement circularity and minimisation principles





## Biodiversity

HS1 have an obligation to protect our lineside landscape. We work in collaboration with the Kent Wildlife Trust Consultancy to protect and restore this environment, enhancing habitats to deliver 20% biodiversity net gain by 2030.



### Our ambition

**Habitat restoration, enhancement and creation are core elements of HS1's Biodiversity Action Plan.**

HS1 work with partners, including the Kent Wildlife Trust Consultancy (KWT), to manage a diverse estate covering 235ha of managed area. HS1 will deliver 20% biodiversity net gain (BNG) of this area by 2030 through habitat management and improvement. HS1 have subdivided this estate into 135 areas or habitat 'tiles' – each of these will be monitored and assessed regularly to examine their quality. Monitoring in 2022/23 shows a 0.89% increase in BNG compared to the 2021/22, and inline with our glide path, HS1 are on track to achieve our BNG target by 2030.

KWT have highlighted that there are key habitats being managed to improve biodiversity and thanks to NRHS, protected species including a rare native orchid, mammals and reptiles have been sited and are being monitored. In addition, there has been enhancement of grassland, woodland, scrubby and wetland habitat which are extremely important for key species. KWT will continue to measure and monitor to ensure HS1 is an exemplar of what 'good' looks like when we talk about the future of our natural environment.

### Targets

- To 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.

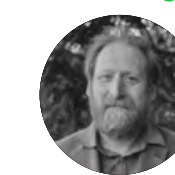
### Actions taken in 2022/23

- Completed the St Pancras International to Ebbsfleet International habitat survey and undertook a BNG mapping opportunity exercise.
- Completed the generic management plan for biodiversity.
- Enhanced habitat for foraging bats and feeding and nesting areas for priority bird species.
- Measured and tracked BNG.
- Completed Landscape Focus Areas that highlight areas to manage for BNG and condition assessing the enhancement of habitat to evidence BNG.
- Identified global best practice on biodiversity measurement and implementation.
- Identified indicator species to support our target of 20% BNG.
- Commenced embedding biodiversity processes and management with NRHS contract teams.

### FOCUS FOR 2023/24

- Extend biodiversity baseline to include Ebbsfleet International to St Pancras International.
- Record habitat loss and gains throughout the route and monitor species relevant to BNG figures.
- Implement and review potential for carbon 'insetting' via the KWT Carbon Plus Habitat Tool.

**"The 10-year plan to bring about a 20% uplift in biodiversity is a unique and hugely significant aspiration which will provide benefits to populations of the rare and protected species that live within the HS1 asset. Almost a decade of biodiversity expertise has gone into planning, monitoring and enhancement of biodiversity that is now happening. The nature and climate crises are well evidenced and HS1's ambitions play a major part in making bigger, better and more joined up spaces for nature."**



**Vincent Ganley**  
Managing Director, Kent Wildlife Trust Consultancy Services

**Our performance**

We have undertaken activities over the past year to deliver 20% BNG by 2030, including completing additional surveys, understanding further our lineside asset which will lock in carbon and design natural features to support species.

**7 biodiversity tiles**

experienced a condition improvement, equivalent to 4.3 ha of land.

**3%**

BNG increase since baseline year 2020/21.

**11**

Biodiversity tiles re-assessed in 2022.

Highlights include

- 10 parcels of **improved grassland\***
- **Reclassification** of an area of neutral grassland to calcareous grassland.
- Existing woodland and calcareous grassland parcels within the tiles **maintained their condition from 2017** as moderate.

\* from no baseline condition to moderate and good condition or reclassified to calcareous grass in moderate condition.

**CASE STUDY**

**Ground improvement works at Camley Street**

The HS1's Engineering Team's volunteering day focused on biodiversity and building community partnerships. In March, the team joined several members of NRHS and spent the day restoring a small plot of land adjacent to St Pancras International to its former glory. The site on Camley Street is home to the Olympic rings which once hung from the station's Grand Terrace, now public benches. The team spent the day cutting back vegetation, cleaning the Olympic rings and preparing the land to be a new Community Rail garden. Community Rail is a grassroots movement comprised of community rail partnerships and groups across Britain. They engage communities and help people get the most from their railways, promoting social inclusion and sustainable travel, working alongside train operators to bring about improvements, and bringing stations back to life.

**CASE STUDY**

**Progress on 10 year plan**

The Biodiversity Action Plan provides a framework for the delivery of BNG and reflects a true desire to drive cultural change within the rail industry to reflect today's concerns regarding sustainability. The Biodiversity Action Plan will ensure HS1 contributes to the UK's ambitions to safeguard biodiversity now and for future generations. The implementation of this plan will deliver the biodiversity strand of the Sustainability Strategy, demonstrating HS1's commitment to 'maintaining and enhancing a near continuous high quality habitat corridor alongside its railway infrastructure where biodiversity thrives for the benefit of all'. The vision will be driven by three key themes:

- **By 2024**, no net loss of biodiversity.
- **By 2030**, demonstrate BNG across all habitats with lineside asset.
- **By 2040**, HS1 will be recognised as industry leaders in the sustainable management of ecological lineside assets.

The Biodiversity Action Plan is reviewed on a five year basis to ensure it responds to national policy drivers and is in line with industry best practice.

**CASE STUDY**



**Black redstart surveys**

Black redstarts are small birds that have adapted to live in urban or industrial areas. Currently there are fewer than 100 breeding pairs in the UK and feature on the Red List of Birds of Conservation Concern. KWT have been surveying for a single species of Black Redstart for the transition zone between more rural Kent, the suburbs and urban areas of South East London. Pre-dawn surveys were undertaken to understand the presence of this species around HS1 assets in Stratford and the northern part of the HS1 route. Up to four singing males were recorded on the Stratford site, with two territories and fledged young were recorded on site during later visits indicating successful breeding.



# 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 have an obligation to protect and enhance the lineside habitat. We have worked in partnership with the Kent Wildlife Trust Consultancy to carry out natural asset surveys, revise our biodiversity baseline, and develop a strategy for lineside assets and habitats. We will continually measure against this baseline to assess our progress towards 20% BNG by 2030/31.

We will achieve this by continually enhancing our landscape management plans and delivering them through the maintenance of our railway.

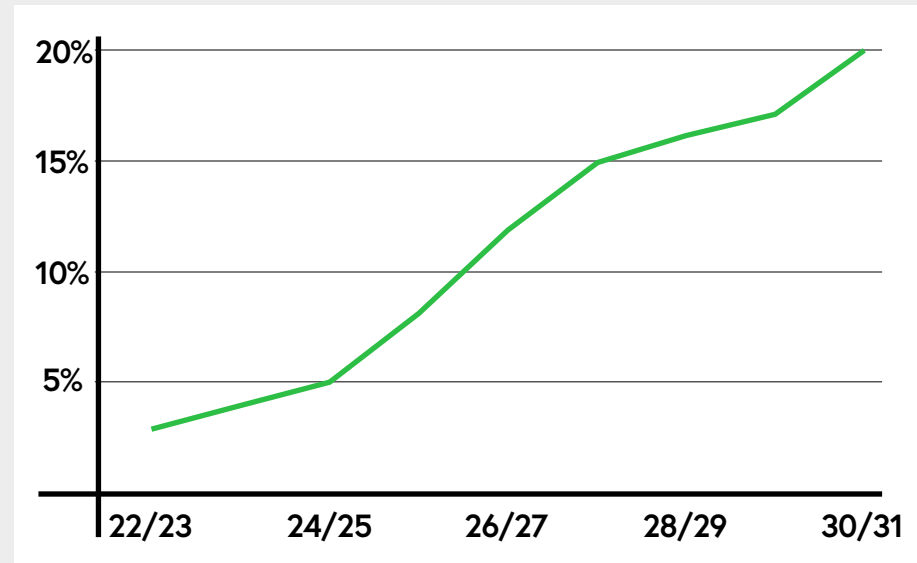
## Biodiversity Net Gain

To deliver a 20% 'Biodiversity Net Gain' (BNG) by 2030/31, based on the 2020/21 baseline.

### GLIDE PATH

#### Biodiversity Net Gain

To deliver our ambitious biodiversity improvement programme and achieve a 20% BNG we will monitor our habitat condition in line with best practice. We will monitor key species as indicators of a positive biodiversity asset. Together both metrics will allow us to robustly report against our target.



#### Ongoing activity

Deliver annual biodiversity spotlight projects.

Biodiversity net gain measured annually.

- Biodiversity no net loss assessed and updated enhancement plan developed
- Produce detailed Enhancement Management Schemes for landscape focus areas

2024/25

2023/24

- Extend baseline and recording to include Ebbsfleet to St Pancras
- Species indicative of a gain in biodiversity monitored
- Record habitat loss and gains
- Implement and review potential for carbon 'insetting' via the KWT Carbon Plus Habitat Tool

2025/26

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

2027/28

- Community Lineside projects identified and implemented

2030+

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





## Social value

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



**INVESTORS IN PEOPLE**  
We invest in wellbeing Gold

**INVESTORS IN PEOPLE**  
We invest in people Gold

### Our ambition

**At HS1, we are proud to support our local communities, having exceeded our community engagement hour targets over the past year.**

We see the value of engaging with local communities and giving our time and expertise to connect with these individuals. Our partnership with the British Transport Police (BTP) has continued to grow and we support the activities being undertaken in and around our stations, ensuring the safety of the millions of people who use and work on the railways.

Our recently published People Strategy highlights a roadmap for championing EDI across HS1, the rail sector and society and we are delighted to publish our first diversity and inclusion action plan. HS1 places huge importance on advocating for EDI, it is important for us that our employees feel confident in being who they are and empowered to thrive at work without fear of discrimination or prejudice.

### 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 2025.

### Actions taken in 2022/23

- Reviewed and implemented appropriate recommendations from the Investors in People, We Invest in People accreditation through our People Strategy including a refresh of our vision, values and objectives, evaluation of the impact of continuous improvement initiatives, middle manager support and tracking the uptake and impact of learning and development objectives.
- Reviewed the agile, hybrid way of working to inform our future working.
- Shared a toolkit internally to facilitate performance and development conversations.
- Three employees have completed mental health first aider training to support the mental health of HS1 employees.
- Identified and disseminated an appropriate social impact reporting tool that measures the value of social impact.
- Monitored EDI data throughout the business.
- Delivered Inclusive Employers training on diversity and inclusion topics.
- Benchmarked family friendly policies to ensure they are inclusive and create new policies that support inclusion for example our menopause policy.

- Completed over 800 hours of community engagement.
- Embedded our social value KPIs to demonstrate progress and considered the feasibility of adopting a social value tool to measure social value from 2023/24 with the potential to report in 2025/26.
- Continued to deliver health and wellbeing initiatives to our team and activities included in HS1's People Strategy.

### FOCUS FOR 2023/24

- Implement milestones in the People Strategy, EDI Strategy and undertake UNGC Communication on Progress.
- Sign The Mental Health Charter and deliver key milestones.
- Prepare for the upcoming Investors in People – We Invest in People and Wellbeing reviews.
- Continue to implement inclusive benefits to support our diverse workforce.
- Deliver the Routes into Rail Initiative.
- Continue to develop and publish a revised HS1's Social Value Strategy.

**Headline figures**

**809 hours**

Staff volunteering hours, a year ahead of original target.

**£156,011**

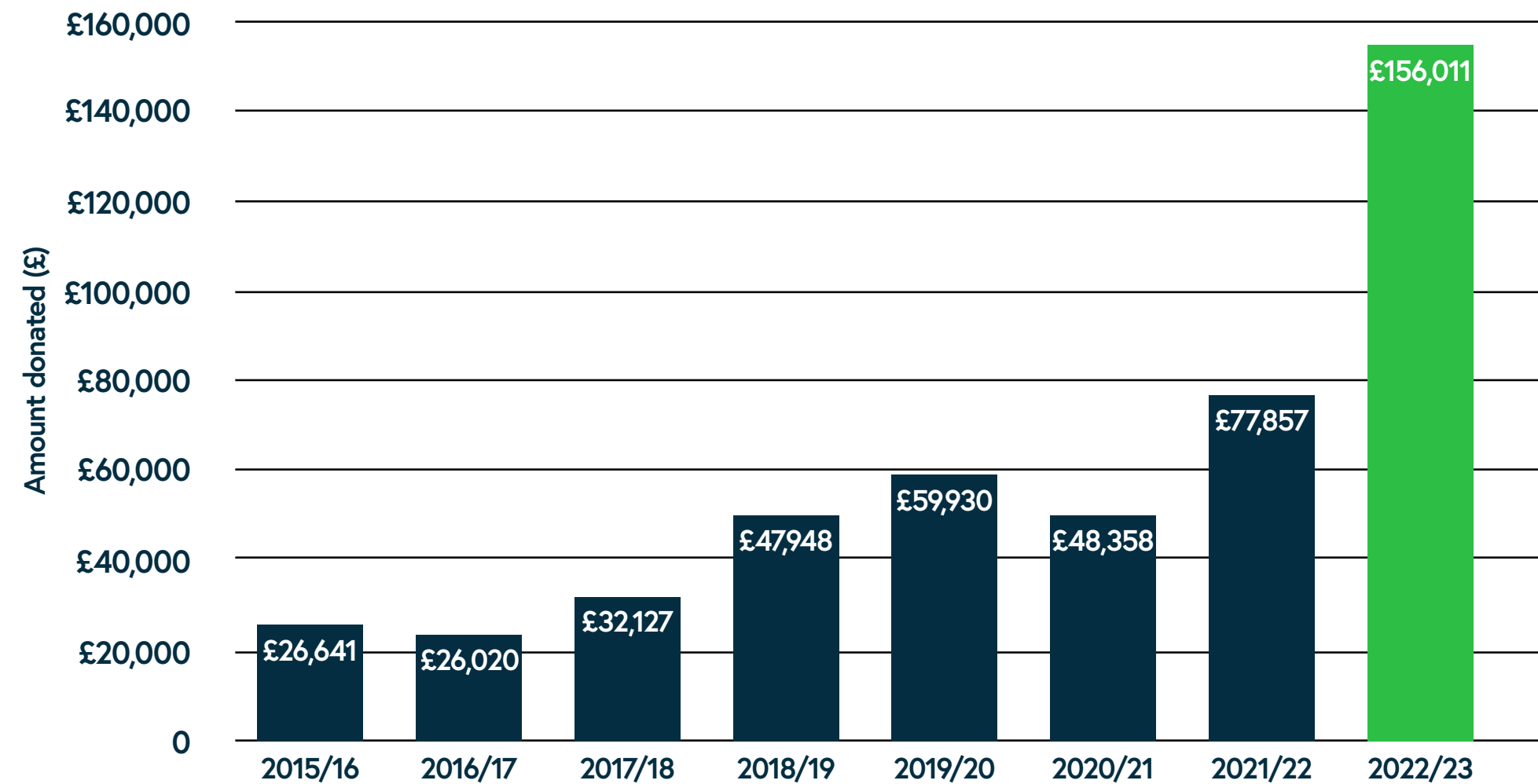
Donated to charitable causes and value in-kind.

**77%**

Employee participation in volunteering.

**51%**

Of contracted suppliers are SMEs.



HS1 total CSR donation record

**"As Chairman of the HS1 HR & Remuneration subcommittee, I am impressed by the numerous ESG achievements which are regularly reported to our Committee ranging from updating of the Equality, Diversity and Inclusion charter and People Strategy to a large variety of social value activities such as volunteering schemes with local communities or partnering with the BTP. One key value we hold is "Respect for all People" – this helps us to drive these initiatives, demonstrating a true mindset of excellence and continuous improvement which we – the shareholders of HS1 – are keen to develop further."**



**Olivier-Marie Racine**

Non-Executive Director and Chair of the HS1 HR and Remuneration Sub-Committee

**CASE STUDY**



**Heritage activities**

HS1 aim to preserve and protect the cultural heritage of our assets and create a legacy for our railway and associated stations. Our role is to ensure these historical features are available for future generations to enjoy. HS1's cultural heritage team have undertaken engagement events within the station to showcase the history of the railway, inform the local community and customers and highlight the importance of these assets. A pilot programme of sharing the role of heritage within railway engineering was developed, aimed at early career professionals, to broaden their understanding of heritage and showcase how it interfaces with engineering from design to operation.

CASE STUDY

**British Transport Police's work**

Preventing Harm is a top priority for the British Transport Police (BTP) at St Pancras, officers have taken an active role in a multi-agency approach on safeguarding operations.

Operation Limelight supports the national strategy to prevent violence against women and girls. It focuses on high harm long lasting abuse such as female genital mutilation, forced marriage and honour based abuse. St Pancras is an international border and BTP officers are deployed alongside specialist organisations to prevent and detect crime and support the vulnerable. Victims of these crimes are often taken abroad to be abused, the BTP supported a national approach operation targeting international borders was formed.

An established process alerts police officers when wanted offenders attempt to leave the country and robust plans are activated to ensure that wanted offenders are arrested before they can flee the country and escape justice.



**People Strategy**

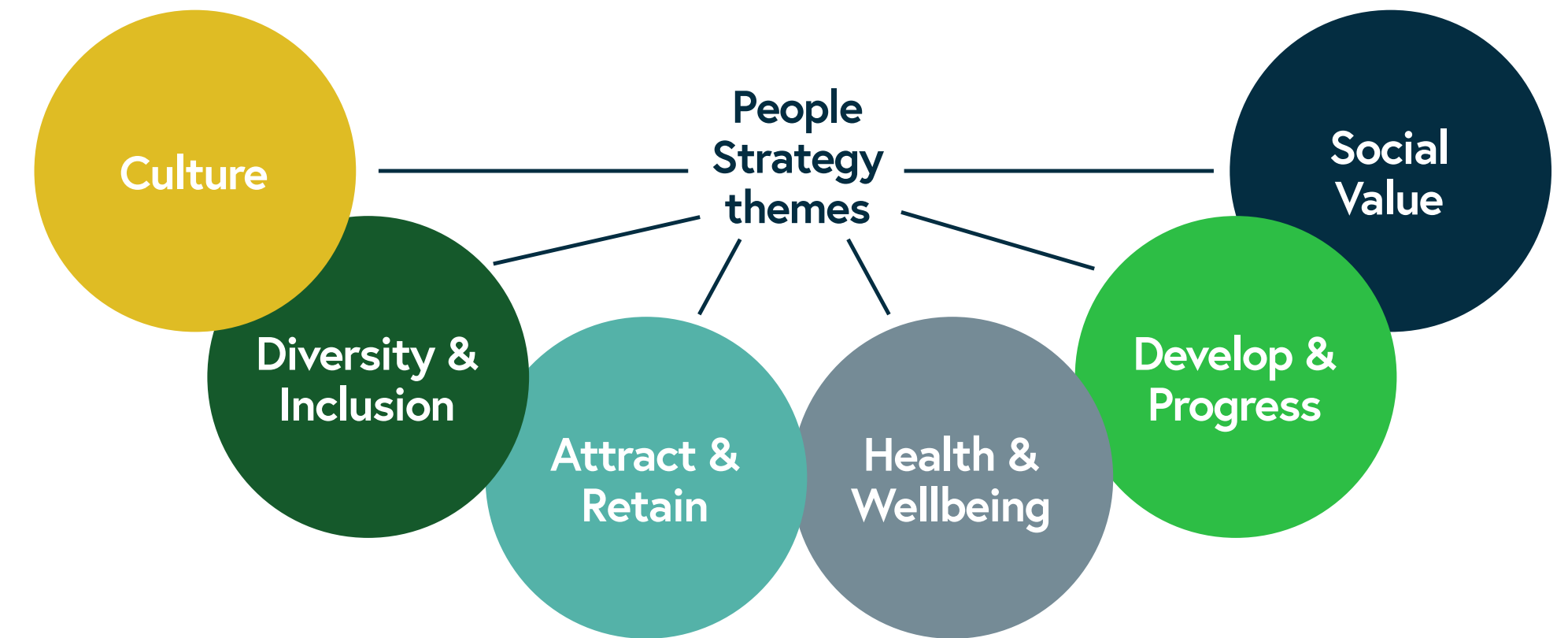
HS1's People Strategy is a roadmap for attracting, developing and retaining our most valuable assets – our people. The strategy sets out how as an organisation we plan to develop in the context of a rapidly changing world and put our people at the heart of our business. We recognise the collective talents, inputs and commitment that ensure successful delivery of our strategic business objectives. Our culture is one that is collaborative, enabling and engaging. Through this, we want to inspire creativity, innovation and excellence, and develop a working environment where everyone feels valued, heard and informed.

Following the pandemic, we have accelerated our focus on health and wellbeing. As we concentrate on recovery and beyond, we wish for our employees to feel connected with our vision and new values, and ensure they have the skills, motivation and reward for delivering it. We aim for individuals to feel inspired and empowered to succeed and integral to this is a culture that sets high expectations; therefore, providing a rewarding environment to grow.

**"Our new strategy builds on the solid foundations of our 2019 People Strategy, giving a baseline commitment to our people. Our strategy is bold, ambitious and people-oriented, and commits to providing our people with an exceptional work experience in the years ahead"**



**Dyan Crowther,**  
CEO, HS1 Ltd



Our 2030 strategic business plan outlines our core priorities to ensure we continue to provide a public service that delivers for our customers as well as our shareholders. The People Strategy sets out a series of objectives that follow six themes; culture, attract & retain, develop & progress, health & wellbeing, social value, diversity & inclusion.

At HS1, we manage and review our culture regularly and implement measurements of success including limiting staff turnover targets, improving staff engagement target scores and ensuring staff have zero days of annual leave remaining at the year end.

In October 2020, HS1 achieved gold standard for Investors in People – We Invest in People. In March 2021, we achieved gold standard for Investors in People – We Invest in Wellbeing. The accreditation for both standards covers a three year period and work is underway to ensure that we can continue to improve our employee experience.

HS1 held nine workshops focused on improving the health and wellbeing of employees in 2022/23, including:

- Financial wellbeing webinars were held to assist with current economic challenges. HS1 focused on financial wellbeing of team members to enhance financial education and provide focused guidance and advice around mortgages, savings and investments and managing debt.
- Improving Your Posture workshops were held by a chiropractor to discuss the benefits of a healthy back and spine and provide guidance on how to improve posture on a daily basis.
- A workshop on Coping with Loss, Sadness and Grief was held by an Accredited Grief Counsellor to support the mental health of our team.

**EDI Charter**

In February 2022, HS1 signed the Rail Industry Association's EDI Charter and created an action plan from 2022 – 2024 to demonstrate our commitment to EDI.

We welcome and value people's viewpoints from all backgrounds and recognise that this helps improve business performance and creates a happier workplace – in turn driving creativity and innovation. The last few years have brought many challenges including a global pandemic as well as the tragic killing of George Floyd which created a global movement to stamp out racism across society. Tackling systemic racism at all levels remains a fundamental priority for our business and HS1 is committed to building a more balanced and fair industry and society. For us this is thinking beyond legally protected characteristics and embracing all the nuanced varieties of 'us' – those who make up our workforce and our communities.



To further demonstrate our commitment, we have recently signed the Equality & Diversity Charter which is a rail industry initiative led by Women in Rail and the Railway Industry Association. This action plan has been endorsed by our shareholders and senior management team members and outlines how we will continue to enhance our inclusive ways of working.

Since signing the charter, we have:

- Reviewed our HR Policies to ensure we are using inclusive language.
- Created a new Menopause policy and manager's toolkit to support individuals who may be impacted by this life event.
- Introduced a number of EDI questions in our employee engagement survey to provide metrics to ensure we continue to foster a culture of inclusion.
- Continued to promote key events in the inclusion calendar, for example, World Mental Health Day in October 2022 where resources were shared with the team to promote good mental health. We have also rolled out mental health awareness training which has been attended by 94% of the team.
- As part of Black History month, we ran Active Bystander training which was attended by 92% of the team. This training highlighted the importance of taking action, and aimed to encourage people to challenge inappropriate behaviours, reinforcing this year's theme: 'time to act – the power of now'.

As we emerge from the pandemic and adopt a more agile way of working, we will continue to focus on ensuring that we attract and retain the best talent, that we champion inclusive policies that support women, ethnic minorities, members of the LGBTQ+ community, people with different abilities and other under-represented groups. Our culture is one that is open, and which celebrates difference, and our action plan will enable us to continue to build and maintain a diverse and inclusive organisation that continues to drive creativity and innovation.

We recognise the diverse opportunities within the rail industry and have signed up to the 'Routes into Rail' programme which supports and offers work placement opportunities to individuals of diverse backgrounds. This scheme provides the opportunity to share the great work we are completing to those who would not ordinarily have considered working in the rail sector.

**RSSB Mental Health Charter**

We will be signing RSSB's Mental Health Charter in 2023 to promote the maintenance of good mental health. To support this initiative, we undertook a GAP analysis to inform recommendations as part of an action plan which we will start to embed in the coming reporting year.

**CASE STUDY**

**Managing suicidal contacts**

HS1 partnered with The Samaritans to roll out 'Managing Suicidal Contacts' training to 100% of its front-line staff. Suicide prevention techniques are proven to work; for every railway suicide, six lives are saved through interventions. By providing front-line staff with the skills and techniques required to make a positive intervention, we have seen staff take the initiative to approach potentially vulnerable people. The trusted training programme has been developed by The Samaritans in conjunction with the Rail Delivery Group and ensures HS1 is integrated into the wider railway initiative to reduce the risk and horrific impact of suicide on the rail network.

**"The course was useful, emotive and thought provoking. Techniques are useful not only on the railway but as, literally, a life-skill. I felt it was pitched at the perfect level, recognising there will be a wide cross-section of people from the railway family attending and sharing their own experiences".**

**Jay Newton**  
Head of Stations Engineering and Operations, HS1 Ltd

CASE STUDY

**Staff volunteering**

This financial year we achieved over 800 hours of volunteering by members of the HS1 team, 109 hours more than our ambitious 700 hours target. We have supported several local charities over the course of the year, including Castlehaven Community Association, Global Generation's Storey Garden, and the C4WS Friday Cooking Club. By actively promoting volunteering opportunities to staff, offering matched funding opportunities and organising team volunteering days, we have increased the percentage of staff involved in volunteering to 77%, a 29% increase on last years performance. Our staff value the opportunity to give back to the local community whilst also building relationships with internal and external stakeholders.

This year, every HS1 department completed a team volunteering day, and the following case studies showcase the volunteering undertaken.

**HS1 staff volunteer at the local Camden foodbank**

The Legal & Corporate Services Team chose to volunteer at the Castlehaven Community Association Foodbank (Camden, London) in September.

The foodbank is driven by an amazing group of volunteers who support those who critically require assistance. The foodbank creates bespoke food packages for over 60 families in the Camden area on a weekly basis.

HS1's volunteer time was well spent and highlighted the vital service this foodbank provides to support the community. HS1 have further supported the organisation by providing a fridge, through B2D contractors, and a laptop to support with administration.

**Donations to The Pirate Castle**

The Pirate Castle provide learning opportunities, life chances and healthy living through sports including paddle sports, canal boating and training and volunteer initiatives. They work with local youth and voluntary groups to broaden the health, wellbeing and enrichment opportunities available to the local community and beyond. HS1 have donated five refurbished laptops to The Pirate Castle in Camden to support their work after unfortunately having a break-in, this will ensure they can continue their great community work.



CASE STUDY

**Response to Ukrainian war**

Through a partnership with Eurostar, NRHS, BTP and London Borough of Camden (LBC), HS1 identified space within St Pancras International to be repurposed as a "Ukraine Welcome/Processing Centre". The aim of this space is to provide help, support and assist the arrival of refugees from the conflict. This initiative was particularly appropriate given Eurostar's commitment to provide free travel to any refugee on Eurostar's services from the continent and LBC's duties as the receiving port of arrival for the refugees.

As the scale of the crisis grew, the unit was fitted out and made available to LBC; opening daily from the first to last Eurostar in-bound service. The establishment of the safe collection point, within a few metres of the point of arrival, helped ensure unaccompanied refugee travellers are safeguarded from the criminal attempts of people traffickers. The availability, location and speed of establishing this humanitarian support service has helped facilitate the safe and responsible treatment of arriving refugees via a well-coordinated and managed process aligns with SDG 10 (Reduced Inequalities).

# Roadmap to 2030: Social value

We recognise the role HS1 has to play in supporting our communities, valuing and understanding their needs to provide the best quality service.

### Business ethics

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

### Heritage

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

### Communities

Engage our local communities to interact with our transport hubs.

### Inspire

Inspire young people from our local communities to take up railway careers of the future and social mobility.

### EDI, H&S Wellbeing

Promote positive EDI, H&S and wellbeing within our workforce, our supply chain and those that interact with our asset.

## INSIGHT

### How we have developed our social value agenda

HS1 will continue to focus our volunteering activities towards the communities we serve. We will engage locally, both around our stations and line of route, to allow these communities to flourish. We will continue to support our current partners and seek new opportunities to support local charities and establishments.

HS1 will strive to be a leader in how we encourage our supply chain to do the right thing, raising standards for those interacting with our asset.



### Ongoing activity

Contribute 700 hours of staff time each year to local communities and HS1-related charity activities.

Report on measurable social value.

2023 /24

- Continue to implement our People and Health & Safety strategies
- Develop strategies to address: community engagement, heritage and business ethics

2024 /25

- Implement our social value related strategies

2025 /26

- Integrate social value with our transport hub approach

2030 /31

- Set social impact targets for beyond 2030



# Health and safety

Health and safety is ingrained in HS1's day to day activities and we follow appropriate policy and procedures to prevent accidents taking place and ensure it is part of everyone's role at HS1, as highlighted in our core values. We all have our part to play in ensuring we operate and work in a safe manner to ensure employees, customers and our supply chain are protected. Safety performance remains a key business priority with the target of a zero harm business. The MAA Fatalities and Weighted Injuries (FWI) has increased to 0.140 at March 2023 (0.059 in 2022). The overall trend including, one specified injury, is driven by a rise in staff assaults. All frontline staff are now issued with body worn cameras to reduce conflict as part of safety improvement plans, which also seek to reduce other workplace accidents. We are working closely with NRHS and the BTP to combat workplace violence which is a rising trend across the UK rail industry. The Passenger FWI has reduced to 0.014 at 31 March 2023 (2022: 0.021). Station safety groups help improve passenger safety and have been instrumental in reducing accidents.

<sup>2</sup> 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>

<sup>3</sup> Passenger FWI is calculated by the harm per 10 million passenger journeys, 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>

## FOCUS FOR 2023/24

- Review and publish updated safety improvement plans for workforce and passengers.
- Encouraging all frontline workers to wear and use body worn video recording equipment.
- Artificial intelligence trials to identify and engage with passengers to have safer interactions with escalators.
- Developing the safety ambition and strategy for CP 4.
- Carry out system safety leadership sessions to share best practice between HS1 and its key suppliers.

**"Within HS1, we are continuing to work collaboratively with our partners to identify and understand risks to ensure we are doing everything possible to keep every station user safe."**



**Jay Newton**  
Head of Stations Engineering and Operations, HS1 Ltd

## Headline figures

**0.140**

Workforce /contractor FWI MA<sup>2</sup>.

**0.014**

Passenger/ MoP FWI<sup>3</sup>.

**16**

HS1 safety and security tours undertaken by our senior management.

**100%**

Delivery of the annual safety improvement plan.

## CASE STUDY



### NRHS supplier day

In February 2023, NRHS hosted a first of its kind Supplier Day in London with NRHS, HS1 and nine suppliers, focusing on creating a safety lead culture where all incidents however minor are reported. Through reflecting on past safety incidents, both broadly in the rail industry and specifically to NRHS, the group discussed a range of topics from reporting safety issues and new safety initiatives, to diagnosing dead, diseased and dangerous trees.

Both NRHS and Suppliers presented their new safety initiatives. For example, Balfour Beatty shared their new use of open mic communication between frontline teams, enabling constant communication and Railscape their trailing of Dronearb, drone software to manage vegetation on or close to rail lines. The success of this meeting was grounded in its collaborative discussions and sharing of safety initiatives, and they are to be held bi-annually going forward.



# STANDARDS AND BENCHMARKS



DISCOUNTED

<b>13:01 On time</b> Hargate Calling at: Page 1 of 1 Hertford Intl Canterbury N Rougats Broadstairs & Hargate.  Formed of 6 coaches Southeastern	<b>13:02 On time</b> St Pancras Intl Calling at: Page 1 of 1 Stratford Intl & St Pancras Intl.  Formed of 6 coaches Southeastern	<b>13:14 On time</b> Faversham Calling at: Page 1 of 1 Gravesend Strood Rochester Chatham Gillingham Rainham Sittingbourne & Faversham.  Formed of 6 coaches Southeastern	<b>13:18 Plat 5</b> St Pancras Intl Calling at: Page 1 of 1 Stratford Intl & St Pancras Intl.  Formed of 6 coaches Southeastern	<b>Departures 1 of 2</b> 13:01 Hargate On time Plat 3 13:02 St Pancras Intl On time Plat 2 13:14 Faversham On time Plat 6 13:18 St Pancras Intl On time Plat 5 13:01 Dover Priory On time Plat 3 13:02 St Pancras Intl On time Plat 2 13:44 Faversham On time Plat 6	Welcome to Ebbsfleet International Southeastern highspeed services  pleasant onward journey.  12:51:08
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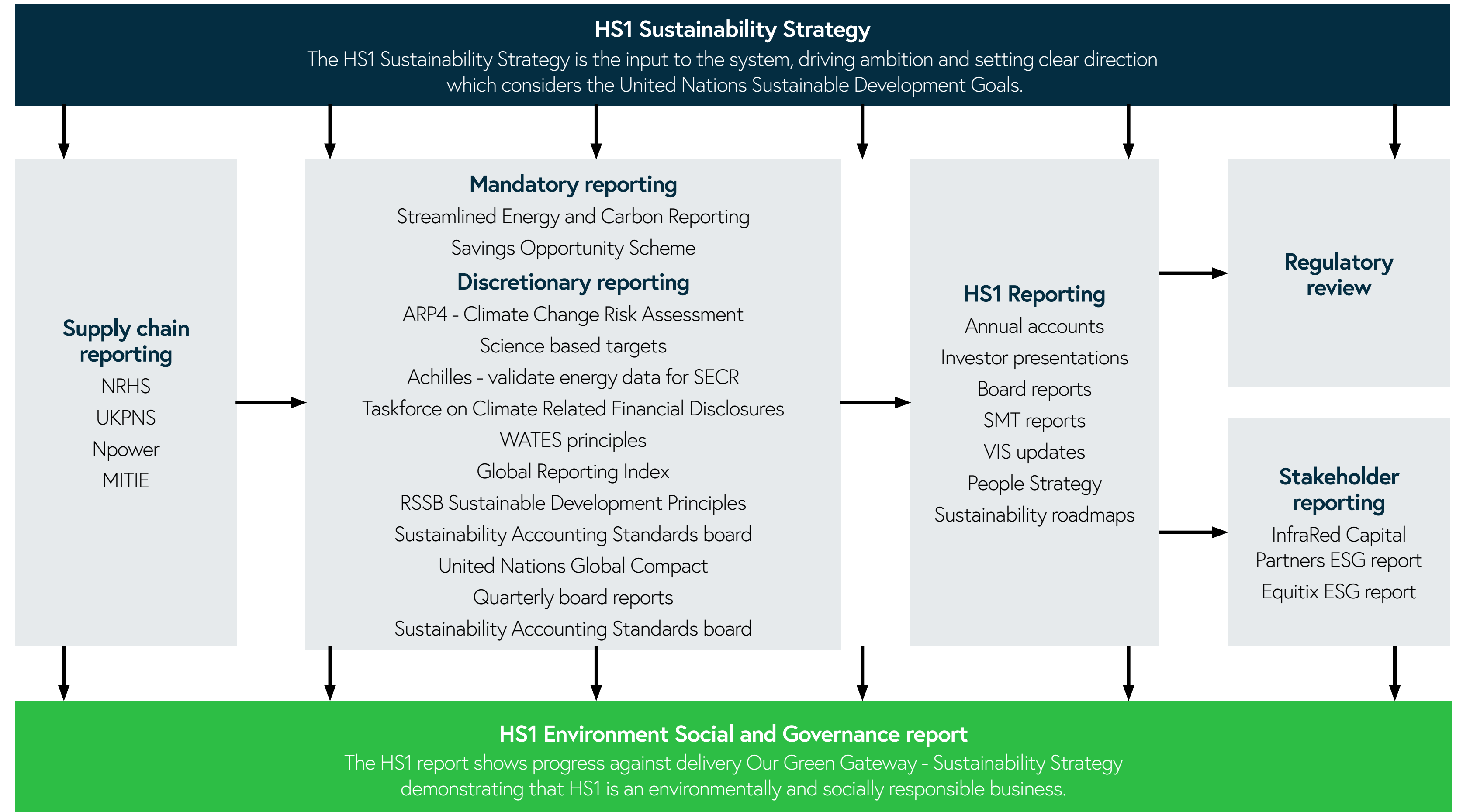
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## Standards and benchmarks

At HS1, we operate in line with best practice, standards and benchmarks to ensure we continually drive performance and efficiencies.

HS1 has developed KPIs which allow performance to be tracked and measured in line with best practice standards. The diagram showcases how targets from the Our Green Gateway feed into reporting mechanisms and standards, progress is presented against these in this report.



# United Nations Sustainable Development Goals

The table showcases the United Nations Sustainable Development Goals (SDGs) that HS1 contribute to on an annual basis, at a goal and target level. The SDGs are a framework to achieving a sustainable future thematically related to people, society and the environment. HS1 monitor operations to ensure our activities align with the following SDGs at a goal and indicator level.

## Transparency



Transparency is one of HS1's key priority areas and we undertake activities, outlined in the roadmap, to ensure we operate in a transparent manner. Our work specifically contributes to the SDG targets 16.2, 16.5, 16.6 and 16.7.

## Climate change and adaptation



We are facing a climate emergency and it is paramount that we take action to reduce our impacts on the environment and achieve net zero by 2030. With extreme weather events on the rise, we are taking measures to ensure we are resilient to the impacts of climate change. Our Climate Change and Adaptation roadmap showcases how our activities relates to SDG target 13.2.

## Energy management



HS1 are undertaking measures to reduce energy usage and increase energy efficiently through initiatives such as the REACT Group. Our Energy Management Roadmap outlines the steps we are taking to meet our energy targets in relation to traction and non-traction energy, the procurement of our energy from renewable sources and responsible consumption. These activities align with SDG targets 7.3, 12.2, 12.5, 12.6, 12.7 and 13.2.

## Resource use and waste impacts



We have taken measures to understand our current position and impacts in the resources and waste sector. These activities are specifically outlined in our Resource Use and Waste Impacts Roadmap and relate 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



Society is facing a biodiversity emergency and HS1 has a responsibility to enhance habitats, prevent biodiversity loss and deliver BNG. Our activities within this sphere contribute to SDG targets 3.9, 15.1 and 15a, through supporting biodiversity and reducing pollution and contamination.



## Social value



HS1 have taken action internally and externally to promote decent work and economic growth (SDG 8), through ensuring our workforce are supported, providing access to mental health support and training to ensure our employees can thrive in their workplaces. The outreach and volunteering we undertake has a positive impact on our local communities and we strive to continue to undertake this in the future (SDG 11). Our activities relate to SDG targets 8.5 and 11.2 and the Social Value roadmap outlines our planned activities for the coming years.



## Looking ahead

**Whilst it has been a challenging year, I am proud of HS1's progress across our six priority areas as we continue our mission to become more sustainable.**

### Personal highlights

Some of my personal highlights from the past year include commissioning an independent CCRA for HS1, which assessed three different projected warming scenarios over time and what this could mean for the HS1 line specifically. This has allowed us to develop necessary adaptation plans, and I'm pleased to say the assessment found that HS1 is a relatively resilient piece of infrastructure – something we saw last year during the unprecedented heatwaves.

We have also made strides in engaging with and supporting our local communities. In February 2022, we signed the Rail Industry Association's EDI Charter, and created an Action Plan from 2022 – 2024 to demonstrate our commitment to EDI.

Since signing the charter, I am proud to say that we have shown strong progress across a number of areas, including, among others: reviewing our HR Policies to ensure we are using inclusive language; creating a new Menopause policy and manager's toolkit to support individuals who may be impacted; and running Active Bystander training which highlighted the importance of taking action, encouraging people to challenge inappropriate behaviours as part of Black History month.



**Steven Van Niekerk**  
Head of Assurance and Sustainability, HS1 Ltd

We have also seen the highest ever number of volunteering hours (809 hours recorded against 700 hours target) and CSR donation value of £156,000.

### Focus for the coming year

Looking ahead, we will be embedding and driving forward the new version of Our Green Gateway – 2023 Sustainability Strategy. While many of the priorities remain, setting these on the right path will be essential.

Our social value has significantly changed, and it will be exciting to develop the long-term strategies that will drive real social value in our communities.

We will be running more circular workshops, taking the outputs of the 2022 circular economy sessions and investigating these opportunities to understand how the circularity of business activity and operations can be improved.

We also look forward to making more progress with key partners on our lineside energy reduction initiatives, with our plan currently being implemented.

Similarly, the REACT Group has spent the year conducting survey work to identify high-impact energy-reduction opportunities we can progress in future years.



Next year, we will install a variable speed drive and controls to operate the fans in parallel at reduced speed, thus yielding energy savings as well as improving reliability.

We will also aim to reduce the speed of our main supply and extraction fans, activating standby fans to maintain sufficient air flow, following a successful trial last year. Additionally, we will install carbon dioxide and temperature sensors at these sites, capable of controlling airflow based on real-time air quality data, reducing unnecessary energy consumption.

All these measures seek to drive efficiencies and guarantee reductions in our energy and carbon footprint, feeding into our overall ambition to improve our sustainability credentials.

I thank my colleagues for all of their hard work this year, and I am excited to see what next year has in store for the Green Gateway to Europe.

# Appendix 1: Key facts and figures

The following table outlines annual progress against targets within each of the priority areas. KPIs have been developed in alignment with best practices including the Global Reporting Initiative (GRI), TCFD and the Streamlined Energy and Carbon Reporting (SECR). These are updated and reported on annually.

	HS1 targets	2019/2020 financial year	2020/2021 financial year	2021/2022 financial year	2022/23 financial year
Location based	Scope 1 emissions	1,545 tCO <sub>2</sub> e	1,681 tCO <sub>2</sub> e	1,427 tCO <sub>2</sub> e	1,143 tCO <sub>2</sub> e
	Scope 2 emissions	11,682 tCO <sub>2</sub> e	7,653 tCO <sub>2</sub> e	13,553 tCO <sub>2</sub> e*	11,747 tCO <sub>2</sub> e
	Scope 3 emissions	1,275 tCO <sub>2</sub> e	875 tCO <sub>2</sub> e	1,462 tCO <sub>2</sub> e	1,273 tCO <sub>2</sub> e
	Total location based carbon emissions	14,502 tCO <sub>2</sub> e	10,209 tCO <sub>2</sub> e	16,442 tCO <sub>2</sub> e	14,163 tCO <sub>2</sub> e
Market based	Scope 1 emissions	1,545 tCO <sub>2</sub> e	1,681 tCO <sub>2</sub> e	1,427 tCO <sub>2</sub> e	1,143 tCO <sub>2</sub> e
	Scope 2 emissions	11,682 tCO <sub>2</sub> e	288 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e <sup>4</sup>	10,396 tCO <sub>2</sub> e
	Scope 3 emissions	1,275 tCO <sub>2</sub> e	875 tCO <sub>2</sub> e	1,462 tCO <sub>2</sub> e	1,273 tCO <sub>2</sub> e
	Total market based carbon emissions	14,502 tCO <sub>2</sub> e	2,844 tCO <sub>2</sub> e	2,889 tCO <sub>2</sub> e	12,812 tCO <sub>2</sub> e
Carbon offset due to REGO/PPA	-	7,365 tCO <sub>2</sub> e	13,553 tCO <sub>2</sub> e	1,351 tCO <sub>2</sub> e	
CO <sub>2</sub> per user using net emissions	0.270 kg CO <sub>2</sub> e	0.362kg CO <sub>2</sub> e	0.113kg CO <sub>2</sub> e	0.309 CO <sub>2</sub> e per user	
Intensity ratio: kg CO <sub>2</sub> e (gross Scope 1, 2 & 3) per user <sup>5</sup>	-	1.299 kg CO <sub>2</sub> e	0.6454 kg CO <sub>2</sub> e	0.309 kg CO <sub>2</sub> e	
Traction energy per passenger		3.4 kWh/pax	20.3 kWh/pax	6.6 kWh/pax	3.8 kWh/pax
Traction energy per train journey		2,426 kWh	2,295 kWh	3,159 kWh	2,289 kWh
Non traction energy total (electricity and gas)		46,410 MWh	41,966 MWh	71,568 MWh	67,010 MWh
Non traction energy per m <sup>2</sup>		263 kWh/m <sup>2</sup>	237 kWh/m <sup>2</sup>	242 kWh/m <sup>2</sup>	379 kWh/m <sup>2</sup>
Electricity use		45,705 MWh	32,825 MWh	63,828 MWh	60,747 MWh
Gas use		8,216 MWh	9,142 MWh	7,740 MWh	6,263 MWh

<sup>4</sup> All Scope 2 emissions had net zero values as all electricity was purchased from renewable sources via REGO agreements

<sup>5</sup> 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	2022/23 financial year
Waste generated	- 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	2,507 tonnes
Waste recycling		52%	54%	54%	59%
Waste to landfill		4 tonnes	8 tonnes	5 tonnes	1.1 tonnes
Water use	- Minimise water consumption.	46,997 m <sup>3</sup>	9,613 m <sup>3</sup>	31,909 m <sup>3</sup>	21,851 m <sup>3</sup>
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	809
Biodiversity tiles assessed	- To 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.	27	29	135	11
Biodiversity net gain		Baseline assessment completed	+0.6%	+0.6%	+0.89%

## Appendix 2: TCFD progress

Climate change is increasingly material for all investors, including those in infrastructure assets, which face a range of impacts from the physical effects of climate change such as heat stress and surface flooding, and from regulatory actions designed to reduce emissions and influence consumer behaviour. Businesses are increasingly facing client and public pressure to take a systematic approach to address climate risk and communicate it effectively.

Tackling climate change remains a priority for Government, industry, regulators and investors both in the UK and internationally. The UK government has published a roadmap of planned developments in climate-related reporting out to 2024-25, which would ultimately extend it beyond premium listed companies to many other types of company, pension schemes, asset managers and others.

HS1 have been voluntarily reporting on the TCFD framework since 2020. While it is not compulsory for HS1 to report under TCFD, we began disclosing under this framework to demonstrate our endorsement of this framework to our investors.

### Governance

#### a. Describe the Board's oversight of climate related risks and opportunities.

HS1 continues to implement a robust governance process with the Board and Board Sub-Committees.

The Group's Board is comprised of 6 shareholder representatives and 2 Non-Executive Directors who are professionals experienced in the rail industry, project and corporate finance, asset management and Health and Safety. The Board is kept apprised of the business's performance and shareholder interests through regular Board and Subcommittee reporting, as well as periodic CEO Reports and topical working groups that meet between Boards to drive progress and decisions on identified issues.

The Board meets 8 times per annum and Board Sub-Committees meet regularly and as required. Climate-related issues are discussed at the main Board annually and more frequently at the Audit and Finance Sub-Committee (which provides oversight of the corporate risk register) and the Safety Sub-Committee (which provides oversight of asset risk).

Climate-related risks and opportunities are key items on the Board's strategic agenda and in FY23 the Board engaged Willis Towers Watson Limited to conduct an in-depth assessment of HS1's physical and transition climate risks to 2030 and beyond. The aim of the work was to support HS1's climate risk disclosure and strategic decision making. Business metrics include train delays, and which include those due to weather. As a key business metric this is monitored at varying levels of the organisation, supply chain, customers and ultimately the Board.

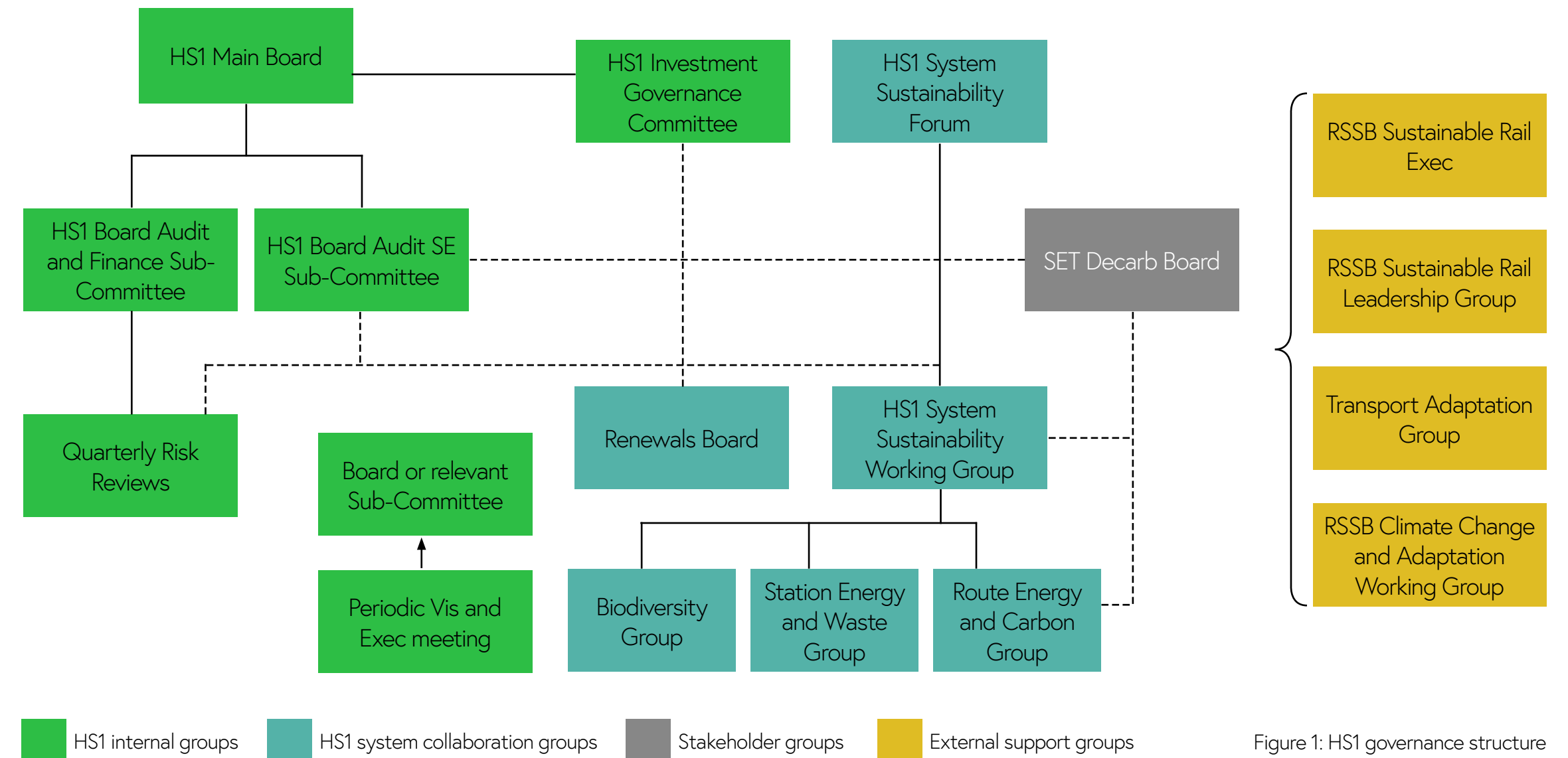


Figure 1: HS1 governance structure

Over the last year, HS1 has carried out a full spectrum Carbon Footprint Analysis (CFA) against the Greenhouse Gas (GHG) protocol with a baseline year 2019/20. The completion of this assessment will be used to support HS1's ambition to be carbon net-zero by 2030/31 for all energy and establish a target to be fully carbon net-zero. To build on the CFA, we will work with our supply chain to develop a detailed analysis of embodied carbon for the materials in projects we commission.

To ensure that the Board is aware of the: targets; glideslopes; and activities that are required to achieve the ambition, a reporting structure has been put in place which include quarterly ESG reports for the Executive and the Board as well as an annual ESG report which is published externally.

HS1 has set up internal and external structures to support the management of climate-related risks and opportunities. Figure 1 shows the HS1 governance structure, how it links to the cross organisational system structures and the support from sector bodies.

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

HS1's Investment Governance Committee (IGC) is chaired by the CEO and has oversight of the climate adaptation and mitigation plans through the capital investment and renewals plans. Direct accountability sits with the Engineering & Sustainability Director, who is supported by their Heads of Department (Assurance and Sustainability; Stations, Route and Projects) to develop and deliver the adaptation and mitigation plans in collaboration with the supply chain.

The Climate Change Risk Assessment (CCRA), undertaken by WTW, captures the material risks, which for HS1 are ranked on the lower side of the risk spectrum and is reviewed every five years to inform the corporate risk register which is reviewed quarterly within the business and annually with both the Board Audit and Finance Sub-Committee and the main Board. Relevant updates on climate-related risk, mitigation, plans plus metrics and targets are included in various management reports at varying levels of the organisation and supply chain.

To support the internal reporting and in addition to the CCRA, an annual CFA is undertaken and reported in the annual ESG Report along with all climate-related metrics and targets.

In terms of new supplier and client relationships, HS1's Request for Proposal document requests details of any environmental management certification that the bidding organisation and any envisaged supply chain members or sub-contractors or consortium member holds, i.e. ISO 14001 (environmental management systems) or equivalent standard. Management has a project underway to enhance the sustainability credentials and assessment of new suppliers through updated contract procurement, which will consider ISO 20400 (sustainable procurement – guidance).

The role of HS1 senior management in assessing and managing climate related risks and opportunities is outlined in Figure 2. Management have also engaged with industry experts to discuss TCFD reporting and will continue to do so throughout FY24 and beyond.

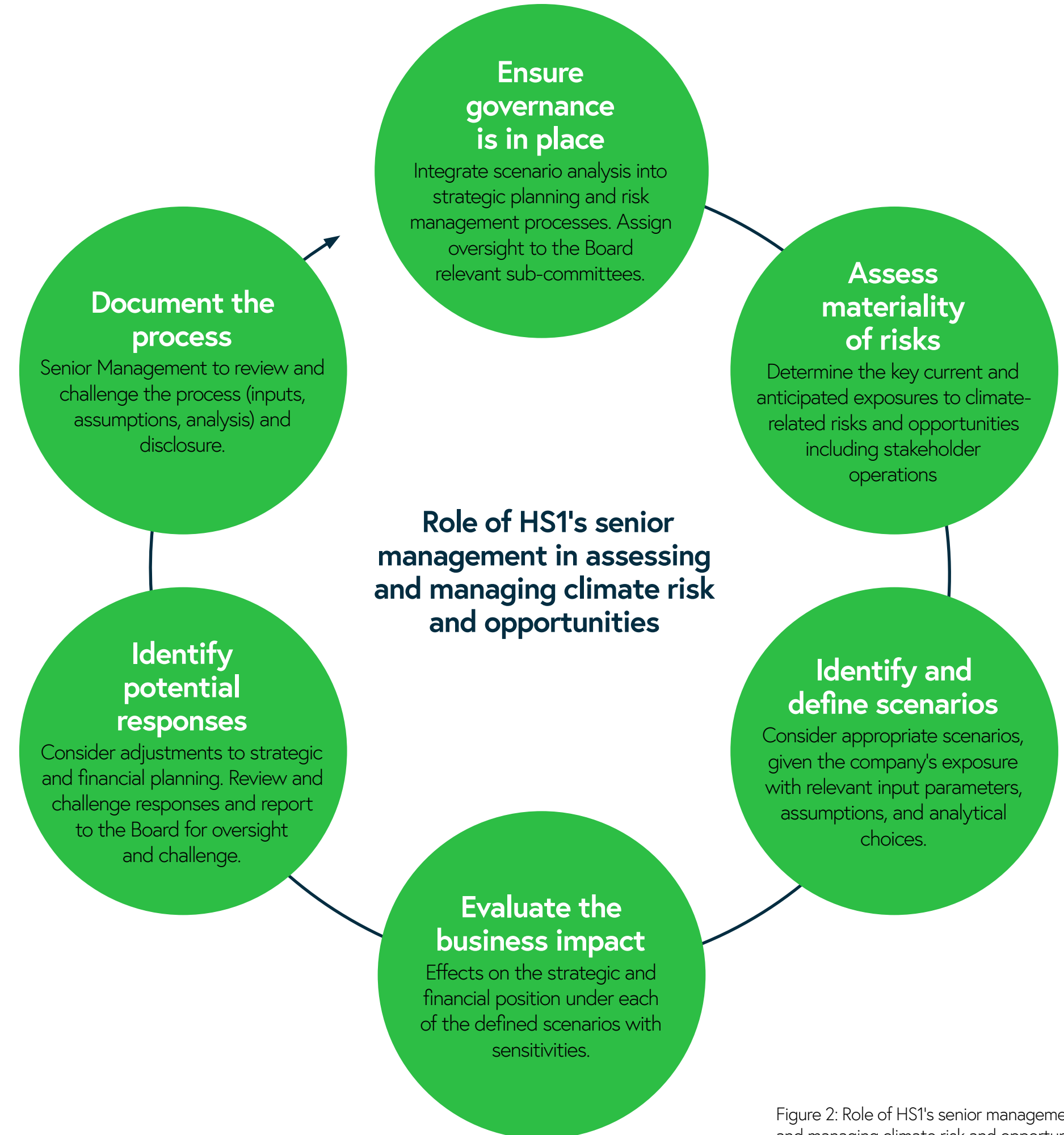


Figure 2: Role of HS1's senior management in assessing and managing climate risk and opportunities

**Strategy**

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

For the HS1 infrastructure an analysis of the current climate with a timeframe up to 2030 was undertaken. Additionally, future time horizons in focus were 2040-50 (aligns with the concession) and 2050-70 and beyond to support HS1 longer term resiliency planning, noting that the asset's lifespan is expected to extend beyond this long-term horizon. All horizons had a low carbon scenario (Representative Concentration Pathway\* 'RCP' 2.6 close to current climate conditions ~ 1.5deg C global warming) and a business as usual 'hothouse' scenario ('RCP' 8.5 ~ >4 deg C global warming) applied. Although the assessment included asset classes, the assessment focussed on the asset as a whole with a view to influence the long-term rolling 40-year asset management plan.

The CCRA did indicate that there were potential future climate vulnerabilities in the longer term, however due to the robust design of the infrastructure, these would require further interrogation with Network Rail High Speed who have operational control on a day-to-day basis. To enable this, HS1 is developing a Climate Change and Adaptation Strategy which will set the direction and framework for

NRHS to develop detailed plans on an asset class level. Although not expected to be material, heat stress and flooding were identified as the most relevant physical hazards however, they would not likely manifest in the short-term horizon that was identified. There were no material transition risks identified in the short-term however, the assessment did indicate that HS1 should monitor upcoming and proposed regulation promoting a circular economy.

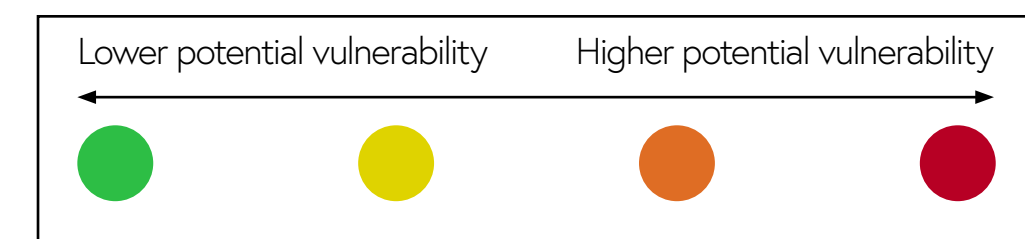
Figure 3 shows the potential vulnerabilities of physical weather impacts based on the short/medium term time horizons and against the warming scenarios selected for the study. As can be seen the risk only becomes material in the longer term at the higher warming scenario and HS1 will monitor warming patterns and investigate the actual vulnerability of key assets to weather impacts.

The physical risks of climatic changes to the HS1 infrastructure and operations were found to be low in this review. The highest rated physical risks were extremes such as significant rainfall and heat, which are short term and the risk of adjacent infrastructure not being available resulting in the HS1 infrastructure becoming a stranded asset.

The transition risk for HS1 is considered low and in many cases, it is seen as an opportunity for high-speed rail which is a sustainable means of transport. Figure 4 demonstrates the 11 climate transition risks and opportunities identified for HS1 in alignment with the TCFD guidance.

	Current climate Now-2030	Low carbon world scenario (>1.5°C) 2040-50 and beyond	High greenhouse gas emissions scenario (>4°C) 2040-50 and beyond
Heat stress	●	●	●
Drought	●	●	●
Inland flooding	●	●	●
Windstorm	●	●	●
Coastal flood and sea level rise	●	●	●

Figure 3: Potential vulnerabilities of physical weather impacts.



\* The Representative Concentration Pathways (RCPs) describe four different 21st century pathways of greenhouse gas (GHG) emissions and atmospheric concentrations, air pollutant emissions and land use. The RCPs have been developed using Integrated Assessment Models (IAMs) as input to a wide range of climate model simulations to project their consequences for the climate system. These climate projections, in turn, are used for impacts and adaptation assessment. - [https://ar5-syr.ipcc.ch/topic\\_futurechanges.php](https://ar5-syr.ipcc.ch/topic_futurechanges.php) (IPCC Climate Change 2014 Synthesis Report)



Appendix 2: TCFD progress

**Policy and legal risks**

This category comprises minor risks, with one identified opportunity, refer to Figure 4. Pricing of GHG Emissions (1a) captures the potential financial risk based on the forecasted overall intensity of UK carbon pricing (using NGFS data) and HS1's projected Scope 1 emissions in 2030. Enhanced Emissions-Reporting Obligations (1b) and Mandates and Regulation promoting a Circular Economy (1c) refer to legal obligations around processes, systems, and tracking of key focus areas such as GHG emissions and waste management. The impact of the risk of Climate Change Litigation (1d) was unquantified but is assumed to be low.

**Technology risks**

This category was assessed with the aim of considering the costs and opportunities of improving energy efficiency and other areas where technology implementation is required. Utilising lower emission technology can provide reputational benefits, as investors and customers commit to a low carbon world. It can also provide cost savings via greater energy efficiency. To ensure these benefits are recognised as part of asset management and investment planning, it is vital that Whole Life-Cycle Carbon assessments are conducted to inform renewal projects. HS1 has worked with partners on technology investments to make low emission rail travel more appealing – both by being more environmentally friendly and in terms of journey times.

**Market risks**

Changing Consumer Preferences presents one of the biggest opportunities to HS1, based on the assumption that customers become increasingly climate conscious. As public concern regarding climate change rises, consumers' preferences are expected to lean towards more 'eco-friendly' modes of transportation. The modal shift from road and air travel to rail is anticipated to result in greater demand and thus more train journeys, which will translate into increased revenue for HS1. HS1 is already actively engaged in the Sustainable Rail Strategy, the industry-wide initiative facilitated by the Rail Safety and Standards Board (RSSB) and supported and overseen by the Department for Transport. The Cost of Capital (3b) risk assumes that credit rating agencies and capital providers will factor sustainability into their overall scoring. Emissions Offset (3c) considers the use of carbon offsets. To reach Net Zero traction energy and non-traction energy use by 2030, HS1 expects to employ these. Increased Cost of Raw Materials risk (3d) assumes that suppliers pass carbon taxes onto HS1 via increased prices and therefore we have started to work with our supply chain to identify lower carbon materials.

Risk	Risk name	Risk	Opportunity
<b>1</b>	<b>Policy and legal</b>		
a	Pricing of GHG emissions (Scope 1)	Moderate (P&L)	N/A
b	Enhanced emissions - reporting obligations	Moderate (P&L)	N/A
c	Mandates and regulation promoting a circular economy	Moderate (P&L)	Moderate (P&L)
d	Climate change litigation		
<b>2</b>	<b>Technology</b>		
a	Substitution of existing technologies to lower emission options	Moderate (P&L)	Moderate (P&L)
<b>3</b>	<b>Market</b>		
a	Changing consumer preferences	N/A	High (P&L)
b	Cost of capital	Low (P&L)	Low (P&L)
c	Emission offset	Moderate (P&L)	N/A
d	Increased cost of raw materials	Moderate (P&L)	N/A
<b>4</b>	<b>Reputation</b>		
a	Investment risk / opportunities	Moderate (BS)	Moderate (BS)
b	Employee risk / opportunities	Low (P&L)	Low (P&L)

Figure 4: Climate transition risks and opportunities identified for HS1  
 Note: Financial performance (P&L), Financial position (balance sheet) (BS)

Appendix 2: TCFD progress

Reputation risks

HS1 operates in a low emission sector. Consequently, reputational risk is more likely associated with opportunity with respect to investment (4a) and employees (4b). Investors are expected to increasingly factor sustainability into their investment decisions out to 2030. As a low emission rail transport actor, HS1 can benefit from a positive sustainability reputation. HS1 is investigating green finance options, such as converting its working capital fund into a sustainability backed loan. The opportunity is dependent on HS1 being able to demonstrate sufficient sustainability credentials which links with the Sustainability Strategy Transparency priority.

Following the completion of the transition risk assessment, eight recommendations were made, presented in the table. Over the last year HS1 has fully addressed\* five with two additional recommendations ongoing and one planned through the sustainability programme.

The diagram presents the annual impact and likelihood of transition risks under a medium term horizon (under a NZ2050 scenario), risk and opportunities are outlined in further detail in the Strategy section and Figure 4.

Recommendations	
<b>Complete</b>	<p>Ensure climate risk identification, assessment and monitoring is incorporated into existing ERM process.</p> <p>Continue to monitor, consult and work collaboratively with partners (such as Network Rail (High Speed) and Eurostar) on regulatory changes, emissions reduction plans, and innovation.</p> <p>Continue to promote information-sharing activities internally where possible such as via sustainability training or information repositories.</p> <p>Actively promote HS1's ESG Report, Sustainability Report, policy and achievements in recruitment campaigns, through employee training and via external marketing – particularly targeting younger travellers.</p>
<b>Ongoing</b>	<p>Monitor emerging climate change litigation cases and outcomes, particularly those pertaining to the transport industry.</p> <p>Continue to develop emissions reporting scope and depth, including by aiming to report with full alignment to the GHG Protocol.</p> <p>Further investigate technology and building efficiency risks internally, assessing and factoring in the longer-term outlook for technological viability and customer and government expectations.</p>
<b>Planned</b>	<p>Set an internal carbon price. Exploring the shadow carbon prices for project appraisals suggested by UK Department for Business, Energy &amp; Industrial Strategy's (BEIS) carbon values for policy appraisal and evaluation (£126-£378, with a central value of £252 for 2023)</p>

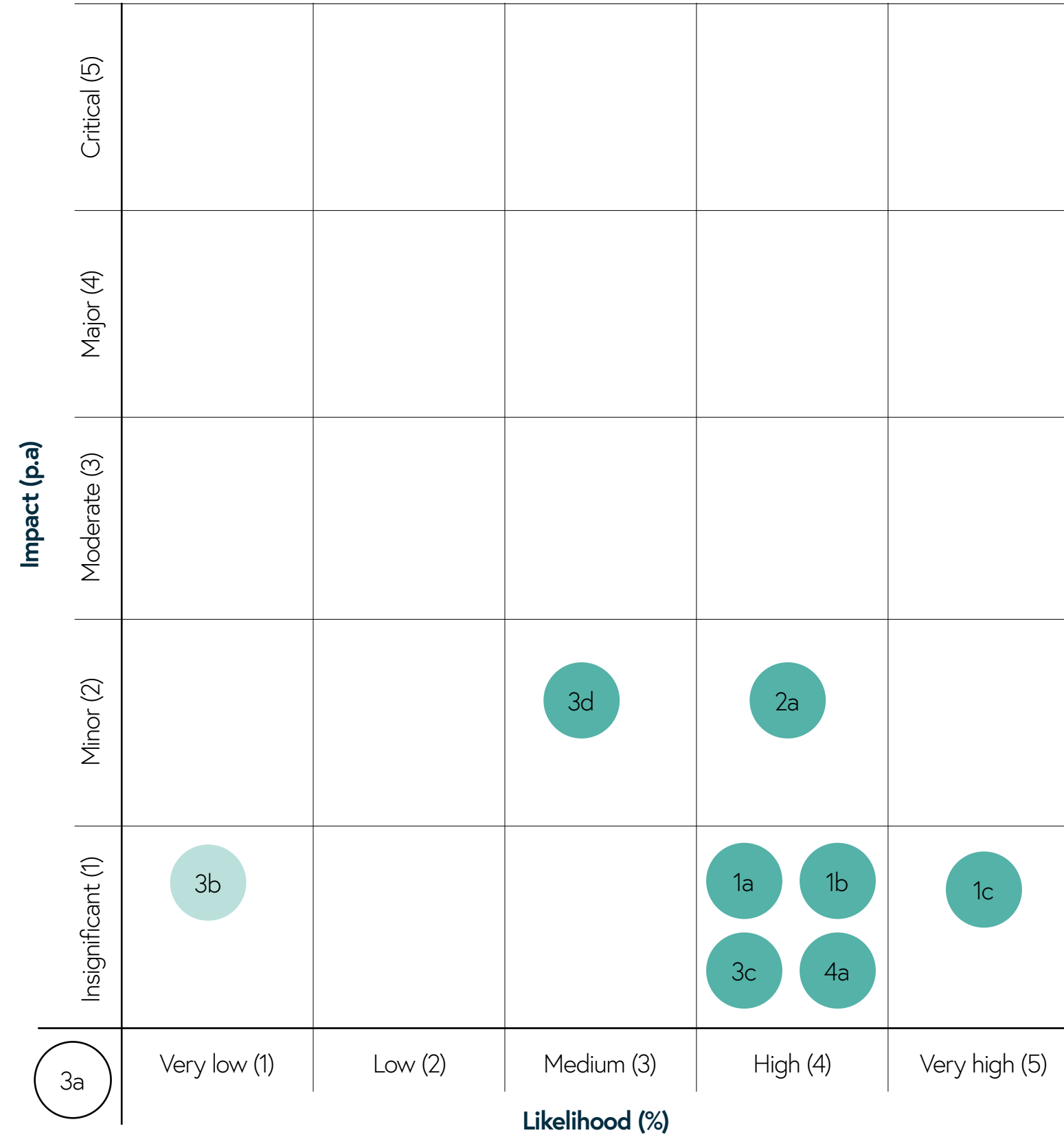


Figure 5: Range of annual impact and likelihood of transition risks

- 1a. Pricing of GHG emissions (Scope 1)
- 1b. Enhanced emissions - reporting obligations
- 1c. Mandates and regulation promoting a circular economy
- 1d. Climate change litigation
- 2a. Substitution of existing technologies to lower emission options
- 3a. Changing consumer preferences
- 3b. Cost of capital
- 3c. Emission offset
- 3d. Increased cost of raw materials
- 4a. Investment risk / opportunities
- 4b. Employee risk / opportunities

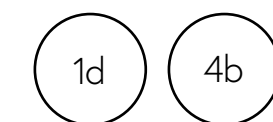
Notes

Impact and likelihood ranges and scores are based on HS1's ERM rating scales

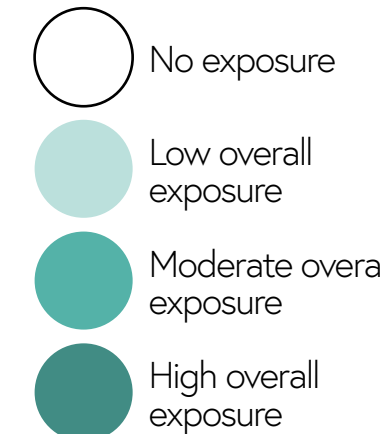
Relative position of risks within grid boxes do not reflect relative ranking (e.g. for 1a, 1b, 3c, 4a)

Residual risk assumes that HS1 meets its sustainability targets and commitments

Unquantified



Key\*



\* Based on HS1's ERM scales

\* Fully addressed/completed is defined as the recommendation being embedded within standard process.

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

HS1's CCRA covering the full HS1 infrastructure was consulted on with our stakeholders to ensure that it is accurate and provides a clear identification of the climate-related risks and opportunities.

HS1 has conducted analysis on overall transition risk exposure out to 2030 with the financial impact of risks and opportunities considered, this is summarised in Figure 4.

The key financial risks which could have a financial statement impact are reviewed by management as part of the annual external audit. These risks could include asset impairment, changes to useful lives, changes to fair valuations, contingent liabilities arising from fines, penalties and credit losses for loans and other financial assets. Following the detailed CCRA, the risks are minimal as the HS1 infrastructure is a modern designed and built railway with transition risk on balance being generally limited.

To support our management of climate-related risks and opportunities, we continue to develop an R&D and innovation workstream which is a strand of our standard R&D processes. Over the last year we have started to undertake research into means of managing our infrastructure in periods of extreme heat which was identified as a potential vulnerability through our risk assessments.

As we have started to develop the regulatory submission for our next control period (CP4: 2025-2030), we have used the CCRA and will base our thinking on the lower carbon scenario (less than 2 deg [RCP2.6]). We have selected to do this as our initial planning assumption. We will develop further asset management scenarios ranging to the hothouse scenario (RCP 8.5) for consideration at our next control period, CP5. Our asset strategies consider the impact of climate change that our regulatory submission will default as an adaptation plan. Throughout CP4 we will develop our long-term strategy whilst updating our CCRA so that it takes into consideration updated weather analysis and research.

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

HS1's strategy is to offer a low carbon travel option from London to Kent and into Europe. This supports national targets to reduce carbon emissions and HS1 is well placed to support this through available capacity on the network to support a modal shift of around 4.9m additional international passenger flight journeys and 2m additional domestic car journeys, as well as freight. Our research has shown that HS1 uses around 5.8 times less energy per passenger than an aircraft providing that choice to travellers of an alternative mode of transport.

We have started to eradicate carbon from the energy we use to power the system. Most notably we have secured a Power Purchase Agreement for 40% of our electricity and we are working to increase this over the rest of the decade. We have specified that all gas boilers will be renewed with heat source pumps thereby removing our need for gas across the system. We are investigating onsite energy generation such as solar alongside a well-established energy reduction programme. Combined, these Initiatives will reduce costs over the long-term making the system more cost effective.

We expect increases in the costs of material should a carbon tax be introduced and to prepare for the future, we have started to specify low carbon materials in projects. To further support this, we have carried out a detailed CFA which will allow us to target our reduction activities further.

**Risk Management**

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

HS1's Corporate Risk Register includes a climate change risk 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 appetites are predetermined based on several factors and how they impact on 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. The review cycle will be in line with the Climate Change Act's Adaptation Reporting Power cycle, we reported voluntarily under phase 3 and we intend to report under phase 4 noting that the cycle has been amended so that there is only four years between phases 3 and 4 before returning to a 5-year cycle. The change in the reporting cycle is of benefit to HS1 as it will closely align with our regulatory review planning cycle which is how system funding is determined. Between the five-year reviews we will continually horizon scan for risks and opportunities (both physical and transition) and ensure we respond effectively and proportionately.

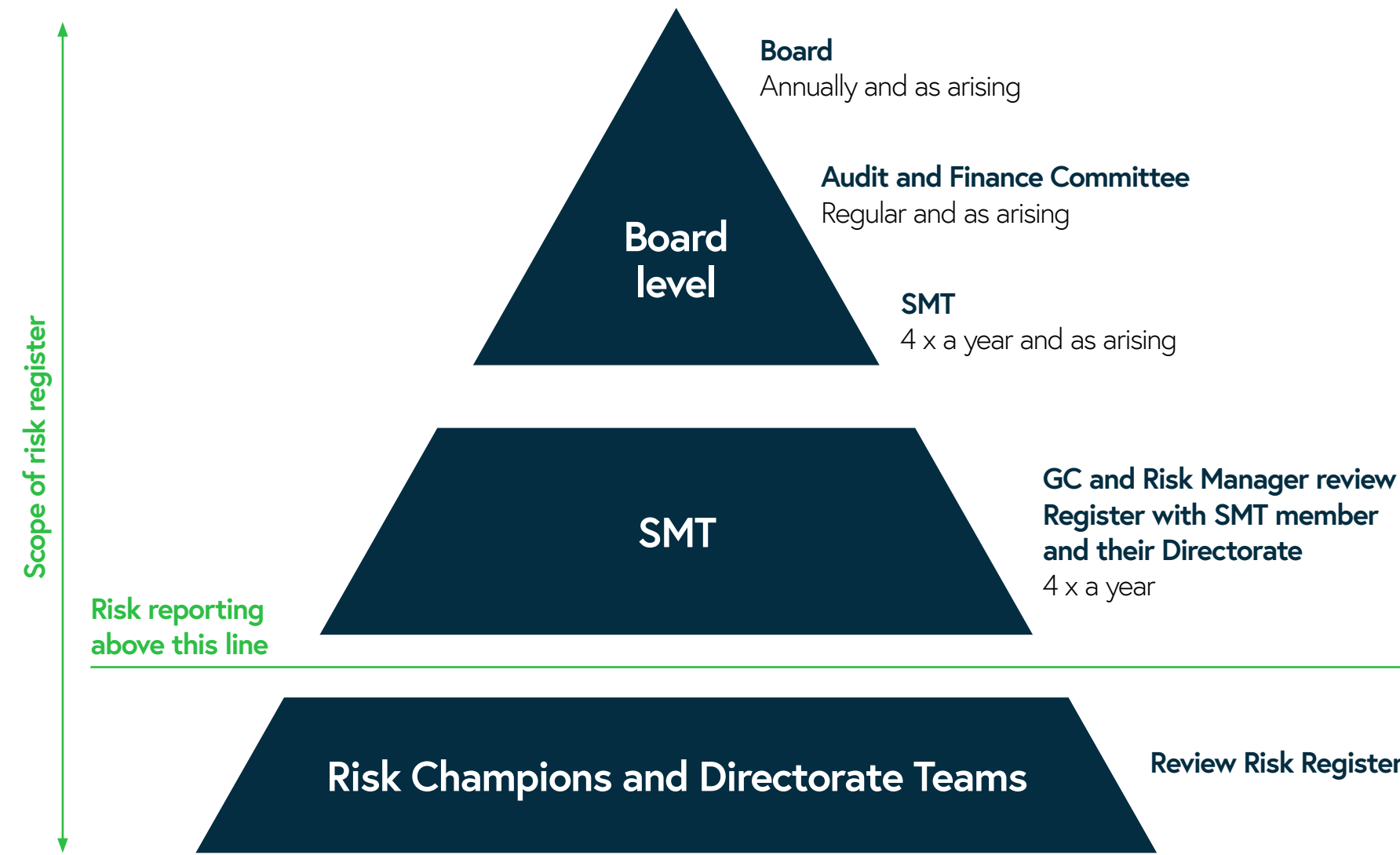
The high-level findings of our assessments are included in this disclosure, and we are working with our stakeholders on developing appropriate mitigation and adaptation plans. The analysis demonstrates that there is low risk to HS1 from climate change in our short to medium term timeframe (within the concessions) and moderate risk longer term based on the scenarios we are currently planning for.

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

HS1's CCRA's demonstrate that there is a low physical risk to the HS1 infrastructure during the concession. Climate change is made up of acute and chronic risk and although considered low for HS1 over the next decade, we do need to plan for more extreme weather beyond the concessions so that the infrastructure will remain viable, and to discharge our role as asset stewards. To achieve this, climate resilience has been written into asset and infrastructure planning for the next regulatory funding period (2025-2030) and also considered in the 40-year asset management plan. Our goal for the coming year is to develop an adaptation strategy and improvement plans in partnership with our supply chain. The strategy will require the system to plan for climate change and to consider climate impacts on individual assets.

The CCRA's were structured to consider the requirements of TCFD, and the transition risk assessment includes consideration of Policy & Legal, Technology, Market and Reputation risks and opportunities. The physical risk assessment considers acute and chronic risks. The HS1 corporate risk procedure was used to set tolerances so that the materiality of climate risk can be assessed against other key business risks.

The Governance section describes the process that HS1 senior management follow in assessing and managing climate related risks and opportunities.



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

HS1 has a well-established risk-management procedure that includes weekly dynamic monitoring of emerging risks, quarterly reviews of the risk register within each directorate, regular reporting to the Audit and Finance Sub-committee and annual reporting to the Board.

Climate change risks appear on our corporate register and are monitored during the process set out above with improvement actions being assigned where required.

Additionally, HS1 conducts an annual horizon scanning exercise where climate related risks are specifically assessed.

For a detailed analysis of climate risk HS1 has aligned its CCRA reviews with the Adaptation Reporting Power 5-yearly submissions. This means that for each 5-yearly submission HS1 will undertake an external review of climate-related risks and opportunities which will also assess progress against any recommendations made in the previous submission.

**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.**

This ESG report contains all related metrics and targets and their rationale. Where applicable, external validation is sought and HS1 has been approved for Science Based Targets, Achilles Carbon Reduce and the Biodiversity Benchmark Award. Our detailed plans and glidepaths can be found in the roadmaps that accompany each priority area within this report.

Transition risks are all assessed as low, this will be monitored but will be formally reviewed every 5 years under voluntary reporting (ARP), phase 4 being next. For acute risks, we monitor seasonal highs and lows and based on this, adjust maintenance plans and the delivery of summer/winter preparation activities.

HS1 is investigating the development of an internal carbon price which will commence with a shadow internal carbon price to allow the business to understand how an internal carbon price can help guide investment decisions.

## Appendix 3 – United Nations Global Compact – Communication on Progress

The following pages outline HS1's Communication on Progress in line with United Nations Global Compact annual reporting and is undertaken in line with our Updated People Strategy.

Principle	Actions /activities
<b>Human rights</b>	
1. Businesses should support and respect the protection of internationally proclaimed human rights	<p>HS1's operations are exclusively within the UK where Human Rights compliance is robust through legal and enforcement frameworks. Our tier 1 supply chains are based in the UK with some extended supply chains reaching into Europe, predominantly France.</p> <p>HS1 has recently set up an internal Business Ethics Committee which will develop a strategy following an impact assessment for the greatest areas of human rights risk. The 10 UNGC Principles will be key in supporting the process and framing our action. We do expect that we have addressed all key areas however, we will use the UNGC to validate this. As we start to build our social engagement plans, we will consider how we can improve human rights in the communities we serve.</p>
2. Make sure that they are not complicit in human rights abuses	<p>HS1 takes human rights seriously. We operate in solely in the UK where legislation supports the eradication of human rights abuses. To support this we have a stringent compliance regime which is monitored by the Business Ethics Steering Group. This is an internal group with membership from across the business. The group supports the continual improvement of relevant human rights related policies which include providing training to all workers.</p> <p>Although we don't contract security directly, we conduct assurance on the services procured on our behalf. We monitor incidents and take action to ensure that security services are delivering their services in ethical ways that use the appropriate force procedures. We do contract with the BTP which is bound by UK Home Office requirements and the UK legal system.</p>

Principle	Actions /activities
<b>Labour</b>	
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	<p>HS1 directly employs a small workforce of around 60 people and while it doesn't recognise any trade unions, it does consult extensively with its employees. HS1 has established an Employee Engagement Forum which acts as the voice of all employees. The group communicates with all employees through direct and confidential mechanisms and works with senior management to address any concerns.</p>
4. The elimination of all forms of forced and compulsory labour	<p>An internal group, the Modern Slavery Steering Group, has been functioning for several years with membership representing all aspects of the business. Their remit involves monitoring modern slavery compliance, identifying and embedding good practice in the protection of forced labour and in compliance with the Modern Slavery Act. HS1 has an up to date modern slavery policy which applies directly to staff and indirectly to our supply chain and we publish an annual modern slavery statement.</p> <p>The Modern Slavery Group will be absorbed by the Business Ethics Group at the start of 2023-24. In our contracts we have either specific clauses requiring compliance with modern slavery laws (where applicable to the subject of the contract) or a general compliance with laws clause. In our contracts, we have contractual commitments from our suppliers to comply with modern slavery laws. We also vet a range of potential supplier's policies and procedures which include those related to ESG, as part of the procurement process before they are placed on the HS1 approved supplier list.</p>

Principle	Actions /activities
5. The effective abolition of child labour	<p>Operating solely in the UK, HS1 complies with UK child labour laws and does not condone child labour. Employment practices at HS1 comply with the International Labour Organisation's (ILO) conventions on minimum ages and the elimination of the worst forms of child labour. Our recruitment process involves stringent identity checks which include dates of birth. Our supply chain contracts adhere to the UK law.</p> <p>Should it be identified that a child is working for HS1 or our supply chain, the instance will be investigated, and appropriate action taken.</p> <p>HS1 is actively involved in industry sustainability frameworks from strategic to delivery. We contract with the BTP and through this we maintain a strong relationship with law enforcement. HS1 operates a business ethics committee which addresses a range of topics including the abolition of child labour.</p>
6. The elimination of discrimination in respect of employment and occupation	<p>HS1 has robust people and safety strategies which drive continual improvement and cover all aspects of principle 6. To support these strategies we have policies and procedures to address recruitment and access to training and advancement. We hold Investors In People and Inclusive Employers certification to demonstrate our commitment to inclusivity. We have recently reviewed our job descriptions and ensure that we encourage applications from all parts of society.</p> <p>Over the last year we have provided soft skill training for our entire workforce in line with our membership with Inclusive Employers. We ensure that our workers understand how to make use of grievance and whistleblowing procedures to report discrimination in all of its forms. We promote personal development and through our social sustainability objectives we will be actively encouraging the development of STEM occupations for the railway of the future.</p> <p>Our safety policies consider the needs of individuals and where necessary we implement specific working practices to support workers and visitors with disabilities.</p> <p>As we develop our community plans for enhanced social sustainability, we will incorporate the UNGC community related principles.</p>

Principle	Actions /activities
<b>Environment</b>	
7. Businesses should support a precautionary approach to environmental challenges	<p>The Board Safety Sub-Committee includes environment and sustainability within its remit. To support the Board, there are regular sustainability related meetings held with system stakeholders. HS1 takes an active role in industry environment and sustainability related working and leadership groups and supports research, development and innovation in this area.</p> <p>The operational elements of our business are outsourced to competent contractors who all hold ISO 14001 Environmental Management System Requirements - certification. In addition, we conduct additional assurance activities with our supply chain to ensure that they are meeting with best practice.</p>
8. Undertake initiatives to promote greater environmental responsibility	<p>We have recently updated our company vision which includes sustainability as a value. At the end of 2022 we review our sustainability strategy to ensure that it remained ambitious but also that we remain on track to achieve the targets that we set. As part of the review we considered our six areas of focus which we retained, including transparency.</p> <p>We have established a charter for our railway system and continue to drive sustainability standards within the UK rail system through our involvement in industry groups.</p> <p>Our targets and objectives are set out in our sustainability strategy and reported against within our annual ESG report as we improve towards the achievement of the targets. We have identified and achieved third party certification of key areas of our strategy so that we align to best practice. Our early adoption of TCFD helps to demonstrate our commitment.</p>
9. Encourage the development and diffusion of environmentally friendly technologies	<p>Standards have been developed and implemented which require our supply chains to consider ways to reduce the impact on the environment, whilst encouraging innovation and focusing on designing in better processes and the use of sustainable materials. To improve sustainability within our procurement processes, we are looking at best practice such as ISO 20400 <i>Sustainable Procurement</i> and considering how we build these requirements into our business. We stipulate minimum requirements in our contracts which are linked to the ambition outlined in our sustainability strategy.</p>

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