



Annual Environmental Report 2023/24

A responsible company preparing for a net zero future



Welcome to our Annual Environmental Report 2023/24

We have prepared this report in accordance with the RIIO-GD2 Environmental Reporting Guidance provided by Ofgem. It includes data for the reporting period 1 April 2023 to 31 March 2024.

RIIO-GD2 is a five-year price control period, set by our regulator Ofgem. We are publishing this report as part of our licence obligations for the RIIO-GD2 price control, which runs from April 2021 to March 2026.



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Links to specific pages and to external websites are **highlighted in orange**. You may have to explicitly allow Acrobat to open external websites depending on your security settings.

The production of the report is an Ofgem licence obligation and covers Southern Gas Networks and Scotland Gas Networks, collectively called SGN.

To stay up to date on our latest news please go to:

- www.sgn.co.uk/news
- linkedin.com/company/sgn
- facebook.com/sgngas
- [@SGNgas](https://twitter.com/SGNgas)



Overview



SGN's vision is to play our part in a fair and affordable energy transition. We have a robust environmental strategy to help us deliver that vision



The SGN Group owns one of the UK's largest and most innovative gas distribution networks, operating across Scotland, southern England and Northern Ireland

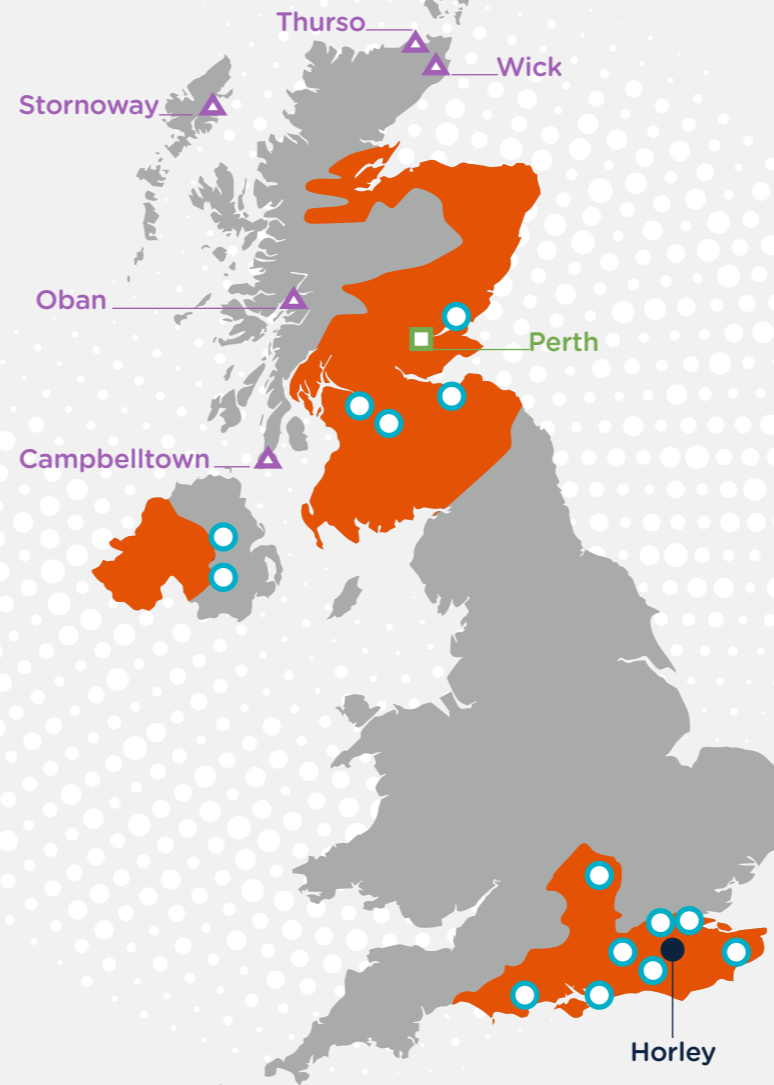
Our purpose

Serving our communities by keeping everyone safe and warm

Our vision

To play our part in a fair and affordable energy transition

Our values



Operations throughout the UK

- SGN network areas
- ▲ SIUs
- Head office
- Customer service centre
- Offices/depots

Scotland

Our network distributes gas across Scotland to 75% of households (1.85 million customers). This includes remote areas through the five Scottish Independent Undertakings (SIUs).

Southern England

Stretching from Milton Keynes in the north, to Dover in the east, and Lyme Regis in the west, including London boroughs south of the River Thames, our southern network distributes gas to 4.15 million customers.

Northern Ireland

The network in Northern Ireland delivers gas to 4,500 customers across nine towns in the west. Our Evolve business has ambitions of fully decarbonising this network by 2030.

24 hours a day, seven days a week, 365 days a year, our teams are working behind the scenes and out on the streets looking after our 74,000km of pipe network – keeping you safe and the gas flowing to six million homes and businesses in the south of England and across Scotland.

While the SGN Group owns gas networks across Scotland, southern England and Northern Ireland, this report relates to our regulated businesses operating in Scotland and the south of England.

The SGN brand portfolio

As our business expands so does our portfolio under both our regulated and non-regulated activities.

Regulated business
Our regulated businesses form the core of our activities in providing a safe and secure supply of gas to our customers throughout our three gas networks.



Non-regulated business
Beyond our regulated operations, we engage in complementary business ventures, leveraging expertise and diversifying the Group's portfolio.





Enabling net zero

Gas networks have a key role to play today and tomorrow. They are critical national infrastructure which ensure the UK's energy security is maintained, and we see enormous potential for the gas network to be an enabler of net zero.

We were pleased that the government took the strategic decision to support blending of up to 20% hydrogen by volume into the GB gas distribution network. Our world-first hydrogen projects are providing some of the core evidence that will be needed to build out a hydrogen economy. We also believe biomethane can help decarbonise gas grids. This year we completed a number of gas-to-grid projects and we are stepping up our plans for biomethane in the future.

Reducing our operational emissions

This report shares our environmental successes and challenges from 2023/24, including the progress we are making through our Environment Strategy to decarbonise our business operations and assets.

Our biggest environmental impact is leakage of natural gas to the atmosphere from our networks. Our safety-driven

“We recognise the urgency of the global climate crisis and we’re committed to delivering a greener future by sustainably providing heat for our customers and reducing emissions from our operations”

mains replacement programme is the key intervention we can make to reduce leakage and, this year, we replaced 795km of old metal mains with new polyethylene (PE) pipe, contributing towards our shrinkage emissions reduction of 3.6%.

Adapting to climate change

Flooding, droughts, heatwaves and other climate-related hazards are becoming more intense, longer and more frequent. We continue to experience the impact of climate change on our network, such as pipeline washouts which endanger the security of gas supply to our customers.

We remain committed to understanding the impacts of climate change on SGN and sharing how we are managing our climate-related risks and opportunities. For the second year, we've used the Task Force on Climate-Related Financial Disclosures (TCFD) framework to help us disclose how we are adapting to climate change. Our second TCFD report [can be found here, within our SGN Annual Report.](#)

Jeffrey Rosenthal

Non-Executive Director and Chair of SGN's Stakeholder and ESG Committee



The path to net zero must be affordable and offer choice to millions of households struggling with energy bills. For many, that choice will be hydrogen.

That's why we are progressing our live trial to demonstrate we can carry hydrogen in our local transmission system. We are also opening the UK's first hydrogen training facility for Gas Safe Registered engineers. They will play a key role in our H100 Fife project which will see up to 300 households heat their homes with green hydrogen in 2025.

We see an increasing role for biomethane, too. Last year, our Evolve subsidiary undertook the first gas-to-grid biomethane injection in Northern Ireland. We also completed our second gas-to-grid project with Thames Water which will supply up to 4,000 households in south-west London with renewable biomethane.

I'm immensely proud of our brilliant and passionate people and what we've accomplished together this year.

Mark Wild OBE

Chief Executive Officer

Our Environment Advisory Panel provides challenge, insight into best practice and acts as a critical friend to support the delivery of our Environment Strategy

A letter from the SGN Environment Advisory Panel

September 2024

The SGN Environment Advisory Panel (EAP) was established in February 2021 and comprises six external environment and sustainability experts, supported by key SGN staff. The purpose of the EAP is to provide robust and constructive challenge as a critical friend and to bring external perspectives. The panel holds four meetings per year and reviews a draft of the Annual Environmental Report. The discussions during these meetings are wide-ranging with the SGN team being open and ready to listen to the expertise provided through the group.

SGN has asked the EAP to provide this statement for inclusion in the Annual Environmental Report, reflecting observations of the panel members.

The EAP has seen that SGN is seeking to develop and roll out innovations that will positively impact environmental performance. Examples include advanced systems for improved leak detection and developing the infrastructure to enable the transport of lower-carbon gas. Along with ensuring the mains replacement programme meets its targets, these will be the most significant actions towards achieving SGN's net zero targets and are therefore critical.

Key to innovation is collaboration and partnership, and there have been some great examples of this by SGN such as the hydrogen Local Transmission System demonstration project in partnership with INEOS. Members of the EAP would encourage SGN to continually look for opportunities to engage with suppliers, research partners, other GDNs and wider society to realise opportunities and innovation across all aspects of the environmental agenda.

Aside from achieving net zero, discussions during our meetings have highlighted other interlinked impact areas across the environmental agenda. These include:

- *Setting more challenging targets and actions for biodiversity:* The Panel acknowledges the work

already done by SGN in establishing biodiversity baseline surveys, but would encourage more ambitious targets in this area. The UK has a major challenge with biodiversity loss, but also has opportunities to develop nature-based solutions to address climate resilience. SGN should consider its role both on land it owns, but also through partnerships, in restoring wildlife-rich habitats, increasing species abundance and protecting species at risk of being lost, adopting a systems-thinking approach that reflects the interconnectedness of climate and sustainability issues.

- *Reducing resource use supporting a more circular economy:* SGN has had waste reduction and recycling targets for several years, but the focus across the business on achieving them has been mixed. Enabling greater circularity of resources such as aggregate, spoil and PE pipe, as well as other depot waste, will require culture change, improved project information and management metrics, engagement with key stakeholders and many other factors, as well as considering economic drivers. Waste prevention should be core to any drive towards increasing circularity.

Thinking forward to GD3, in addition to the above, the EAP look forward to seeing progress on the work already started in considering climate change adaptation for SGN. Seeing the costs and challenges of climate adaptation needed over the coming years for SGN surely focuses the mind on why the drive towards carbon reduction and net zero is so important for SGN, its stakeholders and indeed the planet. The EAP members look forward to continuing to be a part of SGN's environmental improvement journey throughout 2024 and 2025.

Olivia Bertham

Director at ORB Sustainability Consulting Ltd and SGN Environment Advisory Panel Chair



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Director at ORB Sustainability Consulting Ltd and SGN Environment Advisory Panel Chair



Anna Graham

Head of Environment, Science & Innovation at The Scottish Whisky Association



Alan Hendry

Sustainability Director, Mott Macdonald



Maxine Frerk

Chair of SGN's Independent Stakeholder Group



Roddy Yarr

Director of Sustainability, University of Glasgow



Stephen Farrant

Independent Director, Advisor and Sustainable Business Consultant

Our Environment Strategy is our business blueprint for reaching our ambition of net zero greenhouse gas emissions by 2045 across both our networks

Aligned with the United Nations' Sustainable Development Goals (SDGs), our [Environment Strategy](#) sees us contributing to the decarbonisation of the energy network, reducing the carbon footprint of our business, and ensuring our networks are resilient to an ever-changing climate.

It is based on five pillars that demonstrate our long-term environmental ambitions:

- Net zero business carbon emissions
- Engaging with our supply chain
- Boosting biodiversity
- Transitioning towards a circular economy
- Supporting the energy transition

The SDGs provide an excellent way of describing what we do and what drives us as a business. We've adopted the following six SDGs as priority goals that we've identified as being material to our organisation and stakeholders.

You'll see us refer to these six goals as we report on our environmental impact this year, starting with our contribution to energy system decarbonisation and continuing through to the local environment.



SDG focus Local environment

By improving or restoring the environmental quality and/or biodiversity of sites we own and manage, as well as other locations within our network areas, we can have a profound positive impact on the quality of life and well-being

of our colleagues and our communities.

We are also committed to making our network more resilient to climate change and have no reportable environmental incidents.

See pages 34–36 for more details.



SDG focus Efficient resource use and circular economy

The objective of the circular economy is to do more with less. This is achieved through preventing waste or unnecessary resource use in the first place, using sustainable resources, such as secondary raw materials,

and prolonging the life of products through reuse, repair, refurbishment and remanufacturing.

When all these options are exhausted, and products or materials reach their end of life, then the materials should be recycled.

See pages 32–33 for more details.



SDG focus Sustainable procurement

Approximately 46% of our carbon footprint (excluding shrinkage) is attributed to our suppliers. As part of our overall net zero journey, it is vital to engage with our supply chain to implement sustainable practices that

will help reduce our carbon footprint.

We've committed to ensuring that at least 80% of our supply chain (by spend) meet our new Sustainable Procurement Code by 2026.

See page 31 for more details.



SDG focus Climate change mitigation

We have set an ambitious target of reaching net zero emissions across both our networks by 2045, in line with the more ambitious Scottish government target.

This target encompasses our direct emissions including leakage from our network (scope 1), energy that we purchase from others (scope 2) and indirect emissions from our value chain (scope 3).

See pages 25–30 for more details.



SDG focus Contribution to energy system decarbonisation

Central heating is responsible for up to a third of the UK's greenhouse gas emissions. We need to solve this challenge if we are to meet net zero targets.

Switching natural gas for biomethane and hydrogen – which produce much less or even no carbon when they burn – is one of the ways that we continue to heat homes safely while tackling the climate emergency.

See pages 17–21 for more details.



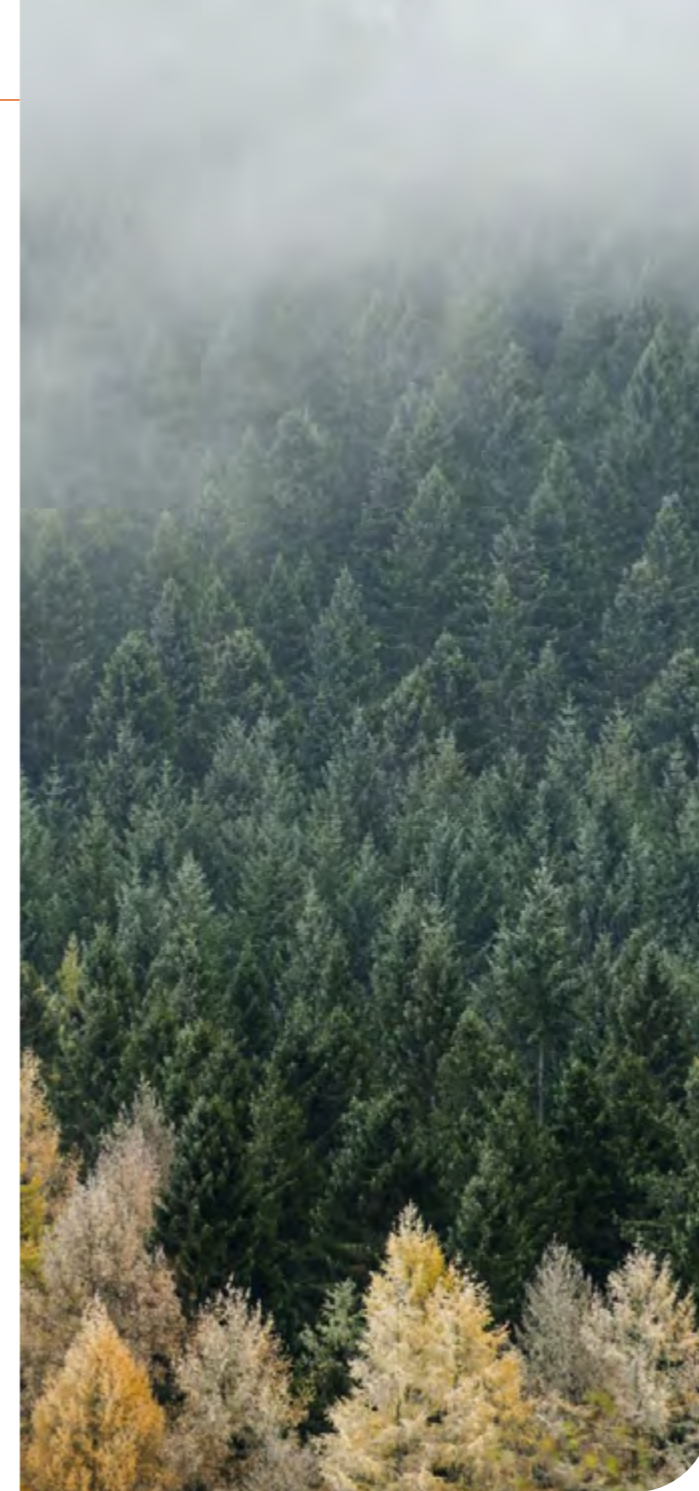
SDG focus Innovating for decarbonisation and to protect the environment

The decarbonisation challenge involves the development of new energy carriers, improving energy efficiency, achieving net zero emissions and creating new

markets for carbon and other by-products as part of an increasingly circular economy.

To meet this challenge, we require innovation.

See pages 22–24 for more details.





“As a gas network we are aware that we have significant environmental impacts. Through the targets included in our Environmental Action Plan, we are actively reducing and mitigating these impacts, helping ensure a sustainable business to support the energy transition required to get the UK to net zero”

Carolina Karlstrom
Head of Sustainability, SGN

Policy and performance

Our Environment and Sustainability Policy

From our Environment Strategy comes our Environment and Sustainability Policy which can be found [here](#). This sets out our commitment to preventing pollution as a result of our operations and building a sustainable business with net zero impact on the environment. As part of our company-wide Safety Management Framework, we operate an Environment Management System (EMS) to ensure we properly identify and manage environmental risk.

Our EMS has been externally certified to the international ISO 14001:2015 standard since we were formed in 2005. We're extremely proud of this long-standing achievement. A key element of the ISO standard is continuous improvement, which is something that we've fully embraced over the years and view as an opportunity for us to improve further.

Measuring our carbon emissions

We use the Greenhouse Gas Protocol for measuring emissions, which is the world's most widely used greenhouse gas accounting standards. The protocol classifies a company's emissions into three groups and you'll see us reference these terms throughout our report:

- **Scope 1** – emissions from sources owned or controlled by us, including shrinkage and those associated with fuel combustion in boilers and vehicles.
- **Scope 2** – indirect emissions from the generation of energy we purchase.
- **Scope 3** – all indirect emissions not produced by us or our assets, but by the products and services we buy and use through our supply chain.

Environmental, Social and Governance (ESG) reporting

To demonstrate our commitment and show progress against the ESG issues material to our business and our stakeholders, we have voluntarily included ESG reporting within our [SGN Annual Report](#) for the third year running.

Our ESG reporting is aligned to the World Economic Forum's (WEF) Stakeholder Capitalism Metrics framework, a universal framework drawn from other established frameworks and standards. This framework allows us to measure and demonstrate our performance against ESG indicators and track our contributions towards achieving the Sustainable Development Goals (SDGs).

We continue to experience the impact of climate change on our network and business, including more intense, more frequent weather like flooding, droughts and heatwaves. In 2023/24, we experienced 12 pipeline washouts and installed a 14km-long pipe along the A9 in Scotland to replace a key piece of infrastructure threatened by riverbank erosion.

We remain committed to understanding the impacts of climate change on SGN and in sharing how we are managing our climate-related risks and opportunities. So we can clearly and accurately disclose how we're adapting to climate change, we're once again using the Task Force on Climate-Related Financial Disclosures (TCFD) framework. Our second TCFD report can be found within our [SGN Annual Report](#).

Benchmarking our performance

For the past seven years, we've reported our environmental impact through CDP, the global non-profit organisation that runs the world's leading environmental disclosure platform.

It is not a regulatory requirement for us to do this. We do it to meet the expectations of our shareholders and investors; to help us identify emerging environmental risks and opportunities; and to track and benchmark our environmental performance against industry peers.

SGN is one of over 23,000 companies assessed by CDP across four consecutive levels, which represent the steps a company moves through as it progresses towards environmental stewardship.

Based on our 2023 disclosure, we've received a 'B' score (Management level) on both Climate Change and Supplier Engagement. This is higher than the oil and gas storage and transportation sector average of 'C'.

Our score demonstrates we're taking coordinated action on climate issues and actively addressing the environmental impacts of our business.



“It’s so important to prepare gas engineers today for the skills they’ll need tomorrow. They are the guardians of our gas network, on the front line making sure communities are safe, warm and have access to the critical services they need. They’ll also play a key role in the years to come ensuring our industry is at the heart of the UK’s ambitions to achieve net zero”

Antony Green
Future of Energy Director, SGN

Key 2023/24 highlights

Reducing our business carbon footprint and helping our customers reduce their emissions

By adding an additional 88 fully electric and hybrid cars to our company car fleet in 2023/24 we have further reduced our current average carbon emissions to 44.2gCO₂/km, a significant improvement from the 58.6gCO₂/km recorded in the previous year. You can read more about how we are decarbonising our operations from [page 17](#).

As part of our commitment to support customers during the ongoing cost-of-living crisis and to lessen home energy impacts on the environment, we launched an online tool to help households use gas and electricity more efficiently. In partnership with Energy Saving Trust, the tool provides users with a personalised plan on how to use energy more efficiently at home and identify any renewable investment solutions. [Read more here](#).

Improving and protecting biodiversity

We are particularly proud of the improvements we have made as part of our

biodiversity programme. Since 2021/22, we have invested almost £500,000 in schemes to enhance our local environments. In 2023/24, we completed improvement projects at nine sites across our southern network, bringing the total number of improvement projects to 19. You can read more on pages [34 and 35](#).

Throughout the year, our amazing colleagues were busy volunteering their time and expertise to support environmental projects aimed at improving biodiversity in our local communities. Through our company Community Action Programme, employees can use a day of company time each year to volunteer and help an organisation or charity of their choice. Read more about some of our volunteering projects below.

Preparing to deliver a decarbonised gas network

Our H100 Fife project will bring 100% renewable hydrogen into circa 300 Fife homes in 2025, providing zero-carbon fuel for heating and cooking. In 2023/24, we have progressed our live trial to demonstrate

We’re proud of the progress we’ve made this year on our journey towards achieving net zero by 2045

that we can carry hydrogen in our local transmission system. You can read more on page [19](#).

We also announced that we’re opening the UK’s first hydrogen training facility to upskill hundreds of Gas Safe-registered engineers to work with hydrogen. Alongside our partners at Fife College, the training courses will prepare engineers for working on SGN’s world-first green hydrogen trial, H100 Fife. [Read more here](#)



[Our volunteers picked up their shovels to transform Loch Lomond space into biodiverse woodland](#)



[Gas engineers build eco-toilets for Fife children’s initiative](#)



[Our volunteers inspire Culloden community garden to funding competition top prize](#)



[Children’s hospice garden given summer spruce up by our volunteers](#)



Dashboard indicators

A quick look at our environmental performance through some key facts and figures



Environmental impact and KPI	2023/24 performance
Contribution to energy system decarbonisation	
Biomethane Annual addition of low-carbon and renewable energy connected to the network	170,689scm/h
Innovating for decarbonisation and to protect the environment	
Innovation investment Annual investment in ongoing innovation activities that are primarily supporting decarbonisation and/or protecting the environment	£1.6m
Climate change mitigation	
Carbon footprint excl. shrinkage Annual reduction in business carbon footprint excluding shrinkage	18,215tCO₂e ▼ 8% reduction
Carbon footprint excl. shrinkage Annual change in business carbon footprint excluding shrinkage in comparison to the end of RIIO-GD2 target of 17,395 tCO ₂ e	4.5% higher
Shrinkage emissions reduction Annual reduction in total shrinkage	671,496tCO₂e ▼ 3.6% reduction
Sustainable procurement	
Suppliers meeting Sustainable Procurement Code Proportion of suppliers meeting the environmental supplier code or equivalent	85%

Environmental impact and KPI	2023/24 performance
Efficient resource use and circular economy	
Total waste produced Annual total waste (Office, network, depots, construction)	314,391 tonnes
Waste Office and depot waste - recycled Office and depot waste - landfill	96% / 1,980 tonnes* 4% / 83 tonnes*
Spoil waste - recycled Spoil waste - landfill	96% / 287,864 tonnes 4% / 12,751 tonnes
Local environment	
Investment in local environment Annual investment in schemes to enhance or restore local environmental quality	£178,305
Area with biodiversity improvement Land area being treated in schemes to enhance or restore local environmental quality	27,405m² 2.7 hectares
Biodiversity studies Number of biodiversity baseline studies carried out at our sites	52
Biodiversity improvement Number of biodiversity projects carried out across our network areas	9
Biodiversity improvement Net change in biodiversity units from network development projects granted planning consent in the year that impacted the local environment	Figures not yet available
Environmental incidents Number of reportable environmental incidents with a risk of land or water pollution	2

* Does not include energy from waste and anaerobic digestion



Environmental commitments and impacts



We're committed to improving our environmental impacts and making our business more sustainable. We have a variety of initiatives already under way to make this a reality



- Progress against milestones is at significant risk and highly likely to be missed
- Progress is delayed but likely to be achievable before the end of the price control period
- Progress against the implementation milestones is on track

Initiative	Description	Target year	Implementation milestones	Progress	Status update
Climate change mitigation - reducing business carbon footprint					
Reduce emissions from company car business travel to reduce scope 1 emissions	Encourage the uptake of hybrid and zero-emissions company cars, and reduce the allowance of gCO ₂ e/km for eligible company cars	2025/26	Maximum allowance of 95gCO ₂ /km average across company car fleet by 2026	●	We have further reduced our current average carbon emissions to 44.2gCO ₂ /km, a significant improvement from the 58.6gCO ₂ /km recorded in the previous year. Additionally, we offer a salary-sacrifice employee car scheme with a ceiling on CO ₂ emission levels to ensure we align with our company car targets.
Transition to a zero-emissions operational fleet to reduce scope 1 emissions	Transition our commercial fleet to 50% zero-emissions vehicles, where possible	2025/26	New EV vans planned to be added to our fleet: 2021/22: 25 2024/25: 0 2022/23: 0 2025/26: 50 2023/24: 0	●	Our recent trial with a 3.5 tonne battery electric vehicle (BEV) provided valuable insights, revealing areas for improvement in payload, range and charging infrastructure (depot, public and home). Building on this experience, we plan to introduce a further 50 BEV vans onto our fleet. This will allow us to gain even deeper insights, enabling us to optimise vehicle performance, enhance operational efficiency and help make informed decisions to refine our approach towards a zero-emission fleet.
Install charging infrastructure to support a zero-emissions operational fleet to reduce scope 1 emissions	Install 355 EV charging points at our depots and offices	2025/26	New EV charging points planned to be installed: 2021/22: 0 2024/25: 0 2022/23: 0 2025/26: 72 2023/24: 0	●	Evaluations at eight depots have highlighted the need for substantial power supply upgrades, presenting some challenges. While the costs and timelines for these upgrades are still being assessed, it may impact the timeline for installing 355 charging points within the current GD2 period. However addressing these upgrades is a crucial step towards ensuring long-term success in achieving our charging infrastructure goals.
Energy efficiency improvements to reduce scope 2 location-based emissions	1. Install building management systems at our large and medium-sized sites	2025/26	1. Produce tender specification 2. Tender and award install contract 3. Installation and delivery programme	●	Our programme was delayed last year due to supply and procurement issues. However, we have a number of projects scheduled by end of this financial year and into FY 2025/26. LED surveys have been carried out at six of our sites and we have a number of projects scheduled by end of this financial year and into FY 2025/26.
	2. Install LED lighting	2025/26	1. Produce tender specification 2. Tender and award install contract 3. Installation and delivery programme		
Procure 'green' electricity to reduce scope 2 market-based emissions	Purchase 100% certified renewable electricity	2021/22	Switch the remaining non-renewable tariffs to renewable contracts by 2026	●	We now purchase 100% certified renewable electricity for 98.5% of our consumption.



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- Progress is delayed but likely to be achievable before the end of the price control period
- Progress against the implementation milestones is on track
- The milestone has been abandoned

Initiative	Description	Target year	Implementation milestones	Progress	Status update
Climate change mitigation - reducing business carbon footprint (continued)					
Renewable energy on selected occupied sites to reduce scope 2 location-based emissions	Install direct-feed solar PV	2025/26	1. Produce tender specification 2. Tender and award install contract 3. Installation and delivery programme	●	We implemented solar PV systems at three of our depots in 2023/24 and plan to install solar PV at several of our depots by 2025.
Climate change mitigation - reducing carbon of products, projects and services					
Identify tools and methodology for measuring embodied carbon to reduce scope 3 emissions	Measure and eventually manage the embodied carbon of key projects (with a value of >£20m), products and materials	2025/26	Gather embodied carbon data from our H100 Fife project and new Horley head office	●	We prepared a first draft of an embodied carbon tool in 2022/23 with a plan to begin gathering embodied carbon data from our H100 Fife project in summer 2023 and from our new Horley head office during construction. However, complexities within the H100 Fife project mean we are unable to gather this data. A decision was also made to stop our project to build a new hub in Horley due to escalating costs.
		2025/26	Measure embodied carbon of key products and materials by spend	●	We are already capturing data relating to our PE pipe and reinstatement materials and aim to expand this to other key products and materials over RIIO-GD2.
		2025/26	Work collaboratively with industry and stakeholders to develop tools for measuring embodied carbon and share best practice	●	We continue to participate in the Transport for London (TfL) and HAUC(UK) Road to Net Zero project. We are part of a steering group helping to inform and test a universal carbon tool for street works emissions. We're part of the Energy Networks Association (ENA) Gas Environment Group.



- Progress against milestones is at significant risk and highly likely to be missed
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- Progress against the implementation milestones is on track

Initiative	Description	Target year	Implementation milestones	Progress	Status update
Sustainable procurement					
Target 80% of suppliers (by spend) to meet the Sustainable Procurement Code	Engage with our supply chain to improve and apply best practice	2025/26	<ol style="list-style-type: none"> Baseline supplier performance from March until October 2022 Inclusion of some targets and KPIs, with reporting and monitoring in line with our road map from October 2022 until March 2026 	●	After issuing our Sustainable Procurement Code, we are now engaging in a process to obtain metrics from our top 85% suppliers via our supplier platforms. This data includes energy, water, and waste information.
Set KPIs and improvement targets to improve supply chain performance	Establish relevant KPIs to improve environmental impacts in collaboration with our supply chain	2022/23	<ol style="list-style-type: none"> Continuous improvement from April 2026 	●	From June 2024 onwards, all tenders for 'Goods' will include a request for environmental metrics to be provided under future contracts. Future focus areas will include tenders for 'Services' and 'Works'.
Efficient resource use and circular economy					
Embed principles of circular economy and measure the outcomes	Better understand what a circular economy means to our business in practice	2025/26	<ol style="list-style-type: none"> Circular economy review to be carried out in March 2022 Develop road map and action plans to improve during 2022/23 Establish relevant working groups in autumn 2023 	●	<p>We've completed the circular economy review. We have reviewed our procedure relating to sustainable procurement and included principles of circular economy within.</p> <p>The road map, actions and relevant working groups have not yet been established and we are looking to do this in financial year 2024/25.</p>
Zero office and depot waste to landfill	Practice of waste hierarchy - to avoid waste, improve reuse and recycle	2025/26	<p>2022/23: Identify key waste streams and regions for improvement</p> <p>Collaboration between key stakeholders to identify improvement opportunities</p>	●	<p>We continue to progress against our action plan to improve and are engaging with both our waste management provider on opportunities to further reuse and recycle general waste and our people to change behaviours.</p> <p>We are unlikely to meet our ambitious zero-to-landfill target by the end of GD2. We will look to renew this target for RIIO-GD3, which is the next five-year price control period starting 1 April 2026, and identify further areas of improvement.</p>



- Progress against milestones is at significant risk and highly likely to be missed
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- Progress against the implementation milestones is on track

Initiative	Description	Target year	Implementation milestones	Progress	Status update
Efficient resource use and circular economy (continued)					
Zero avoidable waste to landfill across the business	Practice of waste hierarchy - to avoid waste, improve reuse and recycle	2025/26	Amended priority to focus on spoil, but we'll keep gathering data from across the business	●	We continue to improve our data gathering across the business, including providing tailored training to our contractors and reinstatement managers to help improve data capture and accuracy.
Reduce the use of virgin aggregate	Reduce the use of finite resources	2025/26	Establish a working group for improving reinstatement	●	We continue to improve data collection to ensure we're focusing on the right improvement actions. We will develop a road map for improvement in collaboration with key internal stakeholders.
Install solar PV on governor sites	Replace single-use battery packs with solar power systems to reduce hazardous waste as appropriate	2025/26	First 20 pilot projects in the Scotland network to be deployed in 2024/25	●	This work has been initiated at our high pressure sites and a proof of concept is being prepared for the first 20 sites in Scotland. A decision was made to proceed with a battery pack for our low-pressure sites due to issues with timing.
Maintain ISO 14001 accreditation	Maintain our Environmental Management System to an accredited standard	Ongoing	Annual surveillance audits and three-yearly recertification	●	Our Environmental Management System is certified to ISO 14001 standard.
Local environment					
No net biodiversity loss	Perform biodiversity surveys and implement improvement activities to target biodiversity net gain	2025/26	Spring to autumn 2022: Pilot projects Spring to autumn 2022: Phase 1 biodiversity surveys Spring to autumn 2023: Phase 2 biodiversity surveys 2022 to 2026: Improvement works	●	All biodiversity baseline surveys have now been undertaken. As at FY 2023/24, we have completed improvement works at 19 sites.
Climate change adaptation	Identify and procure climate change mapping datasets to assess sites and identify action	2025/26	Procure and implement data sets Assess sites	●	In early 2024 we engaged with an external consultant to conduct assessments across key locations in our property portfolio to identify the climate-related risks to our offices and depots. From these assessments we are developing a climate adaptation plan to manage and mitigate the short, medium and long-term climate-related risks identified. This will include the opportunity to implement nature-based solutions. We are also preparing a climate resilience strategy to ensure our network and above-ground installations remain resilient in the face of climate change.



Contribution to energy system decarbonisation

Biomethane

Biomethane is a naturally occurring and renewable gas produced when organic material – such as food waste, cattle manure, sewage or energy crops – is broken down anaerobically. It can be used for heating and cooking, just like natural gas.

We're committed to increasing the volume of biomethane in our network to reduce carbon emissions and provide a sustainable, renewable energy source as we move towards net zero.

We have set ourselves an ambition of providing sufficient network capacity at connected biomethane plants to supply 450,000 homes with biomethane by 2026.

We're already in a strong position to meet our 2026 ambition, having connected sufficient biomethane capacity to supply 289,620 homes with biomethane at the end of FY 2023/24.

2023/24 biomethane activity summary

Biomethane connections	Unit	Region	2021/22	2022/23	2023/24
Enquiries	Count	Scotland:	24	52	54
		Southern:	39	66	57
Connection studies	Count	Scotland:	11	12	10
		Southern:	4	8	10
Capacity of connection studies	Scm/h	Scotland:	19,400	20,700	14,100
		Southern:	11,600	15,370	17,000
Connections	Count	Scotland:	2	0	4
		Southern:	0	0	1
Capacity connected	Scm/h	Scotland:	1,500	0	4,300
		Southern:	0	0	700
Volume (energy value) of biomethane injected	kWh	Scotland:	535,364	0	982,557
		Southern:	0	0	733,212
Average monthly flow rate (all connections)	Scm/h	Scotland:	573	706	635
		Southern:	410	460	410

New biomethane connections

We have successfully connected three new sites across our Scotland network this year: Coreside, Seaside and Tyneside. While there were no new biomethane connections to our southern networks, we're working closely with project developers to deliver a further seven key sites which would see us meet our ambition of supplying 450,000 homes with biomethane by the end of RIIO-GD2.

We're extremely proud of the integral part we've played in the development of biomethane as a viable energy resource over the past 14 years.

We already have 42 plants connected and injecting biomethane into our network. We have also been working to refurbish and recommission several sites that were previously mothballed. This year, two of these sites have been completed and recommissioned.

Connection studies

We measure biomethane capacity in scm/h, which is the flow rate of a standard cubic metre of gas per hour. The capacity of connection studies we've carried out this year exceeds 5,000scm/h. The requested injection rates vary from 450scm/h to 3500scm/h.

We have progressed some of these studies to connection agreements. These projects will be commissioned over the next three years, depending on the size of the project.





Biomethane created from sewage is now being exported through our gas network to deliver green energy to 4,000 west London homes. [Find out more about this collaboration with Thames Water here.](#)

SIU Bio-CNG FEED

SGN operates five discrete gas grids in the north and west of Scotland. These Scottish Independent Undertakings (SIUs) are centred on Campbeltown, Oban, Stornoway, Thurso and Wick, and are not connected to the national gas transmission system. They are supplied with liquefied natural gas (LNG) from the Isle of Grain terminal in Kent or by liquefied petroleum gas in Stornoway. However, the production and logistics chain to transport LNG to these networks is not aligned with net zero strategies. Supplying the SIUs with localised low-carbon energy could mitigate price and cost volatility and help decarbonise the network.

We're working with consultancy WSP on a feasibility study to assess the options for supplying the Thurso and Wick SIUs with compressed biomethane gas (Bio-CNG) from a biomethane production site utilising distillery waste in Invergordon. The study focused on developing suitable

alternative Bio-CNG options to the current LNG logistics model, and looked at replacing approximately 80% LNG demand with Bio-CNG and retaining 20% LNG storage on site.

We are also looking to develop a front-end engineering design project of the Bio-CNG tanker filling facility at Invergordon and downloading facilities at SGN's Wick and Thurso sites.

Future plans

We've been contacted by a number of our existing biomethane sites about their plans to increase biomethane injection rates and improve their overall contribution of green gas flowing into our network.

Some biomethane producers are looking to increase the injection rate of individual sites by upgrading their current gas entry facilities and equipment.

Meanwhile other sites, such as some of those in Scotland, are planning to increase their injection rates by constructing additional network entry facilities adjacent to existing sites. The potential expansions at these sites will put them on course to become some of the largest biomethane plants in the world.

We're engaging with some of our connected biomethane sites that are looking to improve their facilities by capturing carbon dioxide instead of releasing it into the atmosphere.

During the biomethane production process, carbon dioxide is removed from the biogas. By capturing and storing the removed carbon dioxide, it can be used for practical purposes, for example in the food and drink industry. The addition of carbon dioxide capture would result in sites becoming carbon negative, while also increasing the attractiveness of clean energy certificates.

We currently have nine sites with CO₂ capture and several considering the viability to install.

In addition, many of our biomethane sites are very interested in gas blending and propane reduction, which can reduce the amount of propane required to be added to biomethane to reach gas energy regulation requirements.

Through the GD3 business plan process, we are exploring further biomethane initiatives to reduce propane consumption at more plants on our networks.

Our continued efforts will result in significant reductions in both cost and total carbon output, supporting the energy transition to a net zero carbon economy.



Contribution to energy system decarbonisation

Hydrogen

A clean-burning alternative to fossil fuels, hydrogen could be used across energy sectors including heat, industry power and transport. Green hydrogen can be created using clean energy, like wind power.

We're working alongside Britain's other gas networks and the UK and Scottish governments to look into how we can repurpose our network to deliver hydrogen instead of natural gas. Together, we hope to reshape the way we heat our homes and fuel our industry in the future.

Key projects

H100 Fife

The first 100% hydrogen-to-homes zero carbon network anywhere in the world, H100 Fife will bring renewable hydrogen into circa 300 Fife homes, providing zero-carbon fuel for heating and cooking, and leading the way in decarbonising home heating.

We officially started construction of our hydrogen demonstration facility in March 2023 and at the end of 2023/24 we have:

- Installed 5.6km of the new 8.2km hydrogen network
- Commenced construction of our Hydrogen Production & Storage Site
- Progressed the essential infrastructure build out for the electrolyser building and started installing the electrolyser modules which will create green hydrogen for the project



↑ Wind is a key component in electrolytic green hydrogen production

- Constructed our hydrogen demonstration homes
- Installed four of the six storage vessels needed to provide a constant source of hydrogen
- Completed 242 customer property surveys

We're aiming for H100 Fife to go live in summer 2025.

Curtailed wind power study

The south-west of Scotland houses around a third of Scotland's onshore wind capacity, with generation capacity expected to grow.

This study outlines an evidence-based vision of renewable energy optimisation in the south-west of Scotland using curtailed wind power to produce electrolytic green hydrogen. It aims to identify investment opportunities in hydrogen production infrastructure, and detail the potential scale of hydrogen production from new and upgraded renewable energy generators there. The methodology highlighted the optimal locations for hydrogen production hubs, which created a blueprint for green hydrogen production in the region.

Utilising curtailed wind power in the south-west of Scotland would maximise primary energy recovery and ensure clean, carbon-free electricity was not wasted due to the costs and timescales of upgrading electricity network infrastructure. It would also offer a means of decarbonising emissions, and boost the local economy through the creation of new green jobs.

Scotland Whole Energy System Vision

Made possible by the joint funding provided by National Gas Transmission and SGN, this study explores a vision for the development of an integrated energy infrastructure for Scotland to achieve its 2045 net zero target, while developing a significant energy export-based industrial opportunity.

Whole-system planning is becoming increasingly crucial to achieving a net zero carbon emissions target in the UK,

helping us to find the most cost-effective solutions for customers while ensuring energy security.

The cross-sector modelling conducted in this study concluded that Scotland could be a key player in the future global energy market thanks to competitive power and hydrogen production, and proximity to one of the world's largest demand markets. As such, Scottish exports to the rest of Great Britain and Europe could reach up to £15bn worth of energy commodities annually by 2045.

Unlocking this opportunity requires significant investments in both electricity and hydrogen transmission infrastructure, which are needed as early as possible to increase developers' confidence and avoid delaying energy generation investments.

Local authorities and UK government

We're actively engaging with stakeholders from local authorities, potential hydrogen producers and users of hydrogen around our key projects.

We also continue to work closely with the Department for Energy Security and Net Zero (DESNZ) around our range of hydrogen projects that are delivering evidence to the UK government on the vital role of hydrogen in meeting its net zero targets.

LTS Futures

We're testing the compatibility of the Local Transmission System (LTS) to transport hydrogen, by repurposing a decommissioned 30km pipeline which runs from Grangemouth to Granton. You can read more about project progress over the past year in our LTS case study over the page.

Whole-system planning is becoming increasingly crucial to achieving a net zero carbon emissions target in the UK



Case study

Contribution to energy system decarbonisation

Transporting hydrogen



“The aim of the project is to demonstrate that the LTS can be repurposed and potentially uprated to convey hydrogen, providing options for the decarbonisation of power, industry, heat and transport by delivering a safe supply of energy to all customers both during and after the energy transition”

Nancy Thomson
LTS Futures Project Director

The Local Transmission System (LTS) is an 11,600km-long network of pipelines which connects the National Transmission System (NTS) to towns, cities and industrial clusters. Think of the NTS like a motorway and the LTS like the A and B roads which connect to it.

If the LTS could carry hydrogen instead of natural gas, it would be a major step to decarbonising the UK's gas network and other sectors.

Laying the groundwork

We're repurposing a decommissioned 30km pipeline - which runs from Grangemouth to Granton - to hydrogen. Our team of engineers is working to provide evidence that the pipeline can carry 100% hydrogen instead of natural gas. Lots of preparation has already gone into this, including surveys and assessments on the pipeline and testing conducted off site.

We selected this pipeline because it is statistically representative, in terms of its age and grade of steel, of the local transmission system across Great Britain. The pipeline also includes challenges that we would encounter when repurposing the entire LTS, such as road and river crossings.



Case study continued

Contribution to energy system decarbonisation

300

km
of decommissioned pipeline is being
used for our LTS hydrogen testing

Everything we learn will help our understanding of converting the whole LTS network to hydrogen.

First ever live trial

In April 2023 the project successfully passed its first milestone, illustrating the suitability of the Grangemouth to Granton pipeline for a live trial in 2025. This first-of-its-kind demonstration will be delivered with the support of global chemical company INEOS, our hydrogen supplier.

The live trial will help us understand how we carry out the same important operational activities with hydrogen as we do today with natural gas.



Inspiring the next generation

We've teamed up with Generation Science, an innovative educational programme led by Edinburgh Science, to empower primary school children with insights into future energy solutions and how we can tackle climate change.

Thanks to our funding, around 330 pupils aged 7 to 11 who attend schools along the LTS pipeline have benefitted from the climate and engineering-themed sessions.

The Green Machine

Our LTS Futures Project Director Nancy Thomson joined the Generation Science team at Moray Primary School in Grangemouth to participate in a session which explored solar, wind and green hydrogen.

Sparking curiosity

Heather Chalmers, P6 class Teacher at Moray Primary School, said: "The Generation Science experience was delightful. The class travelled through the ages, tracing the origins of fossil fuels and illuminating the necessity for sustainable alternatives.

"Witnessing the students' enthusiasm and eagerness to learn was truly heart-warming. We're reminded of the immense impact such partnerships can have in nurturing young minds and fostering a brighter, greener tomorrow."





Innovating for decarbonisation and to protect the environment

In driving our operational and network emissions down to net zero, we need to deploy established technologies like electric vehicles and solar panels. We also have to tackle some harder-to-abate emissions from our network, including methane emissions, and this is where innovation comes in.

We can also apply innovative solutions to the way we use resources, which can

help to keep valuable and potentially limited resources in use for longer and avoid sending waste to landfill. We have invested £1.6m this year in developing transformational innovation projects that support our ambition to decarbonise our network and improve our impact on the environment. In the following table, we've shared news of our new projects as well as provided an update on ongoing projects from last year's report.

We have invested **£1.6m this year** in developing transformational innovation projects



Read our Innovation Annual Summary (PDF)

Innovation	Issue	Solution	Expected environmental benefits	Status update
Stent Bag	Methane leakage into the atmosphere from high-volume gas escapes.	With world-first stent bag technology, we're able to insert a bag into the pipe and inflate it to stop any leaks – all while still allowing gas to flow through the pipe.	Reducing the quantity of methane emissions when managing high-volume gas escapes.	Development has continued with the expansion of different versions of stent bag now in use for different pipe material and sizes. Rollout of the kits is progressing across all regions of SGN.
High-Volume Gas Escapes	Methane leakage into the atmosphere from high-volume gas escapes.	Our high-volume gas escape toolbox comprises a range of tools that can seal high-volume gas escapes with improved efficiency.	Reducing the quantity of methane emissions when managing high-volume gas escapes.	Equipment has now been developed and training has commenced with tool ready for its first use on a high-volume gas escape.
Remote Pressure Management	Manually managing the pressure in our governors results in callouts and site visits to balance security of supply while minimising leakage.	We have developed a remote-pressure management system that allows pressure of the networks to be maintained as low as possible without jeopardising security of supply.	Reducing leakage emissions through smarter, more efficient network control and management.	Rollout of the solution is continuing across 270 District Governors where pressures are being managed remotely, with pressures and emissions decreasing.
Picarro Pilot	Methane leakage into the atmosphere from our distribution network.	With Picarro's advanced leakage detection solutions that detect and pinpoint leaks in a very sensitive manner, methane reductions can be proactively managed and decreased.	With an advanced leakage solution which uses highly sophisticated sensitive detection technology, we will have the ability to fix our most emitting leaks in a more proactive manner, reducing our overall fugitive emissions.	We have completed a pilot of the Picarro technology where 250km of pipeline was surveyed across different diameters and pressure ranges. Results were positive in detecting and pinpointing emissions and roll out planning is under way. As part of the rollout, our most emitting leaks will be targeted for repair and replacement.
Digital Platform for Leakage Analysis	Methane leakage into the atmosphere from our distribution network.	The Digital Platform for Leakage Analysis (DPLA) is being developed which aggregates various data sets to identify, locate and predict gas leaks more effectively.	Reducing leakage emissions through smarter, real-time alerts and detailed leakage data to enable quicker and more effective interventions.	Work under the DPLA project is continuing where the platform and data lake has been designed and under construction. Testing of the system is under way with completion due in 2026.



Innovating for decarbonisation and to protect the environment continued

Innovation	Issue	Solution	Expected environmental benefits	Status update
Dust Suppression	When carrying out our operations, drilling activities can generate dust which can pose health risks to our operatives and the public. Current methods of water suppression and mask have their limitations in controlling the airborne pollutants.	A dust-suppression tool has been created and trialled. It collects dust from the drilling operation before it can get airborne.	The dust-suppression tool reduces airborne dust over original estimate of 90%.	Trials have been completed across various operations with positive feedback and performance results. Our plan is to improve the system through further ergonomic alterations before scaling up and commercialising the product.
Intelligent Gas Grid	As we enable more green gas into the network, innovations are required to control and maximise the injection of new green gases like biomethane and hydrogen into our network.	Our Intelligent Gas Grid solution aims to collect network data and develop an AI model to optimise the network so that we can maximise the feed-in of green gas like biomethane and hydrogen.	The solution will increase injection of biomethane and hydrogen into the network, which will enable a greener gas network and progress our path to a net zero energy system.	A prototype has been developed which has been installed on two networks within SGN. Data is being gathered that will allow the AI engine to be trained ready for completion in 2026.



Case study

Innovating for decarbonisation and to protect the environment

Intelligent Gas Grid



“For gas distribution networks and consumers, implementation of IGG could mean decreased costs of operation, reduction of emissions, and an increased use of renewable energy”

Mark Skerritt
Innovation Project Manager

The Intelligent Gas Grid (IGG) is a Strategic Innovation Fund project assessing the use of data and AI to increase the efficiency of gas networks.

The project investigates the use of weather data and AI applications to monitor and control gas networks, including the optimisation of pressure management systems, such as Utonomy’s remote control pressure system.

A collaboration between SGN, Utonomy and Utonomy’s subcontractor Faculty (AI Consultant) and supported by DNV in their role as technical consultant, IGG is currently in the beta phase of development and is due to run until 2026.

Reducing leakage

The applications assessed as part of the IGG project will support the low-carbon transition by further reducing methane leakage. They will also increase the potential for feed-in capacity of renewable gases including biomethane and hydrogen.

Detecting faults early

Additional components and enhancements will be considered to provide autonomous early warning and diagnosis of network faults.

Digital dashboards will also allow network operators to monitor KPIs and predictive alarms in near real time.

The project builds on a collaboration between Utonomy, SGN and Wales & West Utilities on Ofgem’s Network Innovation Allowance - funded Pressure Control and Management project, which has completed successful trials over the past three years.



Climate change mitigation

We have set ourselves the target of reaching net zero emissions by 2045. This is our long-term greenhouse gas reduction target, aligned with the science-based methodology of the Paris Agreement.

We will achieve this across our direct emissions (scope 1), energy that we purchase from others (scope 2) and indirect emissions from our supply chain (scope 3).

By the end of RIIO-GD2 in 2026, we aim to reduce our business carbon footprint scope 1 and 2 emissions (excluding shrinkage) by 25% compared with our 2019/20 baseline.

Shrinkage

As a gas distribution network company, our carbon footprint is largely driven by the natural gas that is transported through our network.

The biggest contribution to our organisational carbon emissions by far is shrinkage. This includes leakage from our network (so called fugitive emissions), theft of gas and our own gas use. Shrinkage is a scope 1 emission and included in our net zero target for 2045.

In total across both our networks, our annual leakage was 671,496tCO₂e. This is a reduction of more than 12% compared with baseline year 2019, and a reduction of 3.6% compared with last year.

You can find a detailed breakdown of our leakage volumes by source, and by network, in the report appendix.

We have not set any formal targets for reducing the environmental emissions from shrinkage, however, we will set a science-based aligned target for shrinkage for the GD3 period.

Currently, we compare our emissions with what we forecast at the beginning of this price control period, which is an 18% emissions reduction. We are currently tracking slightly behind this, forecasting a 17.1% reduction in leakage by 2026. This reduction can primarily be attributed to our mains replacement programme, which is by far the biggest driver of leakage reduction.

We're replacing old iron gas mains with new plastic pipes to ensure homes and businesses continue to receive a safe and reliable gas supply into the future.

As well as the safety benefits of our network upgrade programme, it also ensures our network is ready for the transition from natural gas to hydrogen.

In 2023/24, we've replaced 795km of old metal mains with new polyethylene (PE) pipe. Our Scotland network is now 85% PE pipe and our southern network 79% PE pipe.

In addition to our mains replacement programme, we are also using innovative new technologies, such as CISBOT and Core&Vac, to upgrade our networks and implement a reduction in emissions.

Another key initiative contributing towards reducing shrinkage is our remote pressure control and management system, Utonomy. Reducing excess pressure in our network results in lower leakage levels and fewer emissions.

We plan to fit 265 Utonomy systems across our network by 2026. In 2023/24, we have achieved almost 50% of this. It is estimated that once the project is complete, we would expect 3.2GWh reduction associated with the pressure management systems.

We've replaced 795km of gas mains in 2023/24 which has contributed towards our shrinkage emissions reduction of approximately 25,000tCO₂e

Scope 1 and 2 emissions excluding shrinkage

To achieve net zero emissions by 2045, we have determined our scope 1 and 2 emissions flight path. Not only will this ensure we meet our 2045 target, but it also ensures we are on track with the Paris Agreement goal of limiting global warming to 1.5°C.

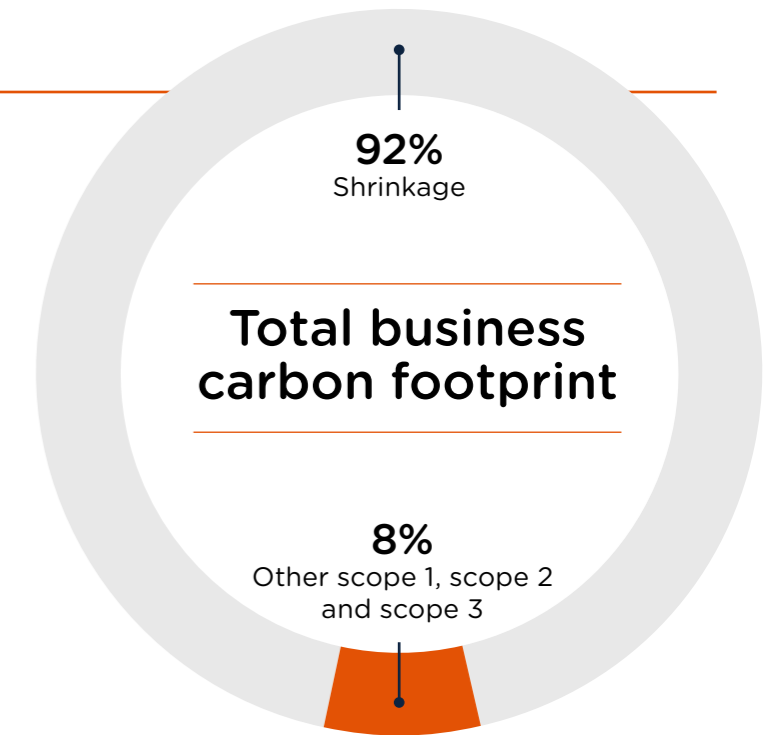
As we improve our scope 3 reporting in the years to come, we intend to include these emissions in our net zero trajectory too.

Our flight path has been developed in collaboration with the Carbon Trust.

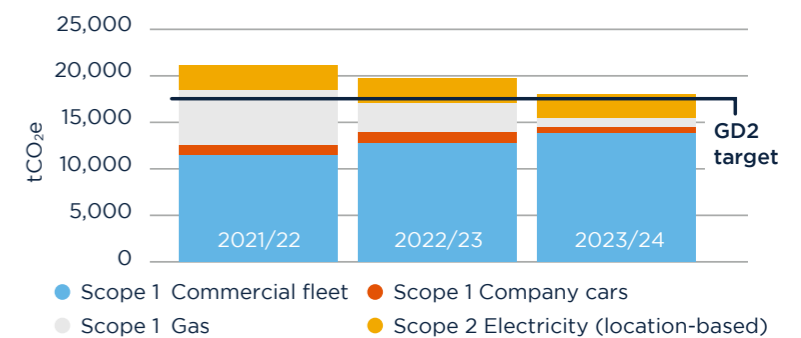
Net zero trajectory for scope 1 and 2 excluding shrinkage

We're proud to report that we're currently on track to achieve our 25% reduction target for scope 1 and scope 2 emissions by 2025/26. Since our baseline year in 2019, we've reduced our business carbon footprint by almost 22%.

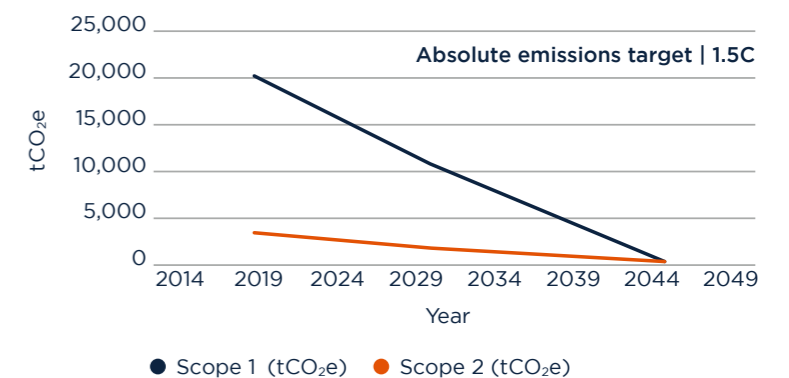
Over the following pages, we explain our progress in reducing our scope 1 and 2 emissions this year. You can also find more in-depth emissions data within the report appendix.



Scope 1 and 2 emissions (excluding shrinkage)



Scope 1 and 2 emissions trajectory





Case study

Climate change mitigation

Stent bag technology



“Stent bag technology helps us lessen our biggest environmental impact by reducing the quantity of methane emissions when managing high-volume gas escapes”

Tom Jackson
Innovation Project Manager

Our world-first stent bag technology allows us to reduce the quantity of methane emissions when managing high-volume gas escapes. By inserting a bag into the pipe and inflating it to stop any leaks, gas can still flow through the pipe.

Our stent bag technology was used to prevent a potential leak from a gas main in the New Forest market town of Ringwood. We received a report that a gas escape was identified on a 1” steel mains pipe top tee, the fitting that connects the service pipe to the gas mains. There were possible perforated leaks either side of the tee, so we used the stent bag to remove the top tee under full line pressure.

Technology in action

The stent bag system was inserted in an excavation outside the red zone, and an internal camera identified the top tee. We introduced pressure to the bag and the leak was immediately identified.

We then excavated straight down in controlled conditions, removed the leaking top tee and fitted a repair clamp. The excavation was reinstated following the retapping of a new top tee.

Increased efficiency

Using this new technology enabled us to reduce the number of operatives required, minimise the excavation needed and reduce potential risks.



Climate change mitigation continued

Building energy use

The total carbon emissions from our building energy use have reduced from 5,765tCO₂e in 2022/23 to 3,479tCO₂e this year.

We measure scope 2 emissions from our building energy use in two ways: market-based emissions and location-based emissions.

In 2023/24 our market-based scope 2 emissions totalled 85 tCO₂e. These are the emissions associated with any green or renewable energy tariffs we buy from our suppliers. We have actively chosen to buy certified renewable energy from our electricity supplier. We purchase 100% certified renewable electricity for 98.5% of our consumption. We are working to transfer the remaining tariffs over to a renewable tariff, where possible.

However, as it cannot be guaranteed that the energy delivered to our depots and office is green or renewable, location-based emissions reflect the average emissions of the electricity available on the grid. We can reduce our location-based emissions by installing solar panels and other direct-feed renewables on our sites.

Our scope 1 emissions have reduced as a result of the turbo expander at our St Mary Cray depot being off for maintenance. The combined heat and power (CHP) engine that works alongside the turbo expander is our biggest source of gas consumption. As a result of the turbo expander not operating, our emissions from building energy use have reduced by almost 69% this year.

To show a truer picture of our emissions and any reductions, or increases, relating to building energy use, we will calculate and disclose our scope 1 and 2 energy emissions

excluding the gas consumption from the turbo expander going forward. This will provide a better understanding of where we are on our journey towards net zero.

As we are committed to reducing the carbon footprint of our buildings, we have developed three key programmes: installation of renewable energy, building management systems and LED lighting.

In addition, energy audits carried out as part of the mandatory Energy Savings Opportunities Scheme will help to identify further opportunities for emission reductions and efficiencies across our operations.



Renewable energy

In 2023/24 we installed direct-feed solar photovoltaic (PV) panels at three of our depots. You can read about the latest installation at Walton Park on [page 30](#). We plan to install further solar PV at several of our depots and offices by 2025.

Building management systems

While our building management systems programme has been delayed, we have a number of projects scheduled over the next 18 months. The systems will optimise the way we use heating and cooling, making it more efficient and saving energy.

LED

LED surveys have been carried out at six of our sites and we have a number of projects scheduled over the next 18 to 24 months.



LED surveys have been carried out at six of our sites with a view to reducing energy use from lighting



Climate change mitigation continued

Operational transport Commercial fleet

In 2023/24, our scope 1 commercial fleet emissions accounted for almost 90% of our total scope 1 emissions.

Sourcing suitable zero-emissions light commercial vehicles (LCVs) remains a significant challenge. A recent trial with a larger 3.5-tonne battery electric vehicle (BEV), which represents over 80% of our fleet, highlighted both the potential benefits and the obstacles of integrating these vehicles into our 24/7 emergency service operations, where engineers work from home bases. The BEV's real-world range of approximately 93 miles (based on winter conditions) affected its ability to remain on site for a full day. Additionally, access to the public charging network poses challenges, as there are currently insufficient charging points, particularly rapid chargers, for larger LCVs.

To address these issues and support our transition to zero emissions, we plan to add an additional 50 BEV vans to our fleet. This expansion will enable a thorough longer term evaluation of the BEVs and assessment of the necessary adjustments to support a zero-emission fleet.

Charging points

Following our 2022/23 report, site evaluations at eight of our depots have confirmed the need for increased power supply from electrical Distribution Network Operators (DNOs) to support vehicle charging points. This upgrade necessitates significant investment, with exact costs still undetermined due to the lengthy lead times for financial assessments from DNOs.

As part of the ongoing evaluation, two depots have been selected for further analysis. Data loggers will be installed at these locations to monitor electrical consumption and determine the additional power needed for both standard and rapid vehicle charging points. This will also provide indicative cost estimates for upgrading the power supply at these depots.

While the costs and timelines for these upgrades are still being assessed, it may impact the timeline for installing 355 charging points within the current GD2 period. However addressing these upgrades is a crucial step towards ensuring long-term success in achieving our charging infrastructure goals.

Company cars

This year, we expanded our sustainability efforts by adding 88 fully electric and hybrid cars to our company car fleet, bringing the total number of zero or low-emission vehicles to 540. As a result, an impressive 88% of our car fleet now produces minimal or no emissions. This is part of our ongoing commitment to reduce emissions, which began in 2019. By increasing the number of electric and hybrid cars, we have successfully reduced the average emissions of our car fleet from 58.6gCO₂/km to 44.2gCO₂/km. We also offer an employee car salary-sacrifice scheme that focuses on zero-emission and hybrid cars. This scheme includes a CO₂ emissions limit to ensure that the cars chosen align with the company's overall environmental targets.



Climate change mitigation continued

Scope 3 emissions

Our scope 3 emissions include all indirect emissions not produced by us or our assets. These emissions are produced by the products and services we buy and use through our supply chain, as well as other indirect emissions including business travel and waste in our operations.

With the exception of our scope 3 Category 6: Business Travel emissions, our scope 3 data has not been independently assured, but we want to share what we are doing within this report and how we are working towards improving both our scope 3 emissions performance and our data gathering.

Approximately 50% of our scope 3 emissions are generated from purchased goods and services. In 2023/24, we identified this as circa 5,500tCO₂e. As we further improve our scope 3 data gathering over the coming years, we expect this to increase.

Capital goods represent approximately 30% of our scope 3 emissions. This year, data from our PE pipe suppliers show emissions of circa 10,800tCO₂e. We will work with additional suppliers during RIIO-GD2 to gather more data where possible. As such, we're expecting emissions in the category to also increase.

Scope 3 improvement programme

We're taking considerable steps to improve our scope 3 data through extensive engagement with our supply chain. This is an ongoing journey that will continue throughout this price control period.

We have updated our sustainable procurement procedure, which will help us to gather more quality scope 3 data, as ESG metrics are now a contractual requirement

within new contracts and in those coming up for renewal. See page 31 for more details on the metrics included.

It's a challenging task to capture, measure and report on scope 3 emissions data. However, we've made progress in the quality of data collection this year.

We've worked with our travel provider to gather data for car hire, as well as reporting on energy usage on shared sites with SSE and helicopter pipeline survey data. With improvements in our data capture process during 2023/24, we have greater confidence in the scope 3 data we're capturing and monitoring this year.

You can find a full breakdown of the scope 3 emissions we've directly captured this year within the emissions data in our [appendix](#).

Business travel

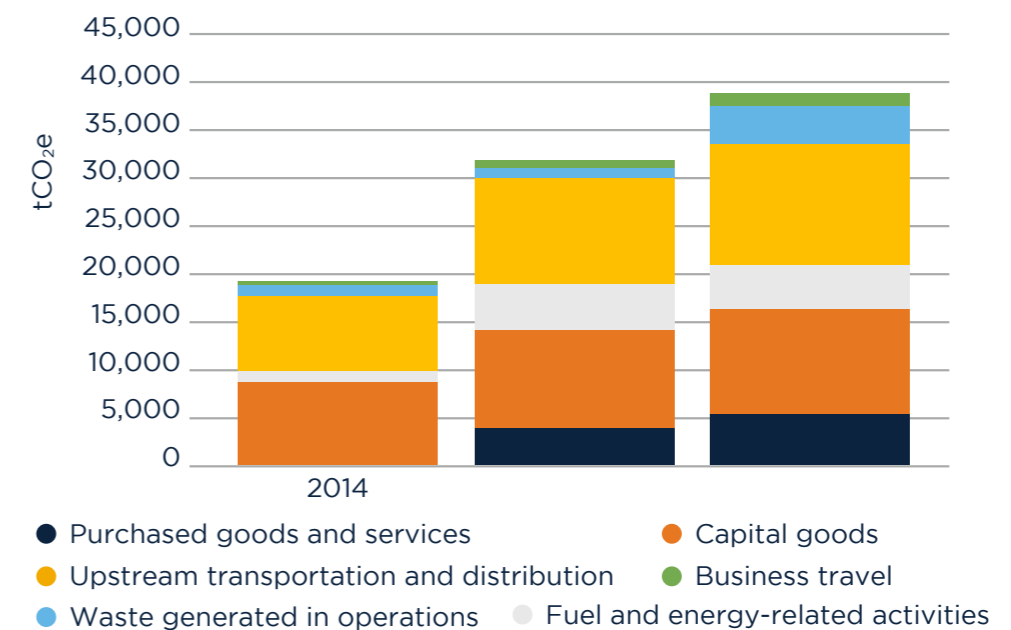
Our business travel emissions in 2023/24 were 1,273 tCO₂e. This is a 44% increase on last year. Business travel has increased compared to the years which were impacted by restrictions due to the COVID pandemic.

Low-carbon events

We partner with an external event facilitator to design and deliver our SGN stakeholder events. As part of our contract with them, they assist us in calculating the carbon emissions generated from our events. They do this through gathering travel data from event participants, measuring the size and duration of the meeting room/s hired, and tracking the resources used such as flipchart paper and other printing.

This data helps us to bring emission reduction into consideration when planning our events. Almost all our event emissions

Scope 3 emissions



With improvements in our data capture process during 2023/24, we have greater confidence in the scope 3 data we're capturing and monitoring this year

are attributable to travel and we carefully weigh up the costs and benefits of face-to-face events.

Industry collaboration

We're collaborating with industry and stakeholders to develop tools and methodologies for reporting on embodied carbon, as well as sharing best practice on climate change mitigation. We're part of the HAUC(UK) and TfL Road to Net Zero project, which seeks to assess the impact, scope and opportunities to reduce the impact of roadworks on climate change. As part of

the steering group, we have been helping to inform and test a universal carbon tool which is being developed for streetworks.

[You can find out more here.](#)



Case study

Climate change mitigation

Solar panels



“Our depot at Epsom was the first to have solar panels installed and surpassed our initial expectations of a 40% reduction. We anticipate the same at Walton Park”

Greg Forde
Senior Real Estate Manager

We're installing photovoltaic (PV) cells at our sites to help reduce our carbon emissions.

Installing solar panels at our depots and offices reduces the amount of power we buy from the grid and our carbon emissions.

In February 2024, we installed 600 PV cells on the three south-facing aspects of the warehouse roof at our Walton Park depot. These solar panels have a combined generation output of 298.08kWp.

Radically reducing grid reliance

The solar PV system is designed to reduce both our electricity consumption purchase from the grid, and our carbon emissions, by a target of up to 40%.

The system is projected to reduce site electricity usage up to 338,352.57kWh per annum, which is approximately 152.57 tonnes of CO₂e.

Driving down carbon emissions

To put it into perspective, the carbon saving we expect from our Walton Park solar panels every day is the same amount of emissions that would be released if you drove a passenger car for 3,867km – that's about the same as driving from Glasgow, Scotland, to Quebec, Canada.

We plan to install further solar PV systems at several of our depots and offices by 2025.



Sustainable procurement

With 46% of our carbon footprint (excluding shrinkage) attributed to our suppliers, it's vital we engage with our supply chain on our transition to net zero. As indirect emissions from our value chain make up our scope 3 emissions data, we rely on our supply chain, and the data provided by these partners, to enable us to fully report on our greenhouse gas emissions.

Sustainable Procurement Code

Last year, we developed our Sustainable Procurement Code to enable our supply chain partners to understand our plans to integrate Environmental, Social and Governance (ESG) themes into our procurement practices. The code also explained the sustainable procurement metrics we want our suppliers to report to us.

While it's not mandatory for our suppliers to report their ESG performance, we've set a target of at least 80% of our suppliers by spend to meet our Sustainable Procurement Code by 2026.

We have around 1,500 supply chain partners with a spend of around £500m per year. In line with our supplier ESG reporting target, the top 80% of suppliers by spend (approximately £400m) currently equates to around 105 suppliers.

Supply Chain Sustainability School

We support our supply chain partners in gathering their ESG data by providing access to free resources and training through our partnership with the Supply Chain Sustainability School (SCSS).

We started providing training programmes to suppliers through the SCSS in March 2023 and this will continue throughout 2024.

ESG data reporting

ESG metrics are now included within new contracts. Monthly environmental metrics reflect the use of recycled material, water consumption and electricity usage and source electricity (renewable, non-renewable, on-site generation). Annual social metrics detail internships, apprenticeships, vocational training offered, charitable work the supplier is involved in, employment and gender diversity. Annual governance metrics cover SCSS training and legal compliance, including modern slavery, money laundering and environmental laws.

General guidance

In addition to meeting all technical specification and procurement process requirements, when procuring goods, services or works, SGN ensures the principles detailed below are applied to minimise environmental impacts.

- All supplier-specific emissions are accounted for to build an accurate representation of the emissions which fall under SGN scope 3 carbon (goods only).
- Regular and updated monthly records are kept using our various software providers to allow for accurate calculations (goods only).
- Suppliers are upskilled through our membership of the Supply Chain Sustainability School (SCSS).

Sustainability performance of our top 80% by spend suppliers

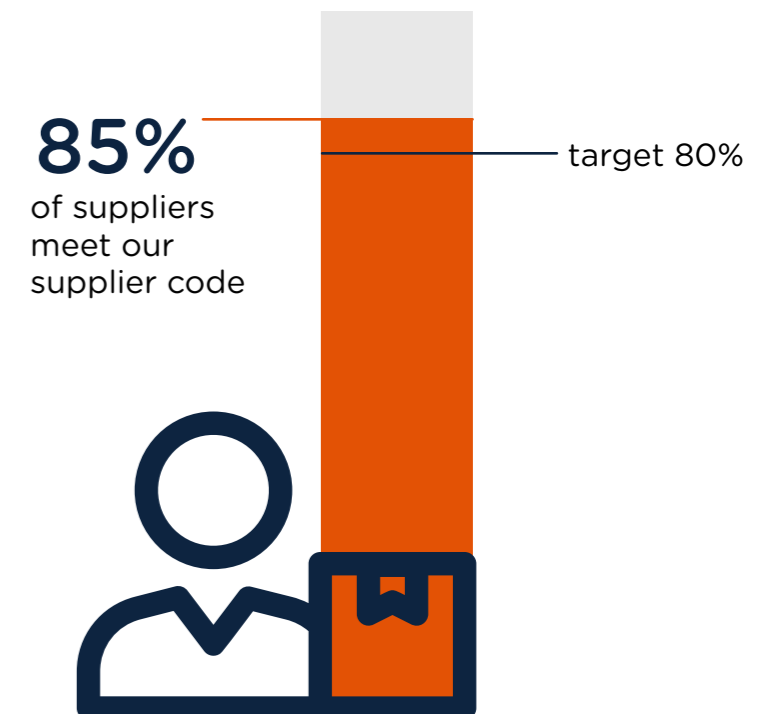
	2021/22	2022/23	2023/24
Percentage of suppliers (by value) meeting our supplier code	80%	85%	85%
Percentage of suppliers (by value) that have their own sustainability metrics or KPIs	45%	72%	82%

Procurement responsibilities

Our Procurement department works collaboratively with internal stakeholders to:

- Remind SGN managers initiating procurement requests to consider the environmental impacts of the goods, services or works required and the need to adopt a life cycle perspective.
- Communicate our relevant environmental requirements to external providers and contractors.
- Facilitate the evaluation process to ensure environmental considerations are balanced against other factors by jointly developing suitable evaluation criteria. This will allow environmental requirements specified to be effectively and objectively evaluated at the pre-qualification and/or tender evaluation stages.
- Keep records to show all life cycle stages have been considered on a regular basis to understand supplier performance over time.

- Have regular engagement with the suppliers to ensure they understand that environmental performance is a key part of our future delivery.
- Review supplier information regarding potentially significant environmental impact of the transportation or delivery, use, end-of-life treatment and final disposal of its products and services.
- Create contracts which include the environmental performance requirements detailed within the specification/scope.



Efficient resource use and circular economy

By using resources more efficiently and preventing waste, we create a circular economy, doing more with less.

To improve the circularity of our operations, we have set the following ambitions:

- Send zero waste to landfill from our office, depots, reinstatement, construction/major projects by 2026, including non-hazardous waste from our gas holder dismantling programme.
- Recycle 93% of total materials and reuse 6.5% of total materials by 2026.
- Reduce the use of virgin aggregate to less than 20% in Scotland and 1% in our southern network.

Current performance

We created 314,391 tonnes of waste in 2023/24 – approximately 94% was recycled and 6% went to landfill. The increase in waste from last year can be attributed to several site clear outs which took place in 2023/24.

We now realise our zero waste to landfill target was too ambitious, and we are not expecting to reach this in RIIO-GD2.

Waste management improvements

In 2022/23, in collaboration with our waste management provider Biffa, we carried out waste optimisation visits across our depots and developed a programme of initiatives to optimise and improve recycling at key depots.

In 2023/24, we started to execute against these initiatives. For example, providing recycling bins at sites which previously only had general waste bins. We also implemented enclosed skips at some of our sites to reduce contamination and unauthorised use, and set up new recycling waste streams for wood and waste electrical and electronic equipment (WEEE) waste.



↑ Two of our team at Fullarton go 'bin diving'

Changing behaviour is key to improving our waste management and sending less waste to landfill. We're exploring ways of engaging our people with our waste management activities. For example, we're creating dashboards within our carbon accounting software system to engage our depots and operational colleagues on environmental issues, helping us to find improvements and innovative ideas to avoid landfill and reuse materials. We're also engaging more with our office-based colleagues on the importance of recycling by presenting on this topic at town hall events, sharing information on our company intranet and encouraging our offices and depots to participate in a 'bin diving' activity to identify opportunities to improve waste segregation and thereby send less waste to landfill. As a result of a recent 'bin diving' exercise at our

Waste type	2021/22		2022/23		2023/24	
	Tonnes	% of total waste	Tonnes	% of total waste	Tonnes	% of total waste
Depot and office waste	2,081	1%	1,384	1%	2,063	1%
Spoil waste (reinstatement)	190,582	95%	228,371	94%	300,615	94%
Non-depot waste	8,803	4%	12,455	5%	11,714	5%
Total	201,466	100%	242,210	100%	314,391	100%

Treatment type	2021/22		2022/23		2023/24	
	Tonnes	% of total waste	Tonnes	% of total waste	Tonnes	% of total waste
Recycling/recovery	191,242	95%	227,612	94%	294,663	94%
Energy from Waste (EfW)	936	0%	561	0%	677	0%
Incineration (without energy recovery)	0	0%	257	0%	1	0%
Anaerobic digestion	20	0%	8	0%	10	0%
Preparation for reuse	1,253	1%	5,045	2%	90	0%
Landfill	7,999	4%	8,984	4%	18,950	6%
Total	201,466	100%	242,210	100%	314,391	100%

Fullarton site in Scotland, several improvement actions were implemented. These included improving the signage at bins to ensure waste is segregated correctly and removing paper towels from toilet areas to encourage the use of hand dryers and minimise the volume of used paper going to landfill.

We are also reducing waste from our street works through the use of single-surface asphalt – you can read more on the next page.

Case study

Efficient resource use and circular economy



Reducing waste from our street works



“We have already used single-surface asphalt at over 400 of our connection sites, with plans to use this at as many sites as practical over the next year. This is an important update which demonstrates a shift to sustainability and performance over aesthetics”

Julie Grieg
Roadworks Quality & Coordination Manager in Scotland, leader of SGN’s efforts within the SROR Working Group

An update to the guidance on reinstating streets after completing works is helping us to significantly reduce emissions.

We can now use single-surface asphalt across all reinstatement sites, thanks to the SROR Working Group, who worked with the Scottish government to update the ‘Specification for the Reinstatement of Openings in Roads, Fifth Edition (Scotland)’.

The introduction of a wider material palette means that materials previously classified as carriage-use only can now be used across all locations (road, footways, cyclepaths, etc.) reducing the requirement to return to site with a different material.

This has reduced asphalt wastage; double visits (meaning less transport emissions, congestion, and road wear); remediation (due to the use of a better quality material); and disruption for our customers, as the job is completed faster.

Reducing vehicular emissions

Using a single-surface material could reduce SGN’s yearly emissions for transportation by 7%.

That is an immediate reduction for vehicular emissions of 107 tonnes of CO₂ – which equates to 68,000 miles less traffic (hotbox and support vehicles completing double journeys). It would take 642 trees a whole year to absorb this much carbon.

Increasing efficiency

By reducing the materials used, our manufacturing plants are also made more efficient, further reducing the industry’s impact on the environment.



Local environment

Biodiversity

Biodiversity is described as all the different kinds of life in a particular area (plants, animals, fungi and microorganisms) and how they work together in ecosystems. These ecosystems give us what we need to survive – clean water, food, medicines and shelter.

Biodiversity in the UK and worldwide continues to decline as a result of land use and climate change. As humans put increasing pressure on the planet, using and consuming more resources than ever before, we risk upsetting the balance of ecosystems and losing biodiversity.

At SGN, we recognise the profound impact the environment has on the quality of life and well-being of our people and the communities we serve and consider it a fundamental responsibility to operate in a sustainable way to protect and enhance the natural environment.

We are helping to play our part in reversing the loss of biodiversity by committing land in our company portfolio to biodiversity enhancement projects that will improve local ecosystem resilience and achieve biodiversity net gain.

During RIIO-GD2, we're committed to:

- Improving or restoring environmental quality and/or biodiversity on sites we own and manage
- Enhancing the environment at other locations within the communities we serve
- Making our network and operations more resilient to climate change.

In 2023/24, as part of our ongoing efforts to protect and improve the environment, we completed our biodiversity baseline studies. These were conducted by specialist ecologists and help to determine site-specific strategies for delivering improvements to increase the biodiversity value of the site and leave the natural environment in a measurably better state than it was before.

We also completed improvement projects at nine sites across our southern network. You can read more about the improvements we've made at our Bishopstone Lane site in Surrey in our biodiversity improvement case study on the following page.

Across our Scotland network, we cut and removed arisings on the seven sites we



Using recycled pallets, stumperies have been used to provide habitat for a range of wildlife, including stag beetles

carried out biodiversity improvements on in 2022/23. In order to establish these sites as wildflower meadows, we need to stop the ground being enriched by nutrients, as wildflowers thrive on nutrient-poor land. Nutrients would come from leaf litter and grass cuttings, so the sites will be cut and cleared like this three times per year for the first two years of the improvement.

We were on site during January 2024 using leaf blowers to clear the meadow areas. Leaves were blown into the areas where hedgerows have been planted to feed the young hedge plants on these sites.

Going forward

Over the coming year, we're planning to carry out improvements on more sites across both our Scotland and southern network areas. Our depot site in Paisley, Scotland, is just one of these, where we will plant trees and try to establish approximately 1,900m² of wildflower meadow, creating mown paths through this area and renewing the outdoor seating to allow our colleagues on site to interact with the area and enjoy the outdoor space at the depot.

We will continue to maintain our improved sites and will resurvey in a few years to determine how ecologically valuable the habitat created is and the biodiversity net gain.

We remain on target to achieve our RIIO-GD2 commitments and will continue to prioritise these improvement projects and build on our learnings to help ensure we make a positive impact on the environment and our stakeholders.

In 2023/24, we completed nine biodiversity improvement projects across our southern network



3,080m²
wildflower seeding



46
bird boxes installed



5
bat boxes installed



9
bat roost features created



17
reptile hibernacula created



2
stumperies created (habitats for stag beetles)



1
red squirrel nest box installed



44
dormouse boxes installed



984
trees planted



Case study

Local environment

Biodiversity improvement



“We’re immensely proud of the work carried out this year to enhance the biodiversity on our sites and look forward to implementing further improvement projects and helping play our part in reversing biodiversity loss”

Jack Porter
Estates Property Support Manager

We’re increasing wildlife and woodland biodiversity at our Bishopstone Lane site in Surrey.

Woodland management is central to biodiversity improvements at several of our sites. Following significant developments at our Oban site in Scotland last year, we have focused on improving small and medium sites across our southern network.

Situated just outside Ansty in West Sussex, Bishopstone Lane is a 1.8-acre site comprising a fenced-off operational gas compound, surrounded by broadleaved woodland. We’ve carried out enhancement works here to improve diversity and create new habitats for wildlife.

Improving woodland diversity

In order to improve structure, variety of age classes and floral diversity, we completed woodland thinning and coppicing, a traditional method of woodland management, where trees are cut down to a stump to encourage new shoots to grow.

We also planted new hazel, pedunculate oak and holly trees to enhance the current woody species.

Creating wildlife habitats

Six dormouse boxes were installed, as well as five bird boxes. To encourage nesting, one box was specifically installed to attract a barn owl. Additionally, six high features for bats were cut into trees to provide potential roosting spots.

Five reptile hibernacula were also installed within the enhanced grassland area using deadwood arising from the aforementioned woodland management.



Climate change resilience

Climate change adaptation and resilience are complementary concepts. Adaptation is the process of adjusting to actual or expected climate-related effects and resilience is the capacity to anticipate, respond and recover from climate-related impacts.

Climate adaptation plans

In early 2024, we engaged with an external consultant to help improve our understanding and awareness of climate risks, impacts and appropriate responses, to aid forward planning and highlight strategic adaptation opportunities across our buildings portfolio.

Assessments were carried out at 28 key locations across our Scotland and southern networks and were undertaken to align with the UK Green Building Council (UKGBC) Framework for Measuring and Reporting Climate-related Physical Risks to Built Assets, which is industry-accepted guidance for assessing physical climate risk at asset level.

The data and mitigation measures identified by these assessments are being used to develop a climate adaptation plan to manage the short, medium and long-term climate-related risks to our offices and depots. The most frequent risks identified across all key locations in the short term include extreme cold, heat stress and flooding. The climate adaptation plan will include the opportunity to implement nature-based solutions such as rain gardens, green roofs, street trees and sustainable urban drainage systems across the SGN site portfolio. These solutions can help mitigate the risk of flooding, minimise heat stress and increase biodiversity.

Climate-resilience strategy

We are also preparing a climate-resilience strategy to ensure our network and above-ground installations remain resilient in the face of climate change. This strategy will outline a short and a long-term plan for how we intend to manage climate resilience



Read our 3rd round change adaptation report (PDF)

during RIIO-GD3 and beyond. It will consider different climate scenarios with a focus on the physical climate-related risk to our network assets. We're already seeing the impact of climate change on our network, with more extreme weather events including more frequent heavy rainfall, flooding and erosions presenting a safety, environmental and security of supply risk to us and our customers. In 2023/24, we have experienced 12 pipeline washouts due to flooding, which is the predominant risk to our assets.

Our continued participation in the ENA Climate Change Resilience Working Group allows us to share best practice with our industry peers and work collaboratively to ensure we deploy effective strategies.

For the second time within our [2024 SGN Annual Report](#), we've reported on how we identify, assess and manage our climate-related risks and opportunities using the Taskforce for Climate-related Financial Disclosures (TCFD) framework.

For additional, detailed information on risks, please refer to the [3rd Round Climate Change Adaptation Report](#) on our website. We are taking part in the 4th round of climate adaptation reporting – this report will be published in December 2024 – and will be made available on our website.

Environmental incidents

Two reportable environmental incidents occurred in 2023/24.

A reportable environmental incident is an incident that has the potential to cause harm to the environment by polluting water or land, and is required to be reported to the relevant environmental regulatory body such as the Environment Agency (EA) or the Scottish Environment Protection Agency (SEPA).

The first incident occurred in our southern network when a spill of wastewater was released from a gas main to the ground. The Environment Agency were notified and attended the site. It is under investigation with currently no further escalation.

The second incident occurred at our H100 Fife project in our Scotland network, when a utility strike resulted in an uncontrolled release of foul water from a sewer pipe. SEPA were notified and there was no further action required by the regulator. We took the opportunity to issue a communication to reiterate to the whole business how to deal with wastewater in mains.

We received one non-compliance without impact on the environment letter from the EA, which we responded to and no further action was required. We have not received any formal undertakings, enforcement notices, monetary penalties or prosecution from the EA or SEPA for this financial year.

Environmental near misses and hazards are identified through our internal incident reporting and tracking system, Velocity. We use these as opportunities to review the lessons learnt to prevent recurring incidents and mitigate environmental impacts.



↑ Washouts due to flooding have become the predominant risk to our assets



Statement on scope and quality of data

We aim to provide full disclosure of our progress and we've engaged independent assurance specialists to provide limited assurance on the quality of selected carbon emissions data



Statement on scope and quality of data

Introduction

This Annual Environmental Report (AER) provides our progress against targets and objectives as approved by regulator Ofgem in line with the [Final Determination for RIIO-GD2 price control](#).

The information we've provided is in line with the [RIIO-GD2 Environmental Reporting Guidance Version 1.0](#) and [RIIO-GD2 Gas Distribution Price Control Regulatory Instructions and Guidance: Version 1.15](#) (Chapter 13, sections 11.06 and 11.07).

The AER covers the third year of the price control period RIIO-GD2, which runs from 1 April 2023 until and including 31 March 2024.

The data we've included in our AER is the same as we've presented to Ofgem in the Regulatory Reporting Pack (RRP) for the financial year 2023/24, with the exception of shrinkage and scope 3 business travel by air and rail. According to the Regulatory Instructions and Guidance for RRP reporting, reporting scope 3 data is considered voluntary.

Data quality improvement of material scope 3 data is a focus for us over the next few years. We're also aware that we have data gaps - referenced in more detail in the Completeness of information section later - which we are tackling and aiming to eliminate.

Our scope 1 and 2 carbon emissions including shrinkage and our scope 3 category 6: Business Travel have been independently assured by DNV and you can find the Independent Assurance Report on pages [45 to 47](#).

While scope 3 data is voluntary, we have decided to disclose the data we're capturing. Except for scope 3 category 6: business travel, this data has not been subject to limited assurance by DNV.

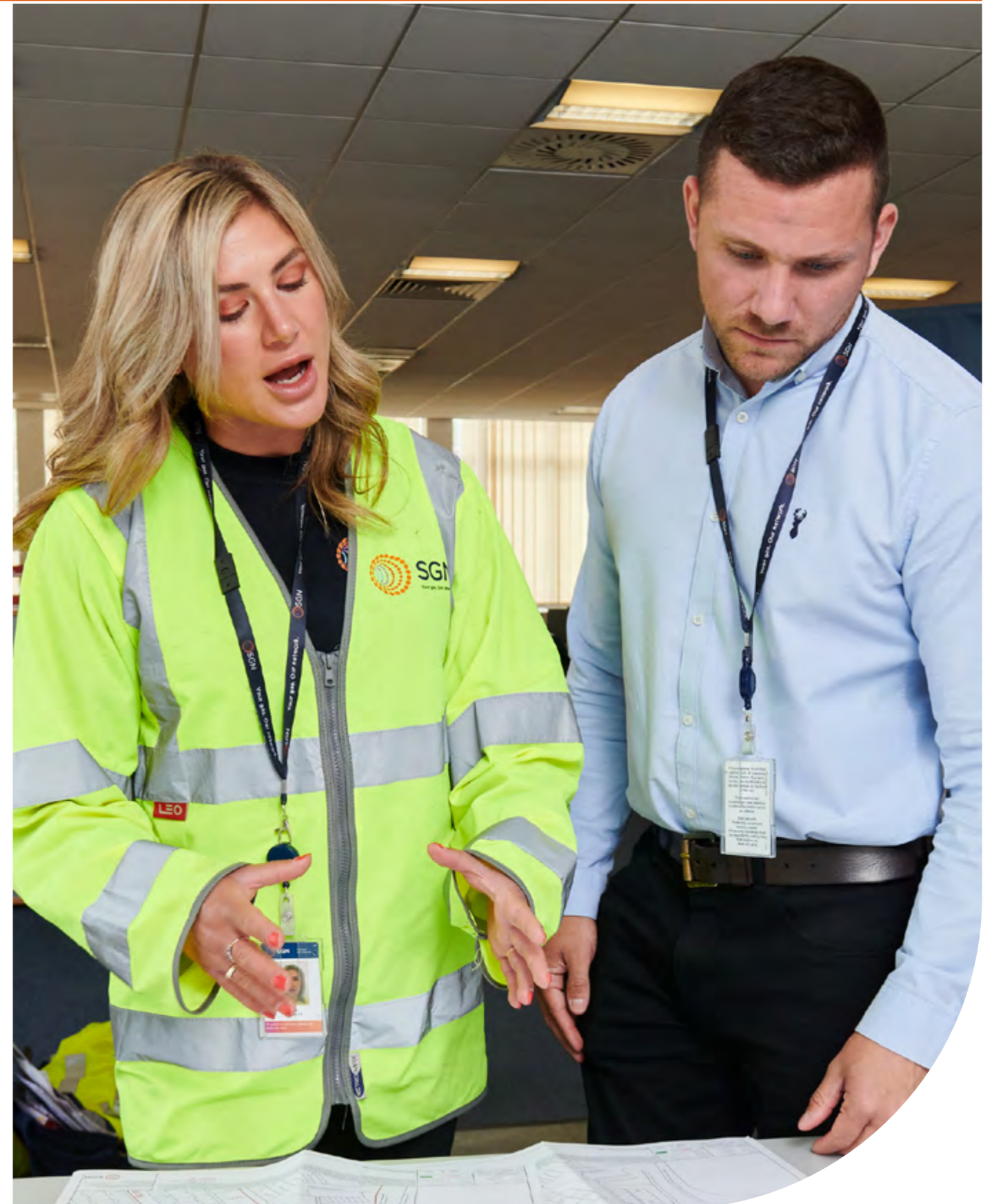
Reporting boundary

The AER includes data from our company footprint in Scotland and Southern and does include data from our non-regulated business (our commercial entities).

As our regulated and non-regulated businesses share office buildings and company services, it would require a disproportionate amount of resource to try to separate waste disposal and business travel of the non-regulated business.

Our AER also does not include data on our network in Northern Ireland.

In most cases, our environmental targets and objectives relate to our Scotland and southern networks collectively. For that reason, the data you'll find in this report covered both these network areas. We consider this approach to be most helpful for our customers and stakeholders wanting to understand our environmental performance, despite Ofgem guidance sometimes asking for data to be reported on a licence level.



Statement on scope and quality of data continued

Data collection

We continued to refine our processes for data collection over the past year. We have identified where we have gaps and where we still want to improve, but overall our processes are now running more smoothly compared with last year.

We're using an online data reporting tool called Rio for our data collection, following regulatory guidance. The tool enables us to upload raw data to the web-based platform. The platform then extrapolates the data to the reporting period. The associated carbon emissions are calculated using the 2023 DEFRA conversion factors.

We collect the following data per relevant carbon emissions scope, as defined by the Greenhouse Gas Protocol:

- **Scope 1:** shrinkage (calculated by our Network Distribution Team)
- **Scope 1:** transport from owned vehicles or vehicles under our control and gas consumption from owned boilers, including energy usage from shared sites (calculated from vehicle mileage, use of fuel cards and gas invoices from our supplier)
- **Scope 2:** purchased electricity, including energy usage from shared sites (calculated from electricity invoices from our supplier)
- **Scope 3:** indirect emissions from our value chain (calculated from submissions by operational staff and contractors, reports from our contracted waste management company and reports generated by our travel booking system - Ajiito).

We collect all data relevant to scope 1 and 2 emissions and such data is presented in this report. To be consistent across our leased and shared sites, all energy usage from our offices and depots is reported as scope 1 and 2 data, using the operational control approach as per Greenhouse Gas Protocol. For shared sites, we are reliant on data provided by our landlord.

We have developed a F-gas register to ensure we can capture fugitive emissions from our air conditioning units. Legislation requires us to do leak tests on units of a certain size. Currently the fugitive emissions here have not been included in our scope 1 as these are small and not material.

When it comes to scope 3 emissions, we currently collect data in the following scope 3 categories and from the following sources:

- **Category 1:** Purchased goods and services: reinstatement material
- **Category 1:** Purchased goods and services: water
- **Category 2:** Capital goods: PE pipe
- **Category 3:** Fuel and energy-related activities: transmission and distribution of electricity
- **Category 3:** Fuel and energy-related activities: gas well-to-tank
- **Category 4:** Upstream transportation and distribution: contractors' vehicles/transport movements
- **Category 5:** Waste generated in operations: excavation spoil disposal, office and depot waste disposal and non-depot waste disposal
- **Category 6:** Business travel: business mileage in vehicles not owned or controlled by the company
- **Category 6:** Business travel: rail, air, ferry and car hire

While we collect several elements of our scope 3 data, we're aware this is not exhaustive and there are many data gaps.

This report also includes information on biomethane connection data, innovation investment, sustainable procurement, investment in local environment, biodiversity improvement and environmental incidents. Data in Greenhouse Gas Protocol, scope 3, category 6: business travel has been independently assured by DNV. All the other categories of scope 3 data have not been independently assured by a third party.

Statement on scope and quality of data continued

Completeness of information

During FY 2023/24, our main electricity and gas supplier changed some of their systems and have been unable to provide us with invoices for electricity for November 2023 and January to March 2024 and gas from August to December 2023 and from January to March 2024. To allow us to prepare this report and publish it in alignment with our licence condition from Ofgem, we have had to estimate electricity and gas data for these months based on last year.

In 2021/22, we carried out a screening exercise that estimated scope 3 emissions make up approximately 18% of our total carbon footprint, based on financial spend. The exercise also helped us identify the order of magnitude of scope 3 elements, so we could understand which data is most important for us to try to capture.

Reinstatement services make up approximately 26% of our supplier spend and 45% of our scope 3 emissions. Therefore, we've focused on obtaining reliable data from these suppliers as a priority.

At the time of data gathering for this year's AER, we had the following data gaps relating to scope 3:

- Purchased goods: we are not yet capturing all data related to purchased goods and services and capital goods. We are capturing data from our PE pipe suppliers and from reinstatement services. We want to improve data capture in relation to materials (in particular steel pipe and fittings) and other gas network equipment.

- Reinstatement services:

- **Materials:** there was a small number of data gaps from contractors, due to various reasons including the company ceasing to operate. For these gaps, we have estimated the data based on previous months.

- **Contractor vehicles/transport movements:** we have some small data gaps in the figures reported for contractors' carbon. This includes months where no reporting has been made for certain contractors. For these gaps, our data reporting tool Rio has estimated the figures based on the previous month's performance.

- **Water:** the carbon associated with water treatment is not included at this time.

- **Employee commute and upstream leased assets:** we have not captured data relating to employee commuting and we do not currently own or lease upstream assets, so there is no emissions data report for these two areas.

- Waste in operations:

- **Spoil to landfill:** this impacts both reporting in our scope 3 carbon emissions as well as reporting on efficient resource use and circular economy.

- Business travel: we have not captured data relating to business travel booked outside of our travel booking system - Agiito. We aim to capture this data next year.

While we do have data gaps, we are sharing all the scope 3 data that we are currently capturing. In identifying our current data gaps, we have an opportunity to further improve our data collection and reporting. We aim to capture all material scope 3 by the end of RIIO-GD2.

For our reporting on efficient resource use and circular economy, we would also like to highlight an additional area where we can improve our data capture:

- **Virgin aggregate:** we do not have full confidence in this data but are working to improve the data checking and auditing methods to improve reporting for 2023/24.

We've detailed the same data in this report as we've provided in the Regulatory Reporting Pack (RRP) for Ofgem. It has been calculated following the Regulatory Instructions and Guidance (RIGS) from the regulator. In all cases, we use DEFRA conversion factors for the calculation of raw data to carbon dioxide equivalent emissions. The process for this is aligned with international standard, as per the Greenhouse Gas Protocol.

The data we submit in the RRP goes through an internal Data Assurance Guidance process. This involves several layers of internal checking of data provided with final approval from a responsible director.

Independent assurance

We engaged independent assurance specialists DNV to provide limited assurance on whether our 2023/24 data is fairly presented within our Annual Environmental Report in line with the reporting criteria:

- Total scope 1 direct GHG emissions [tonnes CO₂e]
- Shrinkage GHG emissions [tonnes CO₂e]
- Total scope 2 indirect GHG emissions (location-based method) [tonnes CO₂e]
- Scope 3 Category 6: Business Travel emissions [tonnes CO₂e]

The limited assurance was undertaken using the DNV assurance methodology, VeriSustain™, which is based on their professional experience, the 'Greenhouse Protocol - A Corporate Accounting and Reporting Standard' (revised 2015) and international assurance best practice including the International Standard on Assurance Engagements (ISAE) 3000 - 'Assurance Engagements other than Audits and Reviews of Historical Financial Information' (revised) issued by the International Auditing and Assurance Standards Board.

The Assurance Report from DNV can be found on pages [45 to 47](#).



Appendices



Additional data relating to our environmental performance this year, including independent assurance of the data included in this report



DNV was engaged to provide limited assurance of total scope 1, scope 2 (location-based), scope 3 (business travel) and total shrinkage emissions data. Please see DNV's assurance report for further details.

Shrinkage

Total SGN leakage volumes

SGN	Actual 2021/22 (GWh)	Actual 2022/23 (GWh)	Actual 2023/24 (GWh)	Forecast 2023/24 (GWh)
Low-pressure mains	356.45	342.34	328.82	
Medium-pressure mains	55.65	55.43	54.99	
Services	71.81	66.59	60.57	
AGIs	96.01	95.64	95.52	
Interference	1.83	1.88	1.80	
Total	581.75	561.88	541.69	541.86

SGN	Actual 2020/21 (GWh)	Actual 2021/22 (tCO ₂ e)	Actual 2022/23 (tCO ₂ e)	Actual 2023/24 (tCO ₂ e)
Shrinkage (leakage, own gas use and theft of gas)	740,826	721,448	696,634	671,496

Leakage volumes by network

Scotland + SIU	Actual 2021/22 (GWh)	Actual 2022/23 (GWh)	Actual 2023/24 (GWh)	Forecast 2023/24 (GWh)
Low-pressure mains	84.58	79.67	77.82	
Medium-pressure mains	15.22	15.17	15.00	
Services	18.44	17.04	15.67	
AGIs	34.79	34.61	34.81	
Interference	0.57	0.55	0.55	
Total	153.60	147.05	143.84	141.06

Southern (SO + SE)	Actual 2021/22 (GWh)	Actual 2022/23 (GWh)	Actual 2023/24 (GWh)	Forecast 2023/24 (GWh)
Low-pressure mains	271.87	262.67	251.00	
Medium-pressure mains	40.44	40.26	39.99	
Services	53.36	49.54	44.90	
AGIs	61.26	61.03	60.71	
Interference	1.26	1.33	1.25	
Total	428.19	414.84	397.85	400.80

Leakage emissions

Leakage emissions are calculated using conversion factor 1,226.42tCO₂e/GWh.

SGN	Actual 2021/22 (tCO ₂ e)	Actual 2022/23 (tCO ₂ e)	Actual 2023/24 (tCO ₂ e)
Leakage emissions	713,473	689,106	664,344

Note - this is based on global warming potential, GWP, for unburned gas, as available from DESNZ. If this changes during the price control period, Ofgem will consult on how this will affect reported emissions.

Other shrinkage volumes

SGN	Actual 2021/22 (GWh)	Actual 2022/23 (GWh)	Actual 2023/24 (GWh)
Own use gas	15.72	14.89	14.11
Theft of gas	27.82	26.35	24.98
Total	43.54	41.24	39.10

Other shrinkage emissions

Other shrinkage emissions are calculated using conversion factor 183.85tCO₂e/GWh, the conversion factor for burned gas.

SGN	Actual 2021/22 (GWh)	Actual 2022/23 (GWh)	Actual 2023/24 (GWh)
Own use gas	2,879	2,718	2,582
Theft of gas	5,096	4,811	4,570
Total	7,976	7,528	7,152

Scope 1 and 2 emissions

Emissions (tCO ₂ e) Specific area	Specific area	Actual 2021/22 (tCO ₂ e)	Actual 2022/23 (tCO ₂ e)	Actual 2023/24 (tCO ₂ e)	Target 2025/26 (tCO ₂ e)
Scope 1	Commercial fleet (operational transport)	11,738	12,896	13,998	14,966
	Company cars (operational transport)	1,070	1,183	738	
	Gas (building energy use)	5,907	3,143	975 ¹	
Scope 2	Purchased electricity (building energy use)	192 (market-based)	32 (market-based)	85 (market-based ²)	-
		2,652 (location-based)	2,622 (location-based)	2,504 (location-based ³)	2,428 (location-based)
Gas shrinkage		721,448	696,634	671,496	618,583
Scope 1 total		740,163	713,856	687,207	-
Scope 1 total (excluding shrinkage)		18,715	17,222	15,711	-
Scope 2 total (location-based)		2,652	2,622	2,504	-
Scope 1 and 2 total (excluding shrinkage)		21,367	19,844	18,215	17,395
Scope 1 and 2 total (including shrinkage)		742,815	716,478	689,711	635,978

¹ Scope 1 gas usage from occupied/operational sites is significantly lower this financial year compared with last year. This is due to our single biggest gas consumption item having been off due to maintenance hence generating no emissions.

² Our market-based scope 2 emissions from procured electricity for building use are based on certified renewable electricity from our suppliers. The majority of the electricity we use – 98.5% – is certified renewable.

³ A location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data).

Scope 3 emissions

Category	Emissions source	Unit	2021/22	2022/23	2023/24	Comment
Indirect emissions						
Purchased goods and services	Reinstatement materials	tCO ₂ e	49	4,007	5,539	We are confident we have captured all materials used and made estimates in the few instances where data was missing.
	Water	tCO ₂ e	3	10	7	We are collecting all data here based on our water consumption. Emissions associated with Water treatment is not included. Water usage is not a material aspect of our operations.
	Total	tCO₂e	52	4,017	5,546	Purchased goods and services represent a category of material emissions to our business. Over GD2 we are aiming to capture more data in this category where possible.
Capital goods	PE pipe and fittings	tCO ₂ e	8,696	10,249	10,865	PE pipe is one of our main expenditures for capital goods and we have been collecting data from our suppliers since 2014. For the last three years we are using weight of PE pipe purchased and the DEFRA conversion factor for 'Plastic: rigid' to calculate our embodied emissions.
	Total	tCO₂e	8,696	10,249	10,865	Capital goods represent a category of material emissions to our business. Over GD2 we are aiming to capture more data in this category where possible.

Scope 3 emissions continued

Category	Emissions source	Unit	2021/22	2022/23	2023/24	Comment
Fuel and energy-related activities	T&D losses - electricity	tCO ₂ e	222	228	218	Transmission and Distribution (T&D) losses and well-to-tank is based on data gathered from utility bills (energy consumption) and commercial fleet and business car use. We did not capture our well-to-tank for commercial fleet and business cars in 2021 (scope 1 vehicles).
	Well-to-tank - electricity & gas	tCO ₂ e	1,013	1,186	726	
	Well-to-tank - scope 1 vehicles	tCO ₂ e	0	3,389	3,713	
	Total	tCO₂e	1,235	4,804	4,657	Fuel and energy-related activities have some material impact on our overall scope 3 emissions.
Upstream transportation and distribution	Contractor vehicles/transport	tCO ₂ e	7,825	10,772	12,254	We are capturing transport data from our reinstatement contractors which make up approximately 26% of our spend profile. This year any minor data gaps were estimated emissions based on previous month's performance.
	Contractor helicopter	tCO ₂ e	0	304	331	Helicopters are used to survey pipelines. In 2021 we did not capture this data.
	Total	tCO₂e	7,825	11,076	12,584	We are not capturing all data relevant here to upstream transport and distribution. It is a category with smaller materiality for our overall scope 3 emissions.
Waste generated in operations	Excavation spoil disposal	tCO ₂ e	7	459	603	Emissions from waste in operations are based on data captured for spoil, waste from offices and depots, and other operations. Confidence in data from 2021 is low, with suspected errors in data collection.
	Office and depot waste disposal	tCO ₂ e	174	90	223	
	Non-depot waste incl holder demo	tCO ₂ e	894	457	3,199	
	Total	tCO₂e	1,075	1,006	4,025	Waste generated in operations have no material impact on our overall scope 3 emissions.
Business travel	Business mileage in vehicles not owned/controlled by company	tCO ₂ e	156	253	337	Business travel has increased compared with the years which were impacted by restrictions due to the COVID pandemic.
	Rail	tCO ₂ e	2	13	22	
	Air	tCO ₂ e	261	347	732	
	Ferry	tCO ₂ e	1	2	2	
	Hire cars	tCO ₂ e	0	94	180	
	Total	tCO₂e	420	709	1,273	Business travel has no material impact on our overall scope 3 emissions. It is, however, an area where culture change and behaviour impact is important.
Employee commuting	Total	tCO₂e	0	0	0	We are currently not capturing employee commuting data. This category is not material to our business.
Total scope 3						
Scope 3	Total	tCO₂e	19,302.9	31,859.1	38,950	With further improvements in our data-capture processes over 2022/23, we have higher confidence in the data we are capturing and monitoring.



Independent Limited Assurance Report

to the Directors of Southern Gas Networks Ltd and Scotland Gas Networks Ltd

Southern Gas Networks Ltd and Scotland Gas Networks Ltd (together “SGN”) commissioned DNV Business Assurance Services UK Limited (“DNV”, “us” or “we”) to conduct a limited assurance engagement over Selected Information presented in SGN’s Annual Environmental Report 2023/24 (the “Report”) for the reporting year ended 31 March 2024.

Our conclusion
 On the basis of the work undertaken, nothing came to our attention to suggest that the Selected Information is not fairly stated and has not been prepared, in all material respects, in accordance with the Criteria. This conclusion relates only to the Selected Information, and is to be read in the context of this Independent Limited Assurance Report, in particular the inherent limitations explained overleaf.

Selected Information

The scope and boundary of our work is restricted to the selected metrics included within the Report from 1 April 2023 to 31 March 2024 (the “Selected Information”), listed below:

Metrics	Reported value	Unit
Total Scope 1 emissions	15,711	tCO ₂ e
Shrinkage (leakage, own gas use and theft of gas) emissions	671,496	tCO ₂ e
Total Scope 2 emissions (location-based)	2,504	tCO ₂ e
Scope 3 emissions: Category 6 - Business travel	1,273	tCO ₂ e

To assess the Selected Information, which includes an assessment of the risk of material misstatement in the Report, we have used RIIO-2 Gas Distribution Price Control - Regulatory Instructions and Guidance [available here](#), RIIO 2 Environmental Reporting Guidance [available here](#), and SGN’s Statement on scope and quality of data available from page 38 of the Report [available here](#) (collectively the “Criteria”).

We have not performed any work, and do not express any conclusion, on any other information that may be published in the Report or on SGN’s website for the current reporting period or for previous periods.

Our observations and areas for improvement will be raised in a separate report to SGN’s Management.



Independent Limited Assurance Report continued

Basis of our conclusion

We are required to plan and perform our work in order to consider the risk of material misstatement of the Selected Information; our work included, but was not restricted to:

- Conducting interviews with SGN Management to obtain an understanding of the key processes, systems and controls in place to generate, aggregate and report the Selected Information;
- Performing limited substantive testing on a selective basis of the Selected Information to check that data has been appropriately measured, recorded, collated and reported;
- Reviewing that the evidence, measurements and their scope provided to us by SGN for the Selected Information is prepared in line with the Criteria;
- Assessing the appropriateness of the Criteria for the Selected Information; and
- Reading the Report and narrative accompanying the Selected Information within it with regard to the Criteria.

In performing these activities, we found that the 'Scope 3 emissions: Category 6 - Business Travel' metric only includes data from the travel provider and excludes travel booked through the expenses system. SGN are seeking to include this in future reporting.

We found a limited number of non-material errors and these were corrected prior to inclusion in the Report.

Standard and level of assurance

We performed a **limited** assurance engagement of specified data and information using the 'Greenhouse Protocol - A Corporate Accounting and Reporting Standard' (revised 2015) and international assurance best practice including the International Standard on Assurance Engagements (ISAE) 3000 - 'Assurance Engagements other than Audits and Reviews of Historical Financial Information' (revised) issued by the International Auditing and Assurance Standards Board. To ensure consistency in our assurance process, we conducted our work in accordance with DNV's assurance methodology, Verisustain™, applying only the pertinent sections of the protocol relevant to the specific purpose of the activity. This methodology ensures compliance with ethical requirements and mandates planning and execution of the assurance engagement to obtain the desired level of assurance.

DNV applies its own management standards and compliance policies for quality control, which are based on the principles enclosed within ISO IEC 17029:2019 - Conformity Assessment - General principles and requirements for validation and verification bodies, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

The procedures performed in a limited assurance engagement vary in nature and are shorter in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained if a reasonable assurance engagement had been performed.

Our competence, independence and quality control

DNV established policies and procedures are designed to ensure that DNV, its personnel and, where applicable, others are subject to independence requirements (including personnel of other entities of DNV) and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals. DNV did not provide any services to SGN in the reporting period that could compromise the independence or impartiality of our work. Our multi-disciplinary team consisted of professionals with a combination of environmental and sustainability assurance experience.

Inherent limitations

DNV's assurance engagements are based on the assumption that the data and information provided by SGN to us as part of our review have been provided in good faith, is true, complete, sufficient, and authentic, and is free from material misstatements. Because of the selected nature (sampling) and other inherent limitations of both procedures and systems of internal control, there remains the unavoidable risk that errors or irregularities, possibly significant, may not have been detected. The engagement excludes the sustainability management, performance, and reporting practices of the Company's suppliers, contractors, and any third parties mentioned in the Report. We understand that the reported financial data, governance and related information are based on statutory disclosures and Audited Financial Statements, which are subject to a separate independent statutory audit process. We did not review financial disclosures and data as they are not within the scope of our assurance engagement.



Independent Limited Assurance Report continued

Disclaimers

The assurance provided by DNV is limited to the selected indicators and information specified in the scope of the engagement. DNV has not conducted an assessment of the reporting organisation's overall adherence to reporting principles or the preparation of the report. Therefore, no conclusions should be drawn regarding the reporting organization's compliance with reporting principles or the quality of the overall report. The assurance provided by DNV is based on the selected indicators and information made available to us at the time of the engagement. DNV assumes no responsibility for any changes or updates made to the indicators or information after the completion of the assurance engagement.

Use and distribution of our Independent Limited Assurance Report

This report is intended solely for the information and use of the Directors of SGN and is not intended to be and should not be used by anyone other than these specified parties. DNV expressly disclaims any liability or coresponsibility for any decision a person or an entity may make based on this Independent Limited Assurance Report.

For and on behalf of DNV Business Assurance Services (UK Limited)

London, UK
1st October 2024

Holly Wallis-Copley
Lead Verifier
DNV Business Assurance
Services
UK Limited

Paul O'Hanlon
Technical Reviewer
DNV Business Assurance
Services
UK Limited

Responsibilities of the Directors of SGN and DNV

The Directors of SGN have sole responsibility for:

- Preparing and presenting the Selected information in accordance with the Criteria;
- Designing, implementing and maintaining effective internal controls over the information and data, resulting in the preparation of the Selected Information that is free from material misstatements;
- Measuring and reporting the Selected Information based on their established Criteria; and
- Contents and statements contained within the Report and the Criteria.

Our responsibility is to plan and perform our work to obtain limited assurance about whether the Selected Information has been prepared in accordance with the Criteria and to report to SGN in the form of an independent limited assurance conclusion, based on the work performed and the evidence obtained. We have not been responsible for the preparation of the Report.

DNV Supply Chain and Product Assurance

DNV Business Assurance Services UK Limited is part of DNV - Supply Chain and Product Assurance, a global provider of certification, verification, assessment and training services, enabling customers and stakeholders to make critical decisions with confidence.



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